

ҚОРАҚАЛПОҒИСТОНДА
ФАН ВА ТАЪЛИМ

ҚАРАҚАЛПАҚСТАНДА
ИЛИМ ҲӘМ ТӘЛИМ

НАУКА И ОБРАЗОВАНИЕ
В КАРАКАЛПАКСТАНЕ

SCIENCE AND EDUCATION
IN KARAKALPAKSTAN

1/2-сон
Нукус
2024 й.
ISSN 2181-9203



Science Magazine

chief editor:

Reymov A.M.

Deputy editor in chief:

B.Utemuratov

Executive secretary:

Sh.N.Abdinazimov

Editorial board:

- Ayimbetov N.K. Dr of Economic Sciences academician
 Turdimambetov I.R. Doctor of Geography
 Ataniyazova O.A. Dr of Medical sciences
 Aleuov W. Doctor of Pedagogy
 Ubaydullaev Kh. Dr of Economic Sciences
 Umarova Q.U. Doctor of Law
 Berdimuratova A.K. Doctor of Philosophy
 Abdullaeva J.A. Dr of Hist. Sciences
 Ayimbetov M.J. PhD in Technical Sciences
 Auezov O. Doctor of Tech. Sciences
 Baimanov K.I. Dr of Technical Sciences
 Bokieva G. Doctor of Philology
 Imomov N.F. Doctor of Law
 Jarimbetov K.H. Doctor of Philology
 Juginisov T.I. Dr of Biol. Sciences
 Ismayilov K.A. Dr of Phys-math sciences
 Kayypbergenov B.T. Dr of Tech. Sciences
 Kayypbergenov A.T. Dr of Tech. Sciences
 Kuranbaev K. Doctor of Philology
 Kudaybergenov K.K. Dr of Phys-math sciences
 Kushiev H. Dr of Biol. Sciences
 Mambetnazarov B.S. Dr of Agr. Sciences
 Mambetullayeva S.M. Dr of Biol. Sciences
 Murtazayeva A.D. Dr of Hist. Sciences
 Muslimov N. Doctor of Pedagogy
 Nizamatdinov K.K. PhD in Law sciences
 Nishonova Z.T. Dr of Psychology sciences
 Nurimbetov B.Ch. PhD in Chem. sciences
 Oripova M.H. Dr of Tech. Sciences
 Rakhmonov I.U. Dr of Tech. Sciences
 Razhapov A. Dr of Tech. Sciences
 Sadullaev A. Dr of Phys-math sciences, acad
 Tagaev M.B. Dr of Phys-math sciences
 Toreniyazov E.Sh. Dr of Agr. Sciences
 Topildiev B.R. Doctor of Law
 Utebayev T.T. Doctor of Pedagogy
 Holbaev I. Dr of Phys-math sciences
 Hursanov R.X. Doctor of Law
 Duysenbaev O.I. PhD in Philology
 Kurbanbaev T.K. PhD in Phys-math sciences
 Egamberdiev F. Dr of Economic Sciences
 Yuldashev J.I. Doctor of PhD of Law
 Kalekeev K.J. PhD in Philology
 Karlibaeva G.E. Doctor of Philology
 Tleumuratov G. PhD in Philology
 Kubeysinova D.T. PhD in Philology
 Ismaylov B.A. PhD in Economic sciences
 Kurbanbaev Dj. A. PhD in Pedagogy
 Seytjanov J.E. PhD in Philology

Editorial office address:

1 Ch. Abdirov Str., Nukus 230100,
 Karakalpakstan, Uzbekistan
 Phone: 223-60-19

Authors are responsible for the accuracy of the information given in articles.

NATURAL SCIENCES	
Allamuratov B. J., Samandarov O. Midday gerbil fleas in northwestern Kyzylkum.....	4
Kurbanbaev T.K., Arziev A.D., Geldibaev B.E. Technical review of the online math terms platform.....	8
Zikrillaev N.F., Ayupov K.S., Shoabdurakhimova M.M., Ismaylov K. A., Norkulov N., Abdullaeva N.U., Mirkomilova M.S., Shukurova D.M. The mechanism of current auto-oscillations in compensated silicon doped with impurity atoms.....	13
Arzieva J.T., Arziyev A.T. Problems of ensuring information security in corporate computer networks.....	20
Utebaev D., Kalmuratova S.M., Rajabboyeva S.D. Difference schemes for equations of transient processes in power transmission systems.....	24
Utebaev D., Kazimbetova M.M. On convergence of difference schemes for the hyperbolic equation with generalized solutions.....	30
Otarova J.A., Shamuratov D.S. Fractional differential equations and euler Functions.....	39
Sadullayeva G.G., Brel A.K., Niyazov L.N. Synthesis and properties of hydroxybenzoic acids derivatives with imidazole and pyrazole.....	45
Sharibaev M.B. Study of In _x Ga _{1-x} As/GaAs quantum wells using methods low temperature photoluminescence.....	52
Vafaev O.Sh. Research on the effectiveness of the action of depressor additives on the hydrocarbon content of summer diesel fuel.....	57
Vafaev O.Sh. Research of physico-chemical loss of polymer coatings that protect oil and gas pipelines from soil corrosion.....	63
TECHNICAL SCIENCES	
Rasulov A.N., Melikuziev M.V., Najimova A.M. Application of probabilistic methods in voltage quality analysis in city distribution power grid.....	68
Tileubaev S.O., Abdikamalova A.B., Eshmetov I.D. Study of colloid-chemical and filtration properties of drilling fluids with stabilizers and electrolyte salt additives.....	75
Ziyamuhamedova U., Rahmatov E., Nafasov J., Turgunaliev E., Jalolova Z., Rustamov M. Development of composition and research of tribological properties of mechanically activated hetero-composite polymer materials taking into account of energy factors.....	80
Kalbaev B.A., Eminov A.M., Kadirova Z.R., Purxanatdinov A.P., Janabaev O.O. Ceramic covering tiles based on Shomishkul kaolin raw materials.....	89
Allambergenov A.Zh., Bekbergenov S.E., Nurniyazov P.K. Influence of local laser processing on the parameters of Pt-GaAs schottky barriers.....	93
Vafaev O.Sh., Kurbanova A.A. Technology of processing distiller liquid into gypsum.....	95
Allamuratova T.K. Development of an efficient design of the straightener for stretching the knitted fabric on purl circular machines.....	97
Allamuratova T.K., Matirzaev Sh.Sh., Tolibaeva Sh.I. Technology for producing double-layer single-sided plush weave on knitting machines.....	102
Erkaeva N.A., Kaipbergenov A.T., Erkaev A.U., Reymov A.M. Development of technology for producing liquid synthetic detergents.....	106
Abdiganieva G., Turlibaev Z., Tangatarova G. Some problems of water respiratory systems of the City of Nukus and prospects for their Development.....	113
Khayrova T.J., Mansurov Ya.M. Atrium in multi-story residential buildings.....	119
Turlibaev Z.T. Use of soldiers in wastewater treatment.....	122
SOCIAL SCIENCES	
Kaypnazarova G.Kh. Proportion between production factors and its impact on economic results.....	126
Nazarova G.R. Directing in historical documentary films findings.....	131
Seytniyazov S.P. Personnel potential of the region.....	136
Masharipov R.R., Qurbanbaev A.D., Tuxtapulov Sh.N., Barakayev B.O., Nasimov U.O. Cardiaspirator expenditures on the conditions of traditional and experimental options of annual sports training in volleyball players and speed loads.....	140
Rizakulova S.I. Social-psychological mechanisms of Decision-making under conditions of uncertainty.....	145
Tleuov N.R. Tendency in the world food market.....	149
Utepbergenov A.O. Modern services in railway transport of Uzbekistan, on the analysis of strategic directions for industry development.....	152
Ametov T.A. Sources on the history of social and political development of the Republic of Karakalpakstan.....	156



Bauatdinov Sh.S. Historical roots of the “Perfect man” idea.....	163
Yeshmurotova A.A. Formation of professional competence of students in personnel training.....	167
Mirzaev B.J. Development and reform of agriculture in Uzbekistan.....	171
Usenov S.Kh. The role of "Ishan-kala" in the spiritual culture of Amu darya department of the first quarter of the XX century.....	174
Khalmuratov K.P. Socio-economic significance of public transport services (in the example of Nukus).....	181
Qdirniyazov O.-Sh., Maksetov F., Allanazarova U. Investigation the history of bronze age in Khorezm lands.....	184
Kalenov K.T. Application of modern methods in livestock insurance.....	187
Jumanov A.O., Omirzakov R.A. Environmental constitutionalism: protecting the planet through legal frameworks.....	192
Dusimbetova N. Information competence as a social necessity for ensuring information security of society.....	197
Ibragimova N.B. Ways of tourism development in the Republic of Uzbekistan.....	201
Kalbaeva J.K. Ensuring the Sustainability of Product production in the Context of global climate change.....	205
Utepbergenov A.O. Foreign experience in providing services in the field of railway transport.....	210
Kutlimuratov F., Akmalov H. The constitutional fundamentals of the protection of human rights.....	213
Baynazarova G.J. Principles of administrative proceedings.....	217
Utebayev M.B., Rzaeva M.A. Search for scientific approaches to the analysis of the traditional culture of the Karakalpaks.....	220
Temirkhanov A.U. Formation of a risk management system for small businesses in the field of auto services.....	226
Utepbergenov A.O. Modern services in railway transport of Uzbekistan, on the Analysis of strategic directions for industry development.....	232
Bainiyazova M.P. The concept of realizing the investment potential of an industrial enterprise, the formation and development of the conditions for modernization of the national economy of Uzbekistan.....	236
Babanazarova S.K. Foreign experience of effective public administration and regulation of the production potential of the agro-industrial complex.....	242
Temirkhanov A.U. Formation of an effective mechanism for monitoring and forecasting operational risk in the banking business.....	247
Maratova M.B. Digitalization of the economy: challenges and solutions.....	251
Suyindikova A.S. Evolution of philosophical views on virtual reality.....	255
Usenov S.Kh. Studying “Ishan-kala” in the historiography of Karakalpakstan.....	258
Bekmurotova U.A., Yusupova A.A. The phenomenon of internet memes in modern linguistic discourse.....	264
Qalniyazova R.I. The basic problems of translation.....	270
Nuratdinova I.M. Features of fraud and property damage by deception or breach of trust.....	273
Pakhratdinov S. Pedagogical conditions for developing students' communicative skills using rhetoric.....	276
Xojaxmetova S. Innovative approaches to enhance teaching effectiveness: a comprehensive review.....	279
Pakhratdinov S. Development of communicative competence of students in the study of humanities.....	281
Aliyeva G.A. Evaluation of the economic activity of the development of small business entities in rural areas.....	284
Reimbaeva Z. Efficiency of agricultural institutions of different form.....	287
Allaniyazov B.K. The first scientist woman researching the history of Karakalpak music (dedicated to Tajigul Adambayeva's 90th birthday).....	294
Kalmuratov B., Nurmanbetov A. Karakalpakstan towards green economy and sustainable development goals.....	298
Reymov R.M. The historical heritage of scientists and thinkers of the medieval East, its role and significance for modern civilization.....	301
Dauletbaeva D.D. Genres of travel journalism, specific and different aspects.....	305
Esnazarova Z.O. Exploring the methodology for studying the influence of gadget technologies on children’s speech development.....	309
Kamalova M. International harmony and solidarity serves the prosperity of the society and the sustainable development of the state.....	313
HUMANITIES SCIENCES	
Djumambetova G.K. Theoretical frameworks utilized by translators to navigate lexical semantic challenges in translation.....	318
Khayrullaev A., Akmurotova B. The artistic function of the title in the story.....	322
Hamraev K.O., Boltaboyev O.Yu. "Lover", "Beloved", "Rival" motives in the story genre.....	325
Bekbauliev K. About the version and variants of the epic "Erkosay".....	329
Kubeysinova D.T. The units of paremiology in linguistics.....	335
Menlimuratova E.A. The significance of individual work with a national or geographic focus in the development of cross-cultural relationships among students.....	338
Tleumuratov G., Sagatova Z. Linguocultural peculiarities of phraseological units with components of zoonyms in English and Karakalpak languages.....	341
Arziyeva R.A. Methods of pedagogical diagnostics of teacher activity.....	346
Abishova G.M. About the case. Characteristics of nominative case.....	349
Tajenova G. Methodological basis of forming phrasological competence in teaching English to the students learning English as a foreign language.....	353
Karlibaeva A.E. Improving the methodology of developing students' communicative competence in English in Karakalpak schools (in the case of grades 8-9).....	356
Allamuratov A., Bazarbaeva M.M. Enduring relevance in I.S. Turgenev's novel “Fathers and Sons”.....	360
Qazaqbaeva D.B. Interpretation of lust in Abdulla Oripov's lyrics.....	366
Taspanova J.K. Ideas about the upbringing and education of Ajiniyaz kosibay uli and ways of using them.....	369
Begniyazova Q.A. Hypertext in journalism is as an object of content creation.....	374
Buronov Sh.R. The structure of the theory of crime investigation in emergency conditions.....	381
Mambetnazarov G.Dj. Status of a local council member.....	387
Seytjanov J.E., Urazniyazova G. The concept of sayings in modern linguistics.....	396
Ismailova A.K., Rakhmetova I.I. The role of Needs analysis in efl Course design.....	398

MIDDAY GERBIL FLEAS IN NORTHWESTERN KYZYLKUM.

Allamuratov B. J., Samandarov O.

Karakalpak State University named after Berdakh.

Summary: *In the article, fleas of midday gerbils - Xenopsylla conformis and Nosopsyllus turkmenicus-parasitize in the North-Western landscape and ecological regions of Kyzylkum throughout the year. Quantitatively comparable indicators, their number and dynamics are observed in the spring and autumn seasons.*

Key words: *Fleas, vectors, burrows, abundance, epizootics, ectoparasites.*

The midday gerbil is one of the most widespread inhabitants of sandy deserts in the study area and, due to its mobility, is in close contact with other rodents (Dyatlov, 1960). Xenopsylla conformis fleas parasitizing midday gerbils are one of the main carriers of the plague pathogen in the Northwestern focus. It is noted that a sharp increase in the abundance of fleas of this species on rodents and in their burrows (2016-2019) occurred after the increase in the number of midday gerbils.

Functional manifestations of rodent interaction with individual flea species and adaptation of parasitic plague bacteria to them became the basis for the formation of the active and passive phases of the epizootic process system. In total, 20 species of ectoparasites were found among the gerbils of the North-western ecological region of Kyzylkum, the city of Asenov [1; 19-p., 2; 44-48-p.]. Of these, 13 flea species were registered in the Northern regions, 16 in the Southern regions, and 19 in the Nukus sand (Tables 1-2).

In the course of our research, 19 flea species were identified among the southern Midday gerbils of the sandy foothills of the Nukus Sands with an Oasis. Of these, fleas Xenopsylla conformis and Nosopsyllus were observed in 70% of Southern gerbils. In addition, the species Nosopsyllus laeviceps, Nosopsyllus aralis, Nosopsyllus tersus and Coptopsylla lamellifer are common.

The general similarity of ectoparasites of midday and great gerbils is great. In areas of co-existence with large gerbils, the epizootic process can additionally affect Citellophilus tesgorium, specific parasites of the latter-the species Neopsylla setosa and Oropsylla ilovaiskie.

1-table

Species composition of flea fauna found in Midday Gerbil

(on the cross-section of various landscape and ecological regions of Kyzylkum).

№	Types of fleas	The number of fleas found in the context of districts			Total
		Nukus Sands	Western Kyzylkum	Ms.ngadare	
	Studied gerbils	13053	34336	12435	59814
	Fleas registered individuals	4201	5546	5978	15725
	Number of fleas collected	7540	14933	12142	34615
1	Xenopsylla hirtipes	196	1518	12	1726
2	Xenopsylla gerbilli	190	27	1458	1675
3	Xenopsylla conformis	3496	6272	4619	14387
4	Synosternus longispinus	3	-	-	3
5	Coptopsylla lamellifer	215	372	444	1031

6	<i>Coptopsylla bairamalliensis</i>	70	46	100	216
7	<i>Coptopsylla olgae</i>	5	41	3	49
8	<i>Rostropsylla dacia</i>	6	-	-	6
9	<i>Nosopsyllus tersus</i>	198	928	290	1416
10	<i>Nosopsyllus laeviceps</i>	5	2	226	233
11	<i>Nosopsyllus turkmenicus</i>	2799	2554	4715	10068
12	<i>Paradoxopsylla teretifrons</i>	17	18	23	58
13	<i>Rhadnopsylla cecestis</i>	35	19	-	54
14	<i>Rhadinopsylla socia</i>	9	-	-	9
15	<i>Stenoponia vlasova</i>	138	61	172	371
16	<i>N.fidus</i>	87	19	-	106
17	<i>Echidnophaga oschanini</i>	38	2	40	80
18	<i>N.aralis</i>	49	4	-	53
19	<i>N.trispinus</i>	32	10	-	42
20	<i>Ctenophthalmus dolichus</i>	-	-	39	39
Number of types:	19	16	13	20	

As shown, both indices are an indicator of the similarity of the species composition of the flea fauna of the compared mammals (range). However, from the point of view of epizootic communication of gerbils, it is more important to have a criterion for assessing the non-community nature of the flea fauna based on the species composition and similarity of the abundance of flea species common to the vectors of infection. compared to [6; 49-p.].

Table 2 shows the number of sand fleas, i.e. the average number of fleas per gerbil, the percentage of their occurrence in gerbils, and seasonal changes.

The volume of the studied material on ectoparasites of gerbils of the Nukus sand, the types of fleas collected, and the number of their seasonal occurrences are analyzed. As can be seen from the table, in order to determine the type and number of ectoparasites of this species, 13,053 mice were examined and 7,540 fleas were collected from 4,201 nests (32.2 %), (index 0.6) and it was found that it belongs to 19 species. Fleas listed in the table are listed according to their dominance status, not in systematic order.

The number of fleas of the midday gerbil is also low seasonally, its seasonal indicators are about 0.3-1.9. However, in the spring, the number of fleas increases by 2-3 times. These indicators also depend on the method of catching gerbils. Gerbils that were left alive had significantly more fleas than gerbils that died and remained trapped for a long time.

2-table

Seasonal dynamics of the number of midday gerbils in the Nukus sand region in 2016-2019.

№	This type of indicator is specified in months	I-II	III	IV	V	VI	VII-VIII	IX	X	XI	Total
		Total gerbils studied	395	548	3343	1518	234	238	1756	4327	694
	Fleas registered individuals	100	328	1648	175	32	21	365	1200	332	4201
	Collected fleas	254	598	3438	356	40	32	271	1879	466	7334
Kinds											
1	<i>Xenopsylla hirtipes</i>	29	3	68	59	3	1	6	26	1	196
2	<i>Xenopsylla gerbilli</i>	-	1	113	12	-	2	-	2	-	130

3	<i>Xenopsylla conformis</i>	21	307	1983	222	35	19	156	609	144	3496
4	<i>Synosternus longispinus</i>	-	-	-	-	-	-	2	1	-	3
5	<i>Coptopsylla lamellifer</i>	7	13	4	6	-	-	1	128	56	215
6	<i>Coptopsylla Bairamalliensis</i>	-	4	1	-	-	-	-	31	34	70
7	<i>Coptopsylla Olgae</i>	-	-	-	-	-	-	-	1	4	5
8	<i>Rostropsylla daca</i>	5	-	1	-	-	-	-	-	-	6
9	<i>Nosopsyllus tersus</i>	86	1	49	2	-	-	4	55	1	198
10	<i>Nosopsyllus laeviceps</i>	-	-	-	-	-	-	1	4	-	5
11	<i>Nosopsyllus turkmenicus</i>	78	261	1166	42	2	-	99	979	172	2799
12	<i>Paradoxopsylla teretifrons</i>	5	1	-	-	-	-	-	11	-	17
13	<i>Rhadnopsylla cedestis</i>	19	6	1	-	-	-	-	1	8	35
14	<i>Rhadinopsylla socia</i>	-	-	-	-	-	-	-	2	7	9
15	<i>Stenoponia Vlasova</i>	4	1	-	-	-	-	-	94	39	138
	Unidentified fleas	-	-	52	13	-	10	2	24	-	101
	Number of types	9	10	9	6	3	3	7	14	10	-
	Index	0,6	1,1	1,03	0,2	0,2	0,13	0,15	0,4	0,7	0,6
	% occurrence rate	25,3	59,8	49,3	11,5	13,7	13,4	20,8	27,7	47,8	32,2

I. D. Romanovsky and [3; 345-346-p.], according to his data, he registered 34 flea species in the Southern Gerbil in the region of Karakalpakstan (Kyzylkum, Ustyurt). Based on our materials, it was established that 19 species are distributed in the Nukus sandy region of Kyzylkum, 13 species in the Northern regions and 15 species in the South - in the West Kyzylkum region. The largest number of flea species was observed in spring and autumn.

In all the districts of Kyzylkum, the flea species specializing in the Southern Gerbil are *Xenopsylla conformis*-39.4% and *Nosopsyllus turkmenicus*-30.0%, in a small number *Nosopsyllus laeviceps*-5.6%, *Coptopsylla lamellifer*-5.4%, *Nosopsyllus tersus*-3.0%, *Xenopsylla hirtipes*., *Xenopsylla gerbilli* - 3.0% and 2.6%.

According to our data, *Xenopsylla conformis* and *Nosopsyllus turkmenicus* are parasites all year round. In autumn, the dynamics of their number is observed quantitatively smaller. *Nosopsyllus turkmenicus* was found 8-12 times in small numbers in the Northern zones.

Other flea species are seasonal parasites. *Nosopsyllus laeviceps*, *Nosopsyllus tersus*, *Xenopsylla gerbilli*, *Paradoxopsylla teretifrons* parasitize only in spring and autumn; *Coptopsylla lamellifer*, *Coptopsylla bairamalliensis*, *C. olgae*, *Stenoponia vlasov*, *Rhadinopsylla sedestis*-parasitism from autumn to early spring.

The flea found in the Southern Gerbil in Karakalpakstan bears a common resemblance to fleas parasitizing in the Northwestern Caspian Sea and Volga-Ural sands. For example: *Nosopsyllus laeviceps* parasitizes in the Northwestern Caspian Sea, *Xenopsylla conformis* in the Volga-Ural sands Mikulin M. A. [4; p. 66], Bibikov D. I. et al. [5; P. 186-196].

O. S. Serzhanov established that there is a general similarity of fleas in the midday gerbil, big gerbil, tamarisk gerbil, bipedal and thin-toed gerbils [6; 49-p.]. 3 species of the blood - sucking tick of the midday gerbil, *Ixodes redicorzevi*, were noted by O. S. Serzhanov [7; p. 45].

References:

1. Asenov G. A. Ecology of rodents of the lower Amu Darya oasis and their epizootological and epidemiological significance. // Author's abstract. diss. ... cand. biol. nauk. Frunze Publ., 1968, 19 p. (in Russian)
2. Asenov G. A., Allamuratov B. J., Baigeldieva N. Zh., Shukurlaev M. N. Shimoligarbiy kizilkumda carcasses kumsichkonining (*Meriones meridianus*) ectoparasitlari. Ўз.Р.Фанлар академияси минтақавий бўлими Хоразм маъмун академияси. 2021-10 -- В. 44-48.
3. Romanovsky I. D., Kurepina N. K., Oleinik K. T., Trifonova E. I. Fauna of Karakalpak fleas. // Scientific conference on natural focality and epidemiology of especially dangerous infectious diseases. Abstracts of reports-Saratov, 1957, pp. 345-346.

4. Mikulin M. A., Materials to the flea fauna of Central Asia. Trudy Trudy Sredneaziatsk. n. Protivochum. In-ta. Issue 2. Alma-Ata, 1956, p. 66.

5. Bibikov D. I., Petrov V. S., Khrusselevsky V. P. On some ecological and geographical patterns of natural focality of plague. // Zool. zh. 1963, Vol. 42. V. 9. - pp. 186-196.

6. Serzhanov O. S. Geography, taxonomy, evolution and ecology of rodent fleas in Kazakhstan and Central Asia in connection with their epidemiological significance. / Author's abstract. diss. ... doct. biol. nauk. - Saratov, 1994. - 49 p.

Rezyume: Maqolada tushki qumsichqoning burgalari - *Xenopsylla conformis* va *Nosopsyllus turkmenicus* - Qizilqumning Shimoli-ġarbiy landshaft ekologik rayonlarida yil davomida parazitlik qiladi. Ularning populyatsiya dinamikasining son jihatdan solishtirma kórsatkichlari bahor va kuz fasllarida kuzatiladi.

Резюме: В статье блохи южного кулика - *Xenopsylla conformis* и *Nosopsyllus turkmenicus* - паразитируют в северо-западных ландшафтно-экологических районах Кызылкума в течение всего года. Численные сравнительные показатели динамики их численности наблюдаются в весенний и осенний сезоны.

Kalit sozlar: burga, tarkatuvchi, in-uyalari, soni, epizootics, ectoparasitlar.

Ключевые слова: блохи, расселение, гнезда, численность, эпизоотии, эктопаразиты.

TECHNICAL REVIEW OF THE ONLINE MATH TERMS PLATFORM

Kurbanbaev T.K¹., Arziev A.D²., Geldibaev B.E¹.

¹*Karakalpak State University named after Berdakh.*

²*V.I. Romanovsky Institute of Mathematics. Uzbekistan Academy of Sciences*

Summary: *This paper deals with the issues of improving mathematical terminologies in the Karakalpak language. To solve this issue, it was decided to create an online platform for such terminologies. In order to create a software that can run on various platforms and operating systems, the paper outlines the requirements for the system that must be constructed, including the architecture, frameworks, and programming languages to be used. After analyzing a number of works, it was determined to develop an Android application using an API-based design, the Laravel and netx.js frameworks, and the Kotlin programming language.*

Key words: *mathematical terminology, Karakalpak language, API-based architecture, framework, Laravel, next.js, Kotlin, Android*

1. Introduction

Science plays a wide and significant role in the modern world. It has the tools and knowledge needed to solve complex problems, improve the quality of life, and stimulate economic growth. Science also contributes to cultural enrichment by expanding our understanding of the natural world, unraveling the mysteries of the universe, and preserving cultural heritage. It inspires curiosity, creativity, and wonder, serving as a source of inspiration for future generations of scientists, engineers, and innovators. Mathematics occupies a special place in the system of sciences. Its importance cannot be overestimated, as it is the language in which the laws of nature are formulated, complex systems are modeled, and methods for solving diverse problems are developed. Mathematics is the universal language we use to understand and make sense of the world. It is a language that helps us describe and explain the most complex concepts in science, engineering, and technology. However, to understand mathematics, not only concepts are important, but also vocabulary. We cannot fully understand and communicate mathematical concepts without the appropriate vocabulary. This is why learning mathematical vocabulary is vital. Therefore, for the effective study and mastering of mathematics, and like any other sciences, a system of terminology is extremely important, especially terminology in the context of each nation.

Mathematical terminology or definitions have a close relationship with student performance. For example, the work of Xin Lin, Peng Peng, and Jiangang Zeng [1] gave a meta-analysis showing the relationship between mathematical vocabulary and mathematics achievement. It is also worth mentioning the works [2], [3], [4], [5] where the use of mathematical language, mathematical definitions, and their importance in learning mathematics were discussed.

In this paper, we will consider the issues of improving mathematical terminology in the Karakalpak language.

2. Problem statement

Like any other science, mathematics is continuously evolving, enriching itself with new concepts, theories, and discoveries. New theories emerge, new directions at the intersection of several sciences, such as mathematical biology, financial mathematics, mathematics of social networks, etc. All these directions require perfect terminology: creating missing ones and complementing existing ones.

Decree of the President of the Republic of Uzbekistan No.UP-6084 "On measures for the further development of the Uzbek language and improvement of the language policy in the country" dated October 20, 2020, marked the complete transition to an improved alphabet in Latin graphics during the development, adoption, and publication of clerical and other documents. In addition, the Decree of the President of the Republic of Uzbekistan "On measures to improve the quality of education and the development of scientific research in the field of mathematics" dated May 7,

2020, No.PP-4708 specifies a range of tasks, namely, improving the teaching system of mathematical science at all levels of education, and in this resolution special attention is paid to improving educational manuals and textbooks on mathematical disciplines. It is also worth noting that the last comprehensive explanatory dictionary in the Karakalpak language based on Cyrillic was created more than 30 years ago under the authorship of X.Baymuratov, F.Japakova and O.Nujanov (see [6]).

All the above-mentioned substantiate the relevance of the issue of improving mathematical terminologies in the Karakalpak language. Within the framework of the innovative project IZ-2020082938 "Creation of an explanatory dictionary of mathematics in Karakalpak language and its online platform," the aim is to create an explanatory dictionary of mathematical terms in Karakalpak language. Taking into account that the last two decades have been marked by the rapid development of the Internet and mobile technologies, which are gradually replacing traditional sources of information in the form of books, it was decided to create along with the paper version of the dictionary its electronic version: online platform and version for Android systems.

To realize the set tasks, a team of experienced professors-teachers from Karakalpak State University, Tashkent University of Information Technologies, and researchers from the Karakalpak branch of Romanovsky Institute of Mathematics, Uzbekistan Academy of Sciences was formed.

In this paper, we will consider the issues of creating an online platform of mathematical terms in the Karakalpak language, difficulties arising in the process of creation, and ways to eliminate them.

3. Results and discussion

Developing a program that can support different platforms and operating systems is a crucial requirement for our system. Therefore, we need to be very careful while selecting the system's architecture. One of the architectures that can be used for this purpose is the API-based architecture.

Today, API-based architecture is widely used to create various web applications. The reason for its popularity is that users can use different types of devices running on different platforms and developed based on different programming languages [7], [8]. To guarantee their collaborative interaction with web applications, the best solution would be an API-based architecture. The interaction of various devices in this architecture is presented in the following figure (Figure 1).

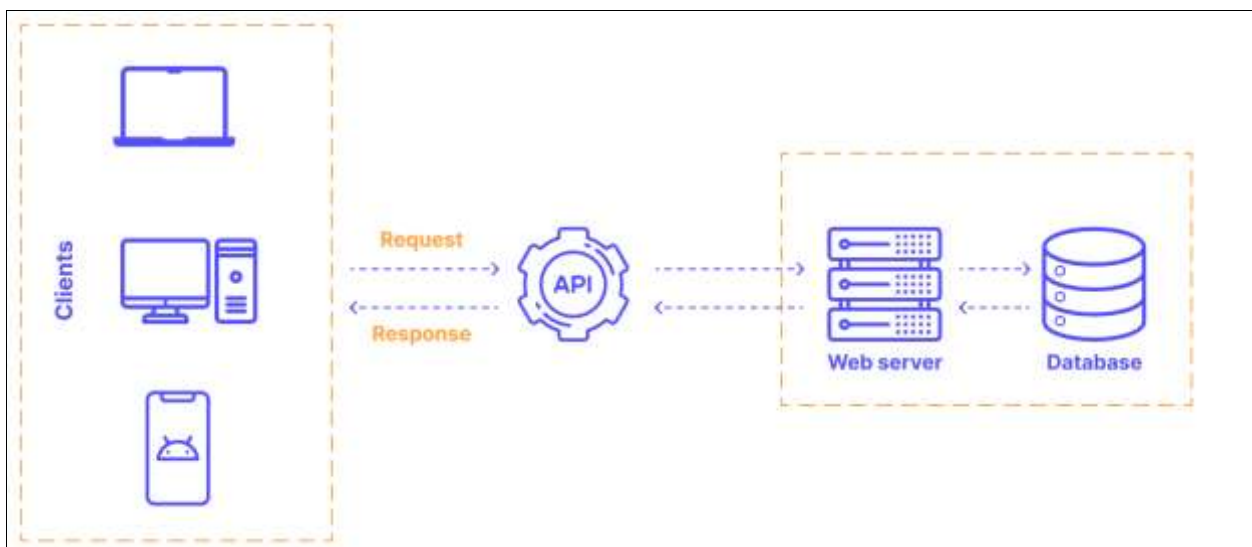


Figure 1: The main elements of an application built using an API-based architecture and how they interact

Using this architecture will allow us to use different programming languages and different technologies without being tied to a specific platform, operating system, device, or programming language. This architecture also allows us to leave the API of the application open and integrate it

with different applications of other developers [9]. Taking into account the requirements set to the system and the capabilities of the API architecture, it was decided to use this architecture in the creation of our platform.

The online platform will be developed using a chosen architecture consisting of two parts - backend and frontend. An Android application is also planned to be created for the platform. This application will run on the client side and interact with the server through API. The server and client sides of the platform, as well as the Android application, can use different programming languages and frameworks, each with its own advantages and disadvantages.

On this basis, we need to analyze the currently widely used programming languages and frameworks to solve the tasks and choose the most appropriate one for our situation.

The Laravel framework is currently one of the most widely used frameworks for building the backend of web applications [10]. It is written in PHP and boasts a robust security system, comprehensive documentation, and a well-executed ORM system that allows for seamless interaction with databases [11]. Also, this framework meets all the requirements set for the application being created and is also very well suited for the architecture that was chosen for our system. Due to all the described features provided by the framework and based on the results of the analyzed data, it was decided to choose Laravel as the main tool for creating our system.

To create the frontend of a web application, developers commonly use frameworks such as React.js, Vue.js, and Angular.js [12]. Due to the variety of such frameworks available, choosing the most suitable one for our system is a difficult task and for this purpose, it is necessary to analyze the works describing the characteristics of these frameworks. According to the research conducted in [13], React.js has a higher content rendering speed than its analogs. However, according to the study in [12], React.js has disadvantages in terms of SEO (Search Engine Optimization) because it renders web pages on the client side, which can complicate the indexing of content by search engines. Also [12] emphasizes the use of Next.js because it provides tools for server-side content rendering of React applications, improving SEO, performance, and user experience through page pre-loading and automatic code-splitting. According to the analyzed works, Next.js framework has a significant advantage over similar tools; accordingly, it was decided to use Next.js to develop our platform's web application.

One of the requirements for our system is the development of an Android application. There are several programming languages available for creating applications for Android operating system, such as C++, Java, Kotlin, Python, and others. Each of these languages has its own strengths and weaknesses when it comes to Android application development. Therefore, we have decided to review relevant literature to choose the appropriate programming language for our project. It is worth noting that Java and Kotlin are the most commonly used languages for Android application development. Thus, we will focus on studies that explore the capabilities of these two languages and eliminate other options. In particular, in [14] the performance of these two languages was analyzed according to several criteria and it was concluded that although both languages have their strengths and weaknesses, but Kotlin is preferable if the priority in the process of mobile application development is fewer bugs, concise code, the need to use third-party frameworks and faster development time [14]. In [15], the authors gathered data from 98 Android developers who migrated their code from Java to Kotlin to determine the reasons for this migration. As a result, two main reasons were identified:

possibility to use modern functions that are not available in Java;
the possibility of creating a safer, shorter, and less detailed code [15].

Taking into consideration the information gathered from the analyzed works, we have decided to use the Kotlin programming language for developing an Android application.

4. Conclusion

The creation of an online platform of mathematical terms in the Karakalpak language represents a significant step in improving education and access to knowledge in this field. This

platform provides an opportunity for students, teachers, and researchers to easily find the necessary terms and their definitions, which will undoubtedly contribute to improving the effectiveness of learning.

The choice of API-based architecture, Laravel and Next.js framework, and Kotlin programming language to build an Android application for our system ensures flexibility, scalability, and performance of the developed system. It also makes it possible to update and expand the system by incorporating new features and functions, new terminology, more content, and the most recent advancements in mathematics.

Online platform of mathematical terms in the Karakalpak language not only promotes education and scientific progress but also strengthens cultural and national identity. Overall, this paper makes a significant contribution to the enhancement of mathematics instruction in the Karakalpak language and offers easy access to the information required in this area.

References:

- [1] P. Peng and X. Lin, "The relation between mathematics vocabulary and mathematics performance among fourth graders," 2018, doi: 10.1016/j.lindif.2018.11.006.
- [2] Z. Himmelsbach, H. C. Hill, J. Liu, and D. Demszky, "A Quantitative Study of Mathematical Language in Classrooms," EdWorkingPapers.com, 2023, doi: 10.26300/93R8-3489.
- [3] S. Vinner, "The Role of Definitions in the Teaching and Learning of Mathematics," Adv. Math. Think., pp. 65–81, 2002, doi: 10.1007/0-306-47203-1_5.
- [4] S. Prediger, K. Erath, and E. M. Opitz, "The language dimension of mathematical difficulties," Int. Handb. Math. Learn. Difficulties From Lab. to Classr., pp. 437–456, Jan. 2019, doi: 10.1007/978-3-319-97148-3_27.
- [5] E. G. Sabirova and V. G. Zakirova, "Formation of mathematical terminology in junior school children," Int. Electron. J. Math. Educ., vol. 11, no. 6, pp. 1787–1795, 2016.
- [6] N. O. Baymuratov X, Japakova F, Explanatory dictionary of Mathematics. Nukus, Uzbekistan: Bilim, 1993.
- [7] F. Bühlhoff and M. Maleshkova, "RESTful or RESTless – Current state of today's top web APIs," Lect. Notes Comput. Sci. (including Subser. Lect. Notes Artif. Intell. Lect. Notes Bioinformatics), vol. 8798, pp. 64–74, 2014, doi: 10.1007/978-3-319-11955-7_6/TABLES/9.
- [8] A. Belkhir, M. Abdellatif, R. Tighilt, N. Moha, Y. G. Gueheneuc, and E. Beaudry, "An observational study on the state of REST API uses in android mobile applications," Proc. - 2019 IEEE/ACM 6th Int. Conf. Mob. Softw. Eng. Syst. MOBILESoft 2019, pp. 66–75, May 2019, doi: 10.1109/MOBILESOFT.2019.00020.
- [9] S. Wang, I. Keivanloo, and Y. Zou, "How do developers react to RESTful API evolution?," Lect. Notes Comput. Sci. (including Subser. Lect. Notes Artif. Intell. Lect. Notes Bioinformatics), vol. 8831, pp. 245–259, 2014, doi: 10.1007/978-3-662-45391-9_17/COVER.
- [10] "Most Popular Backend Frameworks – 2012/2023 -." Accessed: Feb. 13, 2024. [Online]. Available: <https://statisticsanddata.org/data/most-popular-backend-frameworks-2012-2023/>
- [11] R. Y. He, "Design and implementation of web based on laravel framework," Proc. 2014 Int. Conf. Comput. Sci. Electron. Technol., vol. 6, pp. 301–304, Jan. 2015, doi: 10.2991/ICCSET-14.2015.66.
- [12] J. Tong, R. R. Jikson, and A. A. S. Gunawan, "Comparative Performance Analysis of Javascript Frontend Web Frameworks," pp. 81–86, Dec. 2023, doi: 10.1109/ICE3IS59323.2023.10335250.
- [13] A. S. Rajput, H. P. Singh, G. Bang, S. Joshi, and T. Patidar, "Comparing Spring Boot and ReactJS with Other Web Development Frameworks: A Study," Lect. Notes Networks Syst., vol. 820, pp. 149–160, 2024, doi: 10.1007/978-981-99-7817-5_12/COVER.
- [14] B. P. D. Putranto, R. Saptoto, O. C. Jakaria, and W. Andriyani, "A Comparative Study of Java and Kotlin for Android Mobile Application Development," 2020 3rd Int. Semin. Res. Inf. Technol. Intell. Syst. ISRITI 2020, pp. 383–388, Dec. 2020, doi: 10.1109/ISRITI51436.2020.9315483.
- [15] M. Martinez and B. Gois Mateus, "Why Did Developers Migrate Android Applications From Java to Kotlin?," IEEE Trans. Softw. Eng., vol. 48, no. 11, pp. 4521–4534, Nov. 2022, doi: 10.1109/TSE.2021.3120367.

Rezyume: *Ushbu maqolada qoraqalpoq tilidagi matematik terminologiyani takomillashtirish masalalari muhokama qilinadi. Ushbu muammoni hal qilish uchun shunga o'xshash terminologiya uchun onlayn platforma yaratishga qaror qilindi. Turli platformalar va operatsion tizimlarda ishlashi mumkin bo'lgan dasturiy ta'minotni yaratish uchun hujjat quriladigan tizimga qo'yiladigan talablarni, jumladan, arxitektura, platformalar va*

foydalaniladigan dasturlash tillarini belgilaydi. Bir qator ishlarni tahlil qilib, API dizayni, Laravel va netx.js ramkalari hamda Kotlin dasturlash tilidan foydalangan holda Android ilovasini ishlab chiqishga qaror qilindi.

Резюме: *В данной статье рассматриваются вопросы совершенствования математической терминологии в каракалпакском языке. Для решения этого вопроса было решено создать онлайн-платформу подобной терминологии. Чтобы создать программное обеспечение, которое может работать на различных платформах и операционных системах, в документе излагаются требования к системе, которая должна быть построена, включая архитектуру, платформы и языки программирования, которые будут использоваться. После анализа ряда работ было решено разработать Android-приложение с использованием API-дизайна, фреймворков Laravel и netx.js, языка программирования Kotlin.*

Kalit soʻzlar: *matematik terminologiya, qoraqalpoq tili, API arxitekturasi, ramka, Laravel, next.js, Kotlin, Android.*

Ключевые слова: *математическая терминология, каракалпакский язык, API-архитектура, фреймворк, Laravel, next.js, Kotlin, Android.*

UDK 621.315.592

THE MECHANISM OF CURRENT AUTO-OSCILLATIONS IN COMPENSATED SILICON DOPED WITH IMPURITY ATOMS

Zikrillaev N.F.¹, Ayupov K.S.¹, Shoabdurakhimova M.M.¹, Ismaylov K. A.², Norkulov N.³, Abdullaeva N.U.¹, Mirkomilova M.S.¹, Shukurov D.M.¹.

¹Tashkent State Technical University, Tashkent, Uzbekistan

²Karakalpak State University, Nukus, Uzbekistan

³National university of Uzbekistan, Tashkent, Uzbekistan

Summary: The development of new materials and expanded functionalities of existing semiconductor materials and structures allow for the creation of new types of devices with parameters distinct from the existing ones. In this regard, auto-oscillations of current detected in semiconductors are highly relevant in both scientific and practical aspects.

Key words: auto-oscillation, silicon, mechanism, manganese, zinc, sulfur, selenium, electrical field.

Introduction

Among the most promising materials in semiconductor electronics is silicon compensated with impurity atoms through diffusion doping, creating deep energy levels within the material's bandgap. Compensated silicon has revealed a range of new and previously unknown interesting physical phenomena that can be applied in various microelectronics fields [1-4]. One such intriguing physical effect, of significant scientific and practical interest, is the self-exciting and non-decaying auto-oscillations of current [5-7].

There are numerous theoretical works in the literature dedicated to the formation of inhomogeneity regions within the volume of semiconductor materials under conditions of strong compensation [8, 9]. However, these works primarily focus on semiconductor materials containing impurity atoms that create shallow energy levels in the bandgap. As known, such impurities mainly possess small diffusion coefficients and exist in singly charged states. In contrast, impurities creating deep energy levels in semiconductors have higher diffusion coefficients and, being multiply charged, strongly interact with charge carriers and crystal lattice defects. Therefore, in compensated semiconductors doped with elements generating deep energy levels, material inhomogeneities are more pronounced compared to impurities creating shallow energy levels in the bandgap.

Experimental Section

Literary analysis has revealed that, until now, different types of current auto-oscillations have not been simultaneously observed in a single semiconductor material. Therefore, investigating the characteristics of transitional processes of current auto-oscillations from one type to another is of great interest for understanding and establishing the physical mechanism of these phenomena [10, 11]. In an applied context, the current auto-oscillations discovered in compensated silicon enable the creation of an entire class of devices for functional electronics and fundamentally new generation sensors for physical quantities with amplitude-frequency output, as well as solid-state generators.

Comprehensive and complex studies of auto-oscillatory processes in compensated silicon have shown that by controlling the thermodynamic conditions of existence (electric field intensity, illumination, temperature, etc.), it is possible to obtain several types of current instabilities with different excitation natures in the same material. Regardless of the type of diffusion-doped impurity atoms, the formation of deep energy levels in the silicon bandgap is necessary to observe current auto-oscillations. From the analysis of literature data results, the main conditions for observing

current auto-oscillations in silicon doped with impurity atoms such as manganese, zinc, sulfur, or selenium were identified and are presented in Table-1.

Table-1.

Types of auto-oscillations	Materials	ρ , Ohm·cm	T, K	En, V/cm	Jlight.lux Jhv, W/cm ² ·s λ , μm	Jmax, A	Jmin, A	f, Hz
Thermo-electric instabilities (TEI)	Si<Mn>	5·10 ³ -2·10 ⁵ p-type 8·10 ⁴ -2·10 ⁵ n-type	77-200	150-200	J=10-3-50 lux $I\lambda=10^{-9}$ -10 ⁻⁵ W/(cm ² ·s) $\lambda=1$ -3 μm	3·10 ⁻¹	10 ⁻⁶ -10 ⁻⁸	10 ⁻³ -10
	Si<Zn>	10 ² -2·10 ⁵ n-type	77-180	150-200	J=10-2-10 lux $I\lambda=10^{-7}$ -10 ⁻⁵ W/(cm ² ·s) $\lambda=1$ -2.5 μm	2·10 ⁻²	10 ⁻⁴ -10 ⁻⁶	5·10 ⁻³ -10
	Si<S>	3·10 ² -2·10 ⁵ p-type	77-160	500-600	J=0.1-10 lux $I\lambda=10^{-8}$ -10 ⁻⁵ W/(cm ² ·s) $\lambda=1$ -2 μm	1.5·10 ⁻¹	10 ⁻⁶ -10 ⁻⁸	3·10 ⁻³ -10
	Si<Se>	5·10 ² -6·10 ⁴ p-type	77-200	100-300	J=0.5-20 lux $I\lambda=10^{-8}$ -10 ⁻⁵ W/cm ² ·s $\lambda=1$ -1.5 μm	6·10 ⁻²	10 ⁻⁶	10 ⁻³ -10 ³
Recombination waves (RW)	Si<Mn>	5·10 ² -10 ⁵ p-type 10 ³ -10 ⁵ n-type	200-350	30-100	in darkness	10 ⁻⁴	10 ⁻⁵	10 ³ -10 ⁴
	Si<Zn>	7·10 ³ -7·10 ⁴ n-type	260-350	50-80	in darkness	10 ⁻⁵ -10 ⁻⁶	10 ⁻⁶	10 ³ -10 ⁴
	Si<S>	10 ² -10 ⁵ p-type	240-350	40-130	in darkness	10 ⁻⁴	10 ⁻⁵ -10 ⁻⁶	10 ³ -10 ⁴
	Si<Se>	10 ² -10 ⁵ p-type	280-350	30-100	in darkness	5·10 ⁻⁴	10 ⁻⁶	10 ² -10 ⁵
Injection instability (II)	p+-Si<Mn>-p+	5·10 ² -10 ⁵ p-type of base	77-350	20-50	in darkness	8·10 ⁻¹	10 ⁻³ -10 ⁻⁴	10 ⁻² -5·10 ⁴
	n+-Si<Zn>-n+	10 ³ -10 ⁴ n-type of base	77-300	30-100	in darkness	5·10 ⁻²	10 ⁻⁵	10 ⁻² -10 ³

Research on current auto-oscillations in compensated silicon has provided insights into the characteristics of transitional processes of current auto-oscillations from one type to another. Although, in terms of resistivity, conductivity type, and temperature range, all these types of auto-oscillations overlap, a transition from one to another within a narrow interval leads to a breakdown with subsequent transition to irregular chaotic current oscillations. Further variations in external factors (temperature, electric field intensity, illumination, pressure, magnetic field, etc.) result in the

emergence of regular and reproducible current auto-oscillations. In most cases, quasi-harmonic current auto-oscillations are excited at the beginning of the circuit, which then transform into other forms (Figure 1).

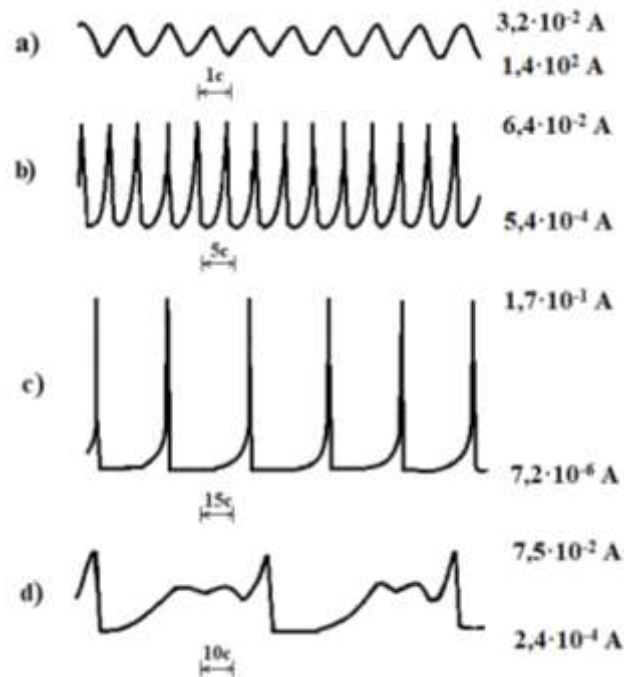


Fig. 1. Various forms of current auto-oscillations in compensated silicon: a - quasi-harmonic, b - spike, c - refractory, d - creeping.

Based on the obtained results and conducted literary analyses, it can be stated that the current auto-oscillations excited in compensated silicon are associated with the presence of deep energy levels of impurity atoms such as manganese, zinc, selenium, or sulfur in the bandgap. The research has revealed that these impurity atoms form nanoclusters uniformly distributed in silicon, and the charge of the formed nanoclusters of impurity atoms leads to the appearance of inhomogeneities in the volume of compensated silicon. We have elucidated the mechanisms of the observed current auto-oscillations in compensated silicon, taking into account the material's inhomogeneity [9].

Discussion of Results

To explain the mechanism of current auto-oscillations, the model of an inhomogeneous semiconductor proposed by Shik and Shaynitsman [12] is suggested. According to this model, fluctuations in the conduction band and valence band relief occur in the semiconductor. The appearance of such inhomogeneities is explained by the fact that under conditions of strong doping, when impurity concentrations reach $N \approx 10^{18} - 10^{19} \text{ cm}^{-3}$, their uneven distribution leads to the emergence of an internal potential field, causing fluctuations in the conduction and valence bands of the semiconductor. In our case, although the concentration of impurity atoms (manganese, zinc, sulfur, selenium) is two to three orders of magnitude lower than under conditions of strong doping, these impurities in silicon can be in a doubly ionized state and form cluster complexes, the charge of which is always greater than ± 2 [13, 14]. The Debye screening radius formed by nanoclusters overlapping with each other leads to the appearance of a fluctuation potential relief in compensated silicon. We propose a model of low-frequency current auto-oscillations observed in compensated silicon based on the fluctuation of the conduction and valence band relief. To explain the mechanism of current auto-oscillations, samples of compensated silicon doped with selenium impurity atoms were taken as an example.

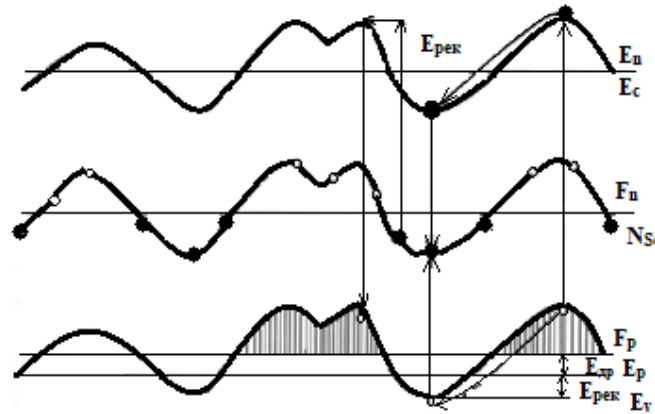


Fig. 2. Inhomogeneous fluctuation potential relief of silicon doped with selenium impurity atoms.

According to the proposed model, under constant illumination, the generation of electron-hole pairs occurs. Generated non-equilibrium electrons are captured by positively charged nanoclusters of selenium atoms, while the holes are localized in potential wells of the valence band. The electrical conductivity is determined by the concentration of holes at the conduction threshold, the magnitude of which is determined by the drift barrier (Fig. 2).

At high applied electric field intensities, and due to the high electrical conductivity of the sample, the photocurrent increases, and under constant illumination, its temperature rises due to Joule heating. This, in turn, increases the electrical conductivity of the sample due to the thermal emission of holes from localized states in the valence band to the conduction threshold, leading to further Joule heating of compensated silicon. This process has an avalanche-like character. If the applied voltage is sufficiently large, as a result of this process, the temperature of the sample reaches values at which an intense thermal emission of electrons from the deep energy level begins. This level is formed due to selenium atom nanoclusters in the conduction band. The liberated electrons recombine with the holes in the valence band. As a result, there is a decrease in the concentration and lifetime of holes at the conduction threshold, i.e., the temperature quenching of photoconductivity (TQP) occurs. However, the Joule heating process in the sample continues, leading to the complete release of electrons captured by nanoclusters and the recharge of NSe levels. At this point, the photocurrent value sharply decreases, and the sample begins to cool due to heat loss. Subsequently, the optical recharge of levels and the Joule heating process start again periodically, i.e., current auto-oscillations related to the heating and cooling of the investigated material are formed in the circuit (Fig. 1).

The time of optical recharge depends on the rate of generation of electron-hole pairs, i.e., on the illumination intensity. Therefore, with an increase in illumination intensity, the frequency of auto-oscillations increases. On the other hand, with the increase in the frequency of auto-oscillations, the sample does not have enough time to cool completely, so with increasing illumination intensity, the amplitude values decrease.

Based on the proposed model, it is possible to mathematically describe the conditions for the occurrence and existence of low-frequency current auto-oscillations using the example of compensated silicon doped with selenium impurity atoms. The system of equations describing the dependencies of the current carrier concentration at levels (conduction threshold and deep selenium level) on time and temperature is as follows:

$$\frac{dT}{dt} = \frac{jE}{\rho c} - b(T - T_0)$$

$$\frac{dP}{dt} = L - C_{nr}rp - C_{pm}Sp$$

$$\frac{dn}{dt} = L + BS - C_{np}(N_2 - r)n - C_{nm}(N_m - S)n \quad (1)$$

$$\frac{dr}{dt} = C_{nr}(R - r)n - C_{pr}rp$$

$$S = p - n - r; j = ep\mu E e^{-\frac{E_{gp}}{RT}}$$

where: E - electric field intensity; Sn - heat transfer coefficient; h - lateral surface of the sample; ρ - material density; C - specific heat capacity; A - parameter; Sn - cross-sectional area; L - factor of electron injection from the valence band to the conduction band; S, r - concentration of electrons at selenium levels and recombination; Cnr, Cpr - coefficients of electron and hole capture at the respective levels; NSe, Nr - concentration of selenium atoms at the energy level and recombination; B - damping factor.

When formulating the heat conduction equations, it was taken into account that heat dissipation occurs due to Joule heating, where the conductivity of the sample is sufficiently high due to the photoelectric effect at low temperatures, and heat loss occurs mainly through the surface.

Solving the system of equations in a general form is difficult. Therefore, we can make the following quite natural assumptions about the properties of the investigated object. The heat transfer process in silicon is the slowest, so we assume that the change in the concentration of charge carriers in the zones and levels follows the change in temperature.

Since the capture cross-sections of holes and electrons at recombination centers and at selenium levels have the following relationship $C_{pr} \gg C_{nr}$ and $C_{nm} \gg C_{pm}$, the concentration of electrons in the conduction band, at selenium levels S, and at recombination levels quickly reaches stationary values at a given temperature, and then follows the temperature change. Therefore, the system of equations (1) can be simplified to the following:

$$\frac{dT}{dt} = \frac{jE}{\rho c} - b(T - T_0)$$

$$\frac{dP}{dt} = L - C_{pr}rp - C_{pm}S_p$$

$$n = \frac{L + BS}{C_{nr}(N_r - r) + C_{nm}(N_m - S)}$$

$$r = \frac{C_{nr}N_r n}{C_{nr} + C_{pr}p}$$

$$S = p - n - r; j = ep\mu E \exp(-E_g/kT)$$

the system of equations (2) can be numerically solved using one of the Runge-Kutta methods. The performed calculation with parameter values determined from the Photocurrent Oscillations (PO) and $b=0.5$ provides a good agreement with experimental results.

The dependence of current oscillation parameters on resistivity, conductivity type, and concentration of electroactive impurity atoms can be qualitatively explained by the following considerations. As the concentration of electroactive impurities increases in silicon with a given concentration of boron and phosphorus in the original silicon, the resistivity of the silicon samples increases. In this case, the position of the Fermi level rises from the lower half of the forbidden zone to the middle. In this situation, primarily doubly ionized selenium atoms, with their concentration increasing on formed nanoclusters, become apparent, reaching a maximum at a compensation degree of about $k \approx 1$.

In overcompensated samples, when $k > 1$, the Fermi level shifts to the upper half of the silicon forbidden zone. This leads to a change in the filling degree of the lower level associated with nanoclusters of impurity selenium atoms responsible for current oscillations. It has been established that the higher the concentration of selenium atom nanoclusters capturing electrons from deep levels in silicon, the longer the accumulation time of holes, leading to a reduction in frequency and an increase in the amplitude of current oscillations. This aligns well with the experimental results obtained with the maximum concentration of electroactive selenium atoms. The increase in threshold values E_n and I_n with the increase in the resistivity of compensated silicon can be explained by the increase in the resistance of the samples and the decrease in the heating rate.

The dependence of the threshold electric field intensity for exciting current oscillations and the parameters (amplitude, frequency) on the intensity of illumination, both integral and monochromatic light, is explained by the significant change in the filling degree of the deep level with changing intensity. Therefore, with decreasing intensity, the recharge rate of the deep level responsible for exciting current oscillations decreases, leading to a reduction in frequency and an increase in amplitude. Due to the longer period, a large number of electrons accumulate. Similarly, low-frequency current oscillations in compensated silicon doped with impurity atoms of manganese, zinc, and sulfur can be explained. The experimental results obtained in these materials have good consistency when explained using the proposed model.

Thus, to explain the mechanism of low-frequency current oscillations in compensated silicon, a model based on the fluctuation potential relief due to material non-uniformity has been proposed, which is in good agreement with experimental results.

To explain the mechanism of current oscillations in compensated silicon, such as recombination waves (RW) and injection instabilities (II), a model of an inhomogeneous semiconductor can also be applied. In these cases, to generate charge carriers from the contact in the

$$\alpha = \frac{p\tau_n}{n\tau_p} > 1$$

base region for II and to meet the conditions , which is a fundamental requirement for exciting RW. This can be explained by the redistribution of charge carriers in the deep energy level in the forbidden zone and the conduction or valence band level formed in the conduction or valence band.

Conclusions

Comprehensive studies of current oscillations in compensated silicon, doped with impurity atoms, not only help elucidate the mechanisms of observed phenomena under compensation conditions but also provide valuable information about the role of deep levels and the state of impurity atoms in silicon depending on external factors (temperature, electric and magnetic fields, illumination, pressure, etc.).

Acknowledgments

The authors express their gratitude to the staff of the Department of Digital Electronics and Microelectronics for providing the opportunity to obtain scientific data. Special thanks to Academician R.A. Muminov for support and valuable advice during the discussion of the obtained results.

References:

- Bakhadyrkhanov, M.K., Zikrillaev, N.F., Toshev, A.R., Photodetector on basis of strongly compensated silicon doped with manganese, *Geliotekhnika*, 2001, vol. (2), p. 9.
- Yunusov, Z.A., Yudashev, S.U., Igamberdiev, K.T., ..., Isamov, S.B., Zikrillaev, N.F., Ferromagnetic states of p-type silicon doped with Mn, *Journal of the Korean Physical Society*, 2014, vol. 64(10), p. 1461.
- Bakhadyrkhanov, M.K., Isamov, S.B., Zikrillaev, N.F., Current - voltage behavior of silicon containing nanoclusters of manganese atoms, *Inorganic Materials*, 2014, vol. 50(4), p. 325.
- Chen, Z., Ba, W., Zhang, J. ... Bakhadyrkhanov, M.K., Zikrillaev, N.F., Current oscillation properties of manganese-doped-silicon materials, *Pan Tao Ti Hsueh Pao/Chinese Journal of Semiconductors*, 2006, vol. 27(9), p. 1582.

Bakhodirkhonov, M.K., Zikrillaev, N.F., Egamberdiev, B.E., Self-sustained oscillation in Compensated Silicon, Journal of Communications Technology and Electronics Radiotekhnika i Elektronika, 1998, vol. 43(3), p. 274.

Sadullaev A., Mulkanov R., Umirov A., Bobakulov Z., Influence of the concentration of electroactive compensating manganese impurities on the temperature region of the existence of current auto-oscillations of the type of temperature-electric instability (PETN), Electronics, 2022, No. 8(101).

Bakhadirkhanov, M.K., Ayupov, K.S., Zikrillaev, N.F., Kadyrova, F.A., Thermodynamic conditions of excitation of stable and reproductive self-sustained oscillations of current with proposed parameters in compensated silicon, Elektronnaya Obrabotka Materialov, 2004, vol. (3), p. 84.

Grazhulis V.A., Kveder V.V., Osipyanyu.A., Investigation of the Dislocation Spin System in Silicon as Model of One-Dimensional Spin Chains, Physica Status Solidi. (a), 1981, vol. 103, is. 2, pp. 519-528.

Bakhadirkhanov M. K., Tursunov A. A., Askarov Sh. I., Zikrillaev N. F., Temperature-electric instability in heterogeneous semiconductors, FTP, 1987, vol. 21, no. 2, p. 379.

Golik L. L., Pakseev V. E., Balkarey Yu. I., Elison M. I., Rzhanov Yu. A., Yakushkin V. K., Self-oscillatory modes in crystals of cadmium sulfide in the presence of temperature-electric instability, FTP, 1984, vol. 18, no. 3, p. 502.

Chistokhin I.B., Tishkovskii E.G., Gerasimenko N.N., Instabilities of the current in a photoresistor made of selenium-doped silicon, Soviet physics. Semiconductors, 1992, vol. 26, No 9, pp. 859-862.

Shejnkman, M.K., Shik, A.Ya., Long-time relaxations and residual conductivity in semiconductor, Fizika i Tekhnika Poluprovodnikov (Soviet Phys. – Semiconductors), 1976, vol. 10, is. 2, pp. 209-233.

Maev R.G., Tokarev E.F., The features of the thermo-electric skin effect in the presence of shallow levels, Phys. Stat. Sol. (a), 1973, vol. 13, is. 1, p. 285-291.

Astrov Yu.A., Kozlov V., Lodygin A. N., Portsel L., Alentina Borisovna Shuman V., Gurevich E.L., Hergenröder R., Redistribution of deep selenium and sulfur impurities in silicon upon surface doping with phosphorus, Semiconductors, 2009, vol. 43, is. 6, p. 710-715.

Rezyume: *Yangi materiallarni ishlab chiqish va mavjud yarimo'tkazgich materiallari va konstruktsiyalarining kengaytirilgan funktsionalligi parametrlari mavjud bo'lganlardan farq qiladigan yangi turdagi qurilmalarni yaratishga imkonini beradi. Shu munosabat bilan yarimo'tkazgichlarda aniqlangan tokning o'z-o'zidan tebranishlari ilmiy va amaliy jihatdan dolzarbdir.*

Резюме: *Разработка новых материалов и расширенные функциональные возможности существующих полупроводниковых материалов и структур позволяют создать новые виды приборов параметры которых отличаются от существующих. В этом плане автоколебания тока обнаруженные в полупроводниках являются весьма актуальными в научном и практическом аспекте.*

Kalit so'zlari: *avtotebranishlar, kremniy, mexanizm, marganets, rux, oltingugurt, selen, elektr maydon.*

Ключевые слова: *автоколебания, кремний, механизм, марганец, цинк, сера, селен, электрическое поле.*

PROBLEMS OF ENSURING INFORMATION SECURITY IN CORPORATE COMPUTER NETWORKS

Arzieva J.T., Arziyev A.T.

Karakalpak State University named after Berdakh

Summary: *The main problem with application layer attacks is that they often use ports that are allowed to pass through the firewall. To protect data from unauthorized access, it is necessary to define and formulate rules of action for objects of the info communication system. In the article, we will consider one and the methods of continuous authentication.*

Key words: *security, attack, user, information security, password attacks, identification, authentication.*

The difficulty of detecting the fact of a remote attack brings this type of illegal actions to the first place in terms of the degree of danger and prevents a timely response to the implemented threat, as a result of which the offender has an increased chance of a successful attack. The problems of ensuring information security in corporate computer networks are caused by security threats to local workstations, local networks and attacks on corporate networks that have access to public data networks. The following attacks are the most common.

Eavesdropping (sniffing). A sniffer is used to eavesdrop on computer networks. A packet sniffer is an application program that captures all network packets transmitted through a specific domain. However, due to the fact that some network applications transmit data in text format (Telnet, FTP, SMTP, POP3, etc.), using a sniffer can reveal useful and sometimes confidential information (for example, usernames and passwords). You can prevent the threat of packet sniffing by using one-time passwords for authentication, installing hardware or software that recognizes sniffers, and using cryptographic protection of communication channels.

Password interception. Interception of names and passwords creates a great danger, since users often use the same login and password for many applications and systems [1].

In some cases, incorrect assignment of the IP address is possible (substitution of the sender's IP address with another address). This type of attack is called address spoofing (IP-spoofing).

IP spoofing attacks are often the starting point for other attacks. A classic example is a denial of service (DoS) attack that starts with someone else's address, hiding the hacker's true identity. The threat of spoofing can be mitigated (but not eliminated) by properly configuring access control from the external network, stopping attempts by users of their own network to spoof foreign networks.

Mediation. This attack involves active eavesdropping, interception and manipulation of transmitted data by an invisible intermediate node. Man-in-the-middle attacks can only be effectively combated with the help of cryptography. To counter attacks of this type, the public key infrastructure - PKI (Public Key Infrastructure) is used.

Session hijacking. At the end of the initial authentication procedure, the connection established by a legitimate user, for example, with a mail server, is switched by the attacker to a new host, and the original server is instructed to close the connection. As a result, the "interlocutor" of the legitimate user is imperceptibly substituted.

After gaining access to the network, an attacker can:

send incorrect data to applications and network services, causing them to crash or malfunction;

flood the computer or the entire network with traffic until the system stops as a result of overload;

block traffic, which will lead to the loss of access of authorized users to network resources.

Denial of Service (DoS). This attack is different from other types of attacks: it does not aim to gain access to the network or to obtain any information from this network. A DoS attack renders

an organization's network unusable for normal use by exceeding the operating limits of the network, OS, or application. Essentially, it denies ordinary users access to resources or computers on an organization's network.

Password attacks. Their goal is to take possession of the password and login of a legitimate user. Attackers can carry out password attacks using methods such as:

- IP address spoofing (IP-spoofing);
- eavesdropping (sniffing);
- simple overkill.

Password attacks can be avoided by not using plain text passwords. The use of one-time passwords and cryptographic authentication can virtually eliminate the threat of such attacks. Unfortunately, not all applications, hosts, and devices support these authentication methods [2].

The main problem with application layer attacks is that they often use ports that are allowed to pass through the firewall. It is not possible to completely eliminate application layer attacks. Hackers are constantly discovering and publishing new vulnerabilities in application programs on their websites on the Internet.

- To reduce vulnerability to this type of attack, you can take the following steps:
 - analyze OS log files and network log files using special analytical applications;
 - monitor CERT data on application weaknesses;
 - use the latest versions of OS and applications and the latest correction modules (patches);
 - use IDS (Intrusion Detection Systems) attack recognition systems.

To protect data from unauthorized access (UAS), it is necessary to define the rules of action for the objects of the infocommunication system (ICS).

For this you need:

- divide into classes the information stored and processed in the ICS;
 - to classify users of this information;
 - put the received classes of information and users in a certain correspondence to each other.
- To carry out procedures for identifying and authenticating a user, it is necessary to have:
- authentication programs;
 - unique information about the user.

There are two forms of storing user information:

If the attacker somehow finds out the password and identification number of the legitimate user, he will gain access to the system.

Instead of the open form of the password P , it is better to forward its mapping obtained using the one-way function $f(P)$. This transformation must ensure that the password cannot be revealed by its display. So the enemy comes across an unsolvable numerical problem.

For example, the function f could be defined like this:

$f(P) = E_p(ID)$, where P -is the password, ID -is the identifier, E_p -is the encryption procedure performed using the password as the key.

In practice, the password consists of several letters. But a short password is vulnerable to a brute-force attack. In order to prevent such an attack, the function f is defined differently:

$f(P) = EP + K(ID)$, where K -is a key (Toch-memory tablet, USB key, etc.)

The user identification and authentication procedures can be based not only on the secret information that the user has (password, secret key, personal identifier, etc.) [3].

Recently, biometric identification and authentication has become increasingly widespread, which makes it possible to confidently identify a potential user by measuring the physiological parameters and characteristics of a person, the characteristics of his behavior.

The main advantages of biometric identification and authentication methods:

- high degree of reliability of identification by biometric features due to their uniqueness;
- inseparability of biometric features from a capable person;
- the difficulty of falsifying biometric features.

As biometric features that can be used to identify a potential user, the following are used:

pattern of the iris and retina;
fingerprints;
geometric shape of the hand;
the shape and size of the face;
face thermogram;
ear shape;
voice features;
DNA;

biomechanical characteristics of a handwritten signature;
biomechanical characteristics of "keyboard handwriting".

As an example, consider the handshake procedure for two users A and B. Let a symmetric cryptosystem be used. Users A and B share the same K_{AB} secret key.

User A initiates the "handshake" by sending User B their IDA ID in plain text.

User B, having received the IDA identifier, finds the K_{AB} secret key in the database and enters it into his cryptosystem.

Meanwhile, user A generates a random sequence S using a pseudo-random generator PG and sends it to user B as a cryptogram $E_{K_{AB}}(S)$.

User B decrypts this cryptogram and reveals the original form of the sequence S .

Both users then transform the sequence S using the one-way function f .

User B encrypts the message $f(S)$ and sends the cryptogram $E_{K_{AB}}(f(S))$ to user A.

Finally, user A decrypts this cryptogram and compares the received message $f'(S)$ with the original $f(S)$. If these messages are equal, then user A recognizes the identity of user B [1].

User A authenticates user B in the same way. Both of these procedures form the "handshake" procedure, which is usually performed at the very beginning of any communication session between any two parties in computer networks.

The advantage of the "handshake" model is that none of the participants in the communication receives any secret information during the authentication procedure.

Sometimes users want to have continuous sender authentication throughout the entire communication session. Let's look at one of the simplest continuous authentication methods [5].

To send a message to M , user A sends the cryptogram $E_K(IDA, M)$. The recipient decrypts it and reveals the pair (IDA, M) . If the received IDA ID matches the stored one, the recipient takes the message into account.

References:

1. References: Shirochin V. P., Mukhin V. E., Kulik A. V. Issues of designing information security tools in computer systems and networks. Kyiv; "VEK+". 2000. - 111 p.
2. Ganiev S. K., Karimov M. M. "Issues of optimal segmentation of the topology of local computer networks." - Tashkent, Problems of Informatics and Energy, 2001, No. 2.-P.
3. V. G. Olifer, N. A. Olifer. Computer networks. Principles, technologies, protocols 4th edition - St. Petersburg-2010. 944s.
4. Nagieva, A.F. Corporate networks and security problems / A.F. Nagieva. Text: direct // Young scientist. - 2016. - No. 29 (133). - S. 34-36. URL: <https://moluch.ru/archive/133/37194/> (date of access: 04/07/2023).
5. Arzieva J. A method to improve the quality of service and overcome the loss of network packets. 2021 International Conference on Information Science and Communications Technologies (ICISCT). doi: 10.1109/ICISCT52966.2021.9670120.
6. Biychuev T.A. / ed. LG Osovetsky Security of corporate networks. - SPb: SPb GU ITMO, 2004.- 161 p.

Rezyume: *Ilova darajasidagi hujumlarning asosiy muammosi shundaki, ular ko'pincha xavfsizlik devori orqali o'tishga ruxsat berilgan portlardan foydalanadilar. Ma'lumotlarni ruxsatsiz kirishdan himoya qilish uchun infokommunikatsiya tizimi ob'ektlari uchun harakat qoidalarini*

aniqlash va shakllantirish kerak. Ushbu maqolada biz uzluksiz autentifikatsiya qilishning bir usulini ko'rib chiqamiz.

Резюме: Главная проблема с атаками на уровне приложений состоит в том, что они часто пользуются портами, которым разрешен проход через межсетевой экран. Для защиты данных от несанкционированного доступа нужно определить сформулировать правила действий для объектов инфокоммуникационной системы. В статье рассмотрим один из способов непрерывной проверки подлинности.

Kalit so'zlar: xavfsizlik, hujum, foydalanuvchi, axborot xavfsizligi, parol hujumlari, identifikatsiya, autentifikatsiya.

Ключевые слова: безопасность, атака, пользователь, информационной безопасности, парольные атаки, идентификации, аутентификации.

UDC 519.144.2

DIFFERENCE SCHEMES FOR EQUATIONS OF TRANSIENT PROCESSES IN POWER TRANSMISSION SYSTEMS

Utebaev D., Kalmuratova S.M., Rajabboyeva S.D.

Karakalpak State University named after Berdakh

Summary: In this article, difference schemes for systems of first-order hyperbolic equations with smooth solutions are proposed and studied using the example of transient equations in power transmission systems. One-parameter difference schemes of the finite difference method are constructed. Based on the results of the A.A. Samarskii theory of difference schemes stability conditions and a priori estimates are obtained. Theorems on the convergence and accuracy of the constructed difference schemes are proven. An algorithm for implementing the method is developed.

Key words: system of hyperbolic equations, difference schemes, a priori estimates, stability, convergence, accuracy.

1. Introduction. Many physical processes related to wave propagation are described by hyperbolic equations, in particular, systems of first-order equations. As is known, a second-order equation can be reduced to a system of first-order equations. There are various approximate methods for solving such problems: the finite difference method, the finite element method, the method of straight lines, etc. Among these methods, the finite difference method is the most common in solving various applied problems in physics and mechanics.

Using the example of a system of one-dimensional and two-dimensional acoustic and Maxwell equations [1], for systems of hyperbolic equations, explicit and implicit difference schemes of the first and second orders of accuracy in classes of non-smooth solutions were constructed and studied. In [2], similar studies were performed for systems of acoustic and Maxwell equations in classes of smooth solutions, where first-order estimates of the accuracy of difference schemes for all variables were obtained. In [3], one-parameter difference schemes of the first and second orders of accuracy were constructed and studied for systems of acoustic equations in classes of smooth solutions. In [4], difference schemes with some averaging were constructed, but without studying the stability and convergence of difference schemes. The numerical implementation algorithm was given there.

In this article, one-parameter difference schemes are constructed for the equation of transient processes in power transmission systems. Theorems on the convergence and accuracy of the constructed difference schemes are proven.

1. Statement of the problem. Consider the following linear symmetric system of equations:

$$A_0 \frac{\partial v}{\partial t} + \sum_i A_i \frac{\partial v}{\partial x_i} + Cv = F, \quad (1)$$

where $v = v(x, t) \in R^n$, $F = F(x, t) \in R^n$, $A_0 = A_0(x, t)$, $C = C(x, t)$ are linear operators acting from R^n to R^n , operators A_0 and A_i satisfy the symmetry condition $A_0^* = A_0$, $A_i^* = A_i$.

System (1) is called evolutionary in t , if $A_0 \geq 0$, and hyperbolic if $A_0 \geq \delta E$, where $\delta = const > 0$ and E is the unit operator.

If system (3) is hyperbolic, then it can be reduced to a simpler form. Under the condition that operator A_0 is positive definite, the “square root” is uniquely defined - a symmetric positive

operator $A_0^{1/2}$ such that $A_0^{1/2} A_0^{1/2} = A_0$ [4]. Selecting $\chi = A_0^{1/2} v$ and multiplying (1) by $(A_0^{1/2})^{-1}$, we obtain

$$\frac{\partial \chi}{\partial t} + \sum_i B_i \frac{\partial \chi}{\partial x_i} + G \chi = \Phi, \tag{2}$$

where

$$B_i = (A_0^{1/2})^{-1} A_i (A_0^{1/2})^{-1}, \quad \Phi = (A_0^{1/2})^{-1} F,$$

$$G = (A_0^{1/2})^{-1} \left\{ A_0 \frac{\partial (A_0^{1/2})^{-1}}{\partial t} + \sum_i \left[A_i \frac{\partial (A_0^{1/2})^{-1}}{\partial x_i} \right] + C (A_0^{1/2})^{-1} \right\}.$$

Now it is obvious that operators B_i are symmetric, i.e. (2), like (1), has the structure of a linear symmetric system.

If system (1) is one-dimensional, then further simplifications are possible. In this case, operator B is diagonalized, i.e. is represented as a diagonal matrix $\Lambda = \{\lambda_1, \lambda_2, \dots, \lambda_n\}$, where λ_k are real. Then system (2) is transformed to the following form:

$$\frac{\partial \mathcal{G}}{\partial t} + \Lambda \frac{\partial \mathcal{G}}{\partial x} + G \mathcal{G} = \Phi. \tag{3}$$

We consider the following problem. Transient processes in power transmission systems are described by the following equations:

$$L \frac{\partial i}{\partial t} + \frac{\partial v}{\partial x} + R i = f, \quad C \frac{\partial v}{\partial t} + \frac{\partial i}{\partial x} + C v = f, \tag{4}$$

$$(x, t) \in Q_T = \{x \in \Omega, t \in (0, T)\}, \quad \Omega = \bar{\Omega} \cap \Gamma = \partial \bar{\Omega}, \quad \bar{\Omega} = \{0 \leq x \leq l\}.$$

Here $v = v(x, t)$ is the stress, $i = i(x, t)$ is the current strength, $L = const > 0$ is the self-induction coefficient, $R = const > 0$ is the resistance, $C = const > 0$ is the capacity factor, and $G = const > 0$ is the leakage coefficient, calculated per unit length [5].

System of equations (4) is one-dimensional, therefore it can be written in the following form:

$$\frac{\partial w}{\partial t} + \Lambda \frac{\partial w}{\partial x} + K w = \Phi, \tag{5}$$

where

$$w = \begin{pmatrix} \sqrt{Li} + \sqrt{Cv} \\ \sqrt{Li} - \sqrt{Cv} \end{pmatrix}, \quad \Lambda = \begin{pmatrix} 1/\sqrt{LC} & 0 \\ 0 & -1/\sqrt{LC} \end{pmatrix},$$

$$K = \begin{pmatrix} R/L + G/C & R/L - G/C \\ R/L - G/C & R/L + G/C \end{pmatrix}, \quad \Phi = \begin{pmatrix} (R/L)f \\ (R/L)f \end{pmatrix}. \tag{6}$$

It is obvious that matrix K is symmetric and positive defined. Let us consider problem (5), (6). Assuming that $u = \sqrt{Li} + \sqrt{Cv}$, $p = \sqrt{Li} - \sqrt{Cv}$, $a = 1/\sqrt{LC}$, $b^+ = R/L + G/C$, $b^- = R/L - G/C$, $f_1 = (R/L)f$, from (5), (6), we obtain the following system of equations:

$$\frac{\partial u}{\partial t} + a \frac{\partial p}{\partial x} + b^+ u + b^- p = f_1, \quad \frac{\partial p}{\partial t} - a \frac{\partial u}{\partial x} + b^+ p + b^- u = f_1. \tag{7}$$

Equation (7) is supplemented with initial conditions:

$$u(x,0) = u_0(x), \quad p(x,0) = p_0(x), \quad (8)$$

and boundary conditions:

$$\begin{aligned} \alpha_1 u(0,t) + \alpha_2 p(0,t) &= 0, \quad \alpha_1 \neq 0, \quad \alpha_2 \neq 0, \\ \beta_1 u(l,t) + \beta_2 p(l,t) &= 0, \quad \beta_1 \neq 0, \quad \beta_2 \neq 0. \end{aligned} \quad (9)$$

3. Difference schemes. Let's introduce grid $\omega_{h\tau} = \omega_h \times \omega_\tau$, where

$$\begin{aligned} \bar{\omega}_h &= \{x_i = ih, i = \overline{0, N}; h = l / N\}, \quad \omega_h = \bar{\omega}_h \setminus (x_0 = 0, x_N = l), \\ \bar{\omega}_\tau &= \{t_n = n\tau, n = \overline{0, M}; \tau = T / M\}, \quad \omega_\tau = \bar{\omega}_\tau \setminus (t = 0). \end{aligned}$$

We introduce the following notation:

$$\begin{aligned} y &= y(x_i, t_n), \quad y_{i\pm 1} = y(x_i \pm h, t_n), \quad y_x = \frac{y_{i+1} - y_i}{h}, \quad y_{\bar{x}} = \frac{y_i - y_{i-1}}{h}, \quad y_t = \frac{\hat{y} - y}{\tau}, \\ \hat{y} &= y(x, t + \tau), \quad y^{(\sigma)} = \sigma \hat{y} + (1 - \sigma)y, \quad \sigma \geq 0 - \text{const (parameter)}. \end{aligned}$$

Let us approximate (7) by the following system of difference equations:

$$y_t + a q_x^{(\sigma_1)} + b^+ y + b^- q = \varphi, \quad q_t - a y_{\bar{x}}^{(\sigma_2)} + b^+ q + b^- u = \varphi, \quad (10)$$

where $y = y_i^n = y(x_i, t_n)$ approximates $u(x, t)$, $q = q_i^n = q(x_i, t_n)$ approximates $p(x, t)$, and φ approximates f_1 .

Let us supplement equations (10) with initial conditions

$$y^0 = u_0(x), \quad q^0 = p_0(x), \quad x \in \bar{\omega}_h \quad (11)$$

and boundary conditions

$$\begin{aligned} \alpha_1 y(0, t_n) + \alpha_2 q(0, t_n) &= 0, \quad \alpha_1 \neq 0, \quad \alpha_2 \neq 0, \\ \beta_1 y(l, t_n) + \beta_2 q(l, t_n) &= 0, \quad \beta_1 \neq 0, \quad \beta_2 \neq 0, \quad t_n \in \omega_\tau. \end{aligned} \quad (12)$$

4. A priori estimates. Let us consider the difference scheme (10)-(12). We define space H_h as a set of functions defined on grid ω_h and equal to zero at the boundary points of the grid. Let us introduce scalar products and norms in H_h by the following formulas:

$$(y, q) = \sum_{i=1}^{N-1} h y_i q_i, \quad \|y\| = \sqrt{(y, y)}.$$

Let us denote operator by A

$$Ay = a y_{x,i}. \quad (13)$$

Then its adjoint operator is

$$A^* y = -a y_{x,i}. \quad (14)$$

Considering (13), (14), scheme (10) can be rewritten in the following form:

$$y_t + A q^{(\sigma_1)} + b^+ y + b^- q = \varphi, \quad q_t + A y^{(\sigma_2)} + b^+ q + b^- u = \varphi. \quad (15)$$

Let us introduce space $H_h^2 = H_h \oplus H_h$ consisting of vectors $v = \{y, q\}$, $y \in H_h$, $q \in H_h$. Let us write system (15) in vector form

$$B v_t + A v = \varphi, \quad v^0 = U_0, \quad (16)$$

where

$$B = \begin{pmatrix} E & \sigma_1 \tau A \\ -\sigma_2 \tau A^* & E \end{pmatrix}, \quad A = \begin{pmatrix} b^+ E & A + b^- E \\ -A^* + b^- E & b^+ E \end{pmatrix}, \quad (17)$$

$$U_0 = (u_0, p_0) \in H_h^2.$$

Now we examine the properties of operators (17). It is seen that operator A is skew-symmetric in H_h^2 , i.e. $A^* = -A$. Next, we represent operators B and A in the form $B = B_0 + B_1$, $A = A_0 + A_1$, where

$$B_0 = \begin{pmatrix} E & \frac{\sigma_1 - \sigma_2}{2} \tau A \\ \frac{\sigma_1 - \sigma_2}{2} \tau A^* & E \end{pmatrix}, \quad B_1 = \begin{pmatrix} 0 & \frac{\sigma_1 + \sigma_2}{2} \tau A \\ -\frac{\sigma_1 + \sigma_2}{2} \tau A^* & E \end{pmatrix}, \quad (18)$$

$$A_0 = \begin{pmatrix} 0 & A \\ -A^* & 0 \end{pmatrix}, \quad A_1 = \begin{pmatrix} b^+ E & b^- E \\ b^- E & b^+ E \end{pmatrix}.$$

Then, for scheme (16) with operators (17), the following representation is valid:

$$B = D + \sigma \tau A_0,$$

where $D = B_0$, and $\sigma = 0.5(\sigma_1 + \sigma_2)$.

Considering the skew symmetry of A_0 and positive definiteness of A_1 , based on Theorem 12 [3, p. 121], we obtain stability conditions for the difference scheme (10) in H_D^2 $\sigma \geq 0.5$ and $D \geq 0$. The first of these conditions leads to the following requirement:

$$\sigma_1 + \sigma_2 \geq 1. \quad (19)$$

Next, we consider the non-negativity of operator $D = B_0$ from (18). As is known [3], the self-adjoint operator

$$P = \begin{pmatrix} P_{11} & P_{12} \\ P_{12}^* & P_{22} \end{pmatrix}$$

is nonnegative if $P_{11} > 0$, $P_{22} \geq P_{12}^* P_{11}^{-1} P_{12}$. In our case, these conditions take the following form:

$$E \geq \frac{(\sigma_1 - \sigma_2)^2}{4} \tau^2 A^* A. \quad (20)$$

Condition (20) means that for any $x \in H_h$ the following inequality is met:

$$\|x\|^2 \geq \frac{(\sigma_1 - \sigma_2)^2}{4} \tau^2 \|Ax\|^2.$$

This condition is satisfied if

$$\sigma_1 + \sigma_2 \geq 1, \quad |\sigma_1 - \sigma_2| \leq \gamma, \quad \gamma = h / \tau. \quad (21)$$

Thus, based on Theorem 12 from [3, p. 121], the following assertion holds.

Theorem 1. Let conditions (21) be satisfied. Then, to solve the difference scheme (16), the following a priori estimate holds:

$$\|v^{n+1}\|_D \leq \|v^n\|_D.$$

In particular, all schemes with $\sigma_1 = \sigma_2 = \sigma \geq 0.5$ are absolutely stable. In this case, the norm of operator $D = B_0$ is a unit operator, i.e.:

$$\|v\|^2 = \|y\|^2 + \|q\|^2.$$

The “cross” scheme ($\sigma_1 = 0, \sigma_2 = 1$) is stable under condition $\gamma \leq 1$, and the norm, at which stability occurs, is given by the following formula:

$$\|v\|^2 = \|y\|^2 - \tau(Ay, q) + \|q\|^2.$$

5. Stability on the right side. Since in scheme (16) operators $A_0 = -A_0^*$, $D = B_0 = B_0^* > 0$ do not depend on t , then, based on Theorem 4 from [3, p. 191], the following result holds.

Theorem 2. Let $\sigma \geq 1/2$. Then to solve scheme (16), there is an a priori estimate

$$\|v^{n+1}\|_D \leq \|v^0\|_D + \sum_{k=0}^n \tau \|\varphi^k\|_{D_0^{-1}}. \quad (22)$$

6. Convergence and accuracy. To study the convergence of the scheme, we determine the error of scheme (10)-(12) by relations $z = y - u, \zeta = q - p$. Then, substituting $y = z + u, q = \zeta + p$, into (10), we obtain the problem for the error

$$z_t + a\zeta_x^{(\sigma_1)} + b^+ z + b^- \zeta = \psi_1, \quad \zeta_t - a z_x^{(\sigma_2)} + b^+ \zeta + b^- z = \psi_2,$$

where the approximation error is $\psi_k = O(\tau + h), k = 1, 2$.

Error of initial conditions is

$$z^0 = 0, \quad \zeta^0 = 0$$

and of boundary conditions is

$$y(0, t_n) = y(l, t_n) = 0, \quad q(0, t_n) = q(l, t_n) = 0.$$

Then, based on Theorems 1 and 2, the following result holds.

Theorem 3. Let conditions (21) be satisfied. Then the solution to scheme (16) converges to the solution of the original problem (7)-(9) and the accuracy estimate $\|v - U\| \leq O(\tau + h)$ holds.

References:

1. Utebaev D. Difference schemes for hyperbolic systems of equations with generalized solutions. Tashkent: "Fan va technology", 2012. - 236 p.
2. Ardelyan N.V. Convergence of difference schemes for acoustics and Maxwell equations // Journal of Computational Mathematics and Mathematical Physics. - 1983. - V.13. - No. 5. pp. 1168–1176.
3. Samarskii A.A., Gulin A.V. Stability of difference schemes. – M.: Book house "Librokom"/URSS, 2009. – 416 p.
4. Voevodin A.F., Shugrin S.M. Numerical methods for calculating one-dimensional systems. Novosibirsk, Nauka, 1981. – 208 p.
5. Tikhonov A.N., Samarskii A.A. Equations of mathematical physics. Moscow: Nauka, 2004.

Rezyume: Maqolada elektr energiyasini uzatish tizimlarida o'tish tenglamalari misolidan foydalanib, silliq echimlarga ega bo'lgan birinchi tartibli giperbolik tenglamalar tizimlari uchun ayirmali sxemalari taklif etiladi va o'rganiladi. Chekli ayirmalar usulining bir parametrlil ayirmali sxemalari tuziladi. A.A. SamarSKIYning natijalariga ko'ra ayirmali sxemalari nazariyasi uchun turgunlik shartlari va aprior baholar olinadi. Tuzilgan ayirma sxemalarining yaqinlashuvi va aniqligi haqidagi teoremlar isbotlangan. Usulni amalga oshirish algoritmi ishlab chiqilgan.

Резюме: В статье предложены и исследованы разностные схемы для систем гиперболических уравнений первого порядка с гладкими решениями на примере переходных уравнений в системах передачи электроэнергии. Построены однопараметрические разностные схемы метода конечных разностей. По результатам А.А. Самарского получены условия устойчивости и априорные оценки теории разностных схем. Доказываются

теоремы о сходимости и точности построенных разностных схем. Разработан алгоритм реализации метода.

Kalit so'zlar: *giperbolik tenglamalar tizimi, ayirma sxemalari, aprior baholar, turgunlik, yaqinlashish, aniqlik.*

Ключевые слова: *система гиперболических уравнений, разностные схемы, априорные оценки, устойчивость, сходимость, точность.*

UDC 518.61

ON CONVERGENCE OF DIFFERENCE SCHEMES FOR THE HYPERBOLIC EQUATION WITH GENERALIZED SOLUTIONS

Utebaev D., Kazimbetova M.M.

Karakalpak state university named after Berdakh

Summary: *In this article, high-order accuracy difference schemes are proposed and studied for two-dimensional second-order hyperbolic equations in the class of nonsmooth solutions. A high-order accuracy of the scheme is achieved through special discretization in time and space variables. Stability conditions are obtained. Based on a special technique, a priori estimates and accuracy estimates are obtained under weak assumptions on the smoothness of solutions to the original differential problems. Theorems on the accuracy of difference schemes are given. An algorithm for implementing the method is developed.*

Key words: *hyperbolic equations, smoothness, generalized solutions, approximation error, stability, convergence, accuracy.*

1. Introduction. Many physical processes associated with wave propagation are described by second-order hyperbolic equations. The finite difference method is used for numerical modeling of hyperbolic equations. This method is the most common for solving a variety of applied non-stationary problems. The main advantage of this method is its universality and applicability to wide classes of differential equations with linear and nonlinear, ordinary, and partial derivatives, and with continuous and discontinuous coefficients, etc. A central place in the theory of difference schemes takes the study of convergence and accuracy. The classical approach to studying the convergence of difference schemes, based on the Taylor formula, places high demands on the smoothness of the solution. Therefore, in the theory of difference schemes, increasing attention is paid to the issue of obtaining estimates of the rate of convergence of difference schemes, with minimal requirements for the smoothness of the solution to the differential problem, and obtaining consistent estimates of the rate of convergence. Such estimates were first obtained in the works of A.A. Samarskii, G.I. Marchuk, R.D. Lazarov, V.L. Makarov, V. Vainelt [1]-[5], etc. In particular, applying operators of exact difference schemes, estimates of the rate of convergence of difference schemes for elliptic equations, consistent with the smoothness of the sought-for solution, were obtained. Such studies for the second-order equations of parabolic and hyperbolic types were conducted by V.L. Makarov, M.N. Moskalkov, A.A. Zlotnik, D. Utebaev, I.N. Djuraev [6]-[10], etc. One of the main requirements for difference schemes is their economic feasibility in numerical implementation. The studies of A.A. Samarskii, G.I. Marchuk, N.N. Yanenko, and their students are devoted to economical difference schemes for various problems of mathematical physics [11]-[16].

2. Statement of the problem. Let in strip $\Pi_T^+ = \{(x, t) : x \in R^n, t \in [0, T]\}$,

the following equation be given:

$$Ku \equiv \frac{\partial^2 u}{\partial t^2} u_{tt} - \sum_{i,j=1}^n \frac{\partial}{\partial x_i} \left(a_{ij}(x, t) \frac{\partial u}{\partial x_j} \right) + \sum_{i=1}^{n+1} a_i(x, t) \frac{\partial u}{\partial x_i} + a(x, t)u = f(x, t) \quad (1)$$

(here, for convenience of notation, $\frac{\partial u}{\partial t}$ in sum $\sum_{i=1}^{n+1} a_i \frac{\partial u}{\partial x_i}$ is denoted by $\frac{\partial u}{\partial x_{n+1}}$) and the

following conditions are met:

$$a_{ij} = a_{ji}, \quad \nu \xi^2 \leq a_{ij}(x, t) \xi_i \xi_j \leq \mu \xi^2, \quad \nu > 0, \quad (2)$$

and

$$\left| \frac{\partial a_{ij}}{\partial t}, a_i, a \right| \leq \mu_1 \quad (3)$$

in strip $(x,t) \in \Pi_T^+$, $f \in L_{2,1}(Q_T)$, $Q_T = \Omega \times (0,T)$, where Ω is the arbitrary domain bounded in R^n .

Let us consider the solvability of the first initial boundary value problem for equations (1), i.e. the task of finding function $u(x,t)$ in $Q_T = \Omega \times (0,T)$ that satisfies the following requirements:

$$\mathbb{K}u = f, \quad u|_{t=0} = u_0(x), \quad u_t|_{t=0} = u_1(x), \quad u|_{S_T} = 0. \quad (4)$$

Let the boundary condition be reduced to homogeneous one. The membership of $u(x,t) \in W_2^m(Q_T)$ in Sobolev space, $m = 1, 2$, is ensured by the following theorems [17].

Theorem 1. Let the coefficients of equation (1) satisfy conditions (2) and

$$\max_{Q_T} \left| \frac{\partial a_{ij}}{\partial t}, a_i, a \right| \leq \mu_1.$$

Then problem (4) has a unique generalized solution from $W_2^1(Q_T)$

$$\text{for } f \in L_{2,1}(Q_T), \quad u_0 \in \overset{0}{W}_2^1(\Omega), \quad u_1 \in L_2(\Omega).$$

Let, in addition to (2), (3) in $Q_T = \Omega \times (0,T)$, the coefficients of equation (1) satisfy the following conditions:

$$\left| \frac{\partial^2 a_{ij}}{\partial t^2}, \frac{\partial a_i}{\partial t}, \frac{\partial a}{\partial t}, \frac{\partial a_{ij}}{\partial x} \right| \leq \mu_2, \quad (5)$$

$$\frac{\partial f}{\partial t} \in L_{2,1}(Q_T), \quad (6)$$

and the initial functions have the following properties:

$$u_0 = W_2^2(\Omega) \cap \overset{0}{W}_2^1(\Omega), \quad u_1 \in \overset{0}{W}_2^1(\Omega). \quad (7)$$

Theorem 2. Let conditions (2), (3), (5) - (7) be satisfied and $\partial\Omega \in C^2$ be the class of twice differentiable functions. Then problem (4) has a unique generalized solution from $W_2^2(Q_T)$.

Let the coefficients of equation (1) be independent of t and $a_i = a = 0$. Then with (1)-(3), we consider the following initial boundary value problem:

$$\frac{\partial^2 u}{\partial t^2} = Lu + f(x,t), \quad (x,t) \in Q_T = \{x \in \Omega, t \in (0,T)\}, \quad (8)$$

$$u(x,0) = u_0(x), \quad \frac{\partial u}{\partial t}(x,0) = u_1(x), \quad x \in \bar{\Omega}, \quad (9)$$

$$u = \mu(x,t), \quad (x,t) \in S_T = \{x \in \Gamma = \partial\Omega, t \in (0,T)\}, \quad (10)$$

where

$$L = \sum_{\alpha=1}^n L_{\alpha}, \quad L_{\alpha}u = \frac{\partial}{\partial x_{\alpha}} \left(k_{\alpha}(x_{\alpha}) \frac{\partial u}{\partial x_{\alpha}} \right),$$

$0 < c_1 \leq k_{\alpha}(x_{\alpha}) \leq c_2, \bar{\Omega} = \{x = (x_1, x_2, \dots, x_n) : 0 \leq x_{\alpha} \leq l_{\alpha}, \alpha = 1, 2, \dots, n\}, \Omega = \bar{\Omega} \cap (0, l_{\alpha}),$
 Γ - is the boundary of domain Ω , functions $f(x, t), \mu(x, t), k_{\alpha}(x_{\alpha}), u_0(x)$, and boundary $\partial\Omega$ of domain Ω are such that the solution to problem (8)-(10) belongs to class $W_2^m(Q_T)$, where $m = 1, 2$.

3. Approximation in space. Now, using the operators of exact difference schemes, we construct schemes of the method of lines for the second-order equations of hyperbolic type and obtain estimates of the rate of convergence of these schemes, which in some sense are consistent. Let us introduce the following definition.

Definition. An estimate of the rate of convergence of the method of lines that is consistent with the smoothness of the sought-for solution to a second-order hyperbolic equation is called an estimate of the following form:

$$E_h^{(k)}(t; z) \leq M |h|^{m-k-1} \|u\|_{m, Q_T}.$$

Here m is the natural number, k is the integer, $h = (h_1, \dots, h_n), |h| = (h_1^2 + \dots + h_n^2)^{1/2}$, $\|\cdot\|_{m, Q_T}$ is the norm in $W_2^m(Q_T)$, u is the solution to the original differential problem, z is the error of the method of lines, $M > 0, E_h^{(k)}(t; z)$ is some energy norm of the k -th order, similar to the energy integral mentioned in [18]. Unlike [18], the case for $k < 0$ is also considered here.

Compared to similar estimates of the accuracy of the grid method for solving elliptic and parabolic equations, the convergence rate for hyperbolic equations is one less. A computational experiment shows that the decrease in the convergence rate is due to the specifics of these equations.

Let us approximate problem (8)-(10) using the method of lines. To do this, we introduce the following grid in $\bar{\Omega}$:

$$\bar{\omega}_h = \{x_{\alpha} = i_{\alpha} h_{\alpha}, i_{\alpha} = \overline{0, N_{\alpha}}, h_{\alpha} = l_{\alpha} / N_{\alpha}, \alpha = \overline{1, n}\}$$

and replace problem (8)-(10) with a system of ordinary differential equations:

$$\tilde{D} \frac{d^2 \mathcal{G}}{dt} = \tilde{A} \mathcal{G} + \tilde{f}, \quad (x, t) \in Q_T^h = \{x \in \omega_h, t \in (0, T)\},$$

$$\mathcal{G} = \mu(x, t), \quad (x, t) \in S_{\Gamma}^h = \{x \in \gamma_h, t \in [0, T]\}, \quad (11)$$

$$\mathcal{G} = \bar{u}_0(x), \quad \frac{d\mathcal{G}}{dt} = \bar{u}_1(x), \quad x \in \omega_h, \quad t = 0,$$

where ω_h are the internal grid nodes, and γ_h are the boundary grid nodes $\bar{\omega}_h, \tilde{D} = E,$
 $\tilde{A} = \sum_{\alpha=1}^n \tilde{\Lambda}_{\alpha}, \tilde{\Lambda}_{\alpha} \mathcal{G} = (a_{\alpha} \mathcal{G}_{\bar{x}_{\alpha}})_{x_{\alpha}}, \alpha = 1, 2, \dots, n, \tilde{f} = T^x f(\cdot, t), \bar{w} = T^x \bar{w}(\cdot), T^x = \prod_{\alpha=1}^n T^{x_{\alpha}},$

$T^{x_{\alpha}}$ are the operators of exact difference schemes for operators L_{α} [1]:

$$T^{x_{\alpha}} u = \bar{S}^{x_{\alpha}} S^{x_{\alpha}} u = \frac{1}{h_{\alpha}^2} \left(\int_{x_{\alpha}-h_{\alpha}}^{x_{\alpha}} (\xi_{\alpha} - x_{\alpha} + h_{\alpha}) u(x_1, \dots, \xi_{\alpha}, \dots, x_n) d\xi_{\alpha} + \right.$$

$$+ \int_{x_\alpha}^{x_\alpha+h_\alpha} (x_\alpha + h_\alpha - \xi_\alpha) u(x_1, \dots, \xi_\alpha, \dots, x_n) d\xi_\alpha \Bigg).$$

In [19], the following result was obtained for problem (11).

Theorem 3. If the solution to problem (8)-(10) is $u \in W_2^m(Q_T)$, then the following estimate for error $z = \mathcal{G} - u$ of scheme (11) is valid:

$$\tilde{E}_h^{(k)}(t; z) \leq M |h|^{m-k-1} \|u\|_{m, Q_T}, \quad 0 \leq m - k - 1 \leq 2, \quad k = -1, 0, 1,$$

where

$$\|\mathcal{G}\|_{0, Q_T^h} = \left(\int_0^T \|\mathcal{G}(t)\|^2 dt \right)^{1/2}, \quad \tilde{E}_h^{(k)}(t; \mathcal{G}) = \left(\left\| \mathcal{G}(t) \right\|_{A^{-1}}^{k+1} + \left\| \mathcal{G}(t) \right\|_A^k \right)^{1/2}$$

$$E_h^{(k)}(t; V) = \left(\left\| \mathcal{G}(t) \right\|_A^k + \left\| \mathcal{G}(t) \right\|_A^{k-1} \right)^{1/2}, \quad k = -1, 0, 1.$$

Here $\mathcal{G}^k(t) = \frac{d^k \mathcal{G}(t)}{dt^k}$ for $k \geq 0$ and $\mathcal{G}^k(t) = \int_0^t \dots \int_0^{t_{k+1}} \mathcal{G}(t_k) dt_k \dots dt_0$ for $k < 0$.

4. Approximation in time. Let us consider problem (11) as the abstract Cauchy problem for a nonstationary second-order equation with constant coefficients:

$$D \frac{d^2 u}{dt^2} + Au = f, \quad 0 < t \leq T, \tag{12}$$

$$u(0) = u_0, \quad \frac{du(0)}{dt} = u_1, \tag{13}$$

where A and D are linear constants independent of t , operators from $H \rightarrow H$ – Hilbert space with the corresponding scalar product (u, \mathcal{G}) and energy norm $\|u\|_A = \sqrt{(Au, u)}$. Here $A^* = A > 0, D^* = D > 0; \forall t \geq 0, u = u(t), f = f(t) \in H$. In the case of problem (11), we have $D = E, A = -\tilde{A}, f = \tilde{f}, u_0 = \bar{u}_0, u_1 = \bar{u}_1$.

Generally, in the theory of difference schemes, to approximately solve problem (12), (13), three-layer difference schemes of second-order approximation in τ (time step) or Crank–Nicholson schemes are used [11], [12], [14]. High-order accuracy schemes were obtained in [9], [19] based on the finite element method.

To construct a time difference scheme similar to the one given in Section 3, we introduce the following operator:

$$T^t u = \frac{1}{\tau^2} \int_{t-\tau}^{t+\tau} (\tau - |t - \theta|) u(\theta) d\theta. \tag{14}$$

According to Taylor's formula, we obtain:

$$u(\theta) = u(t) + (t - \theta) \frac{du(t)}{dt} + \frac{(t - \theta)^2}{2} \frac{d^2 u(t)}{dt^2} + \dots + \frac{(t - \theta)^n}{n!} \frac{d^n u(t)}{dt^n} + R_n(\theta), \tag{15}$$

$$R_n(\theta) = \frac{(t - \theta)^{n+1}}{(n + 1)!} \frac{d^{(n+1)} u(t)}{dt^{(n+1)}} [\theta + \varepsilon(\theta - t)], \quad 0 < \varepsilon < 1.$$

Substituting (15) into (14) and calculating the resulting integrals, we obtain:

$$T^t u(t) = u(t) + (\tau^2 / 12) \frac{d^2 u(t)}{dt^2} + O(\tau^4). \quad (16)$$

Next, applying operator T^t to equation (12), we obtain:

$$T^t D \frac{d^2 u(t)}{dt^2} + T^t Au = T^t f. \quad (17)$$

From here, considering (16) and the properties of operator T^t [1], we obtain the following difference scheme:

$$\bar{D}y_{\bar{t}} + Ay = \varphi, \quad (18)$$

where $y = y^n = y(t_n)$, $\bar{D} = D + \frac{\tau^2}{12}A$, $y_{\bar{t}} = (y^{n+1} - 2y^n + y^{n-1})/\tau^2$,

$$\hat{y} = y(t_{n+1}), \check{y} = y(t_{n-1}), \varphi = T^t f, y^n \in H, \varphi \in H,$$

$$t_n \in \omega_\tau = \{t_n = n\tau, n = 1, M - 1, \tau = T / M\}.$$

Let us introduce the approximation error $z = y - u$. Then, substituting $y = z + u$ into (18), we obtain:

$$\bar{D}z_{\bar{t}} + Az = \psi, \quad (19)$$

where $\psi = \varphi - \bar{D}u_{\bar{t}} - Au$. Next, considering (17), we obtain:

$$\psi = A \left(T^t u - u - \frac{\tau^2}{12} u_{\bar{t}} \right) \text{ or } \psi = A\eta, \quad \eta = T^t u - u - \frac{\tau^2}{12} u_{\bar{t}}.$$

Now let us estimate functional η using the Bramble-Hilbert lemma [1], [9]. To do this, we first write it in the following form:

$$\eta(u) = \frac{1}{\tau^2} \int_{t_n - \tau}^{t_n + \tau} (\tau - |\theta - t_n|) u(\theta) d\theta - u(t_n) - \frac{1}{12} [u(t_n + \tau) - 2u(t_n) + u(t_n - \tau)].$$

Permutation of variables $\frac{\theta - t_n}{\tau} = \zeta, \theta = t_n + \tau\zeta, d\theta = \tau d\zeta$ gives:

$$\eta(u) = \int_0^1 (1 - |\zeta|) u(t_n + \tau\zeta) d\zeta - u(t_n) - \frac{1}{12} [u(t_n + \tau) - 2u(t_n) + u(t_n - \tau)]. \quad (20)$$

If we introduce function $\bar{u}(\zeta) = u(t_n + \tau\zeta)$, then from (20), we obtain:

$$\eta(\bar{u}) = \int_0^1 (1 - |\zeta|) \bar{u}(\zeta) d\zeta - \bar{u}(0) - \frac{1}{12} [\bar{u}(1) - 2\bar{u}(0) + \bar{u}(-1)].$$

By direct verification, we can see that this functional vanishes on polynomials up to the fourth power in variable ζ . Therefore, $\eta(\bar{u})$ is bounded for continuous functions $\eta(\bar{u}) \in C[0,1]$. Moreover, it is bounded for $\eta(\bar{u}) \in W_2^4[0,1]$. Then

$$|\eta(\bar{u})| = \left| T^t \bar{u} - \bar{u} - \frac{\tau^2}{12} \bar{u}_{\bar{t}} \right| \leq M \sum_{m=0}^4 \left[\int_0^1 \left(\frac{d^m \bar{u}}{d\zeta^m} \right)^2 d\zeta \right]^{1/2}.$$

Therefore, by the Bramble-Hilbert lemma, we get:

$$|\eta(\bar{u})| \leq \bar{M} \left[\int_0^1 \left(\frac{d^4 \bar{u}}{d\zeta^4} \right)^2 d\zeta \right]^{1/2}.$$

Returning to the old variables, we obtain the following estimate:

$$|\eta(u)| \leq \bar{M} \tau^{7/2} \left[\int_{t_n}^{t_{n+1}} \left(\frac{d^4 u}{dt^4} \right)^2 dt \right]^{1/2}, \quad \forall t \in [t_n, t_{n+1}]$$

or

$$\begin{aligned} \|\eta(u)\|^2 &\leq \bar{M}^2 \tau^7 \int_{t_n}^{t_{n+1}} \left(\frac{d^4 u}{dt^4} \right)^2 dt \leq \sum_{n=0}^{m-1} \int_{t_n}^{t_{n+1}} \bar{M}^2 \tau^7 \left\| \frac{d^4 u}{dt^4}(u) \right\|^2 dt' = \\ &= \bar{M}^2 \tau^7 \left\| \frac{d^4 u}{dt^4}(t) \right\|^2 \cdot \tau = \bar{M}^2 \tau^8 \left\| \frac{d^4 u}{dt^4}(t) \right\|^2, \quad \forall t \in [t_n, t_{n+1}]. \end{aligned}$$

Hence

$$\|\eta(u)\| \leq \bar{M} \tau^4 \left\| \frac{d^4 u}{dt^4}(t) \right\|,$$

i.e., the scheme approximation error is $O(\tau^4)$.

To achieve the approximation order $O(\tau^4)$ of the initial conditions, we replace du/dt by Dy_t and, then using the Taylor expansion, we obtain the initial conditions for scheme (18) ($y(0) = u_0$ is approximated exactly):

$$y(0) = u_0, \quad y_t(0) = D^{-1} \bar{y}_1, \tag{21}$$

$$\text{where } \bar{y}_1 = [D - (\tau^2/6)A]u_1 + (\tau^2/6)f.$$

The stability condition for three-layer difference schemes (18), has the following form:

$$\bar{D} \geq \frac{1 + \varepsilon}{4} \tau^2 A. \tag{22}$$

Since $A^* = A > 0$, $D^* = D > 0$, then (22) will be satisfied under the following condition:

$$\tau^2 \leq \frac{12}{2 + 3\varepsilon} \cdot \frac{\|D\|}{\|A\|}. \tag{23}$$

5. On convergence of the scheme. To study the convergence of the scheme, we obtain the problem for the approximation error of scheme (18), (21). To do this, we write the equation for error $z = y - u$ ($y = u + z$). Multiplying the scheme for error (19) by A^{-1} , we obtain:

$$\mathfrak{S}z_{\bar{t}t} + \mathfrak{R}z = \eta, \tag{24}$$

where $\mathfrak{S} = A^{-1}D + \frac{\tau^2}{12}E$, $\mathfrak{R} = E$. The initial conditions for (24) have the following form:

$$z^0 = 0, \quad \mathfrak{S} \frac{z^1 - z^0}{\tau} = \bar{z}_1, \quad \bar{z}_1 = \left(D - \frac{\tau^2}{6} \right) u_1 + \frac{\tau^2}{6} \frac{df}{dt}.$$

The following result holds [11, p. 402].

Theorem 4. Let operators $A^* = A > 0$, $D^* = D > 0$ and condition (23) be satisfied. Then to solve the difference scheme (18), (21), there is the following a priori estimate:

$$\|y^{n+1}\|_A \leq \sqrt{\frac{1+\varepsilon}{\varepsilon}} \left(\|y(0)\|_A + \|y_t(0)\|_{\bar{D}} + \sum_{s=1}^n \tau \|\varphi^s\| \right)$$

or

$$\|y^{n+1}\|_{\bar{D}} \leq \sqrt{\frac{1+\varepsilon}{\varepsilon}} \left(\|y(0)\|_{\bar{D}} + \|Dy_t(0)\|_{A^{-1}} + \sum_{s=1}^n \tau \|\varphi^s\|_{A^{-1}} \right). \quad (25)$$

Based on this theorem, we obtain the following result.

Theorem 5. Let the solution to problem (12), (13) $u(t) \in W_2^4[0, T]$, $f(t) \in C^2[0, T]$ and conditions (23) be satisfied. Then the solution to scheme (18), (21) with operators $A^* = A > 0$, $\bar{D}^* = \bar{D} > 0$ converges to the solution of the original problem (12), (13) with accuracy $O(\tau^4)$, i.e., the following accuracy estimate holds:

$$\|u(t) - y(t)\|_D \leq M \tau^4, \quad M > 0 - const. \quad (26)$$

Estimate (26) is obtained from (25) considering $\psi = O(\tau^4)$.

Based on Theorems 3 and 5, we obtain the following result.

Theorem 6. Let the solution to problem be $u(x, t) \in W_2^4 \left\{ [0, T]; W_2^m(\Omega) \cap \overset{\circ}{W}_2^1(\Omega) \right\}$,

and the right-hand side of (8)-(10) be $f(x, t) \in C^2 \left\{ [0, T]; W_2^m(\Omega) \right\}$ and condition (23) be satisfied. Then the solution to difference scheme (18), (21) with operators $A^* = A > 0$, $\bar{D}^* = \bar{D} > 0$ converges to the solution to the original problem (12), (13) with accuracy $O(\tau^4 + |h|^{m-k-1})$, i.e. the following accuracy estimate holds:

$$\tilde{E}_h^{(k)}(t; z) \leq M (\tau^4 + |h|^{m-k-1}) \|u\|_{m, Q_T}, \quad 0 \leq m - k - 1 \leq 2, \quad k = -1, 0, 1,$$

where $M > 0 - const$.

6. Algorithm for implementing the scheme. The difference scheme (18), (21) is explicit and there is an inverse operator \bar{D}^{-1} , therefore it is implemented by the sweep method; for example, the algorithm for implementing the scheme in the one-dimensional case has the following form:

$$y_i^{n+1} = 2(E - \gamma \bar{D}^{-1}) y_i^n + \gamma \bar{D}^{-1} (y_{i+1}^n + y_{i-1}^n) - y_i^{n-1} + \tau^2 \bar{D}^{-1} \varphi_i^n, \quad \gamma = a^2 \tau^2 / h^2, \\ n = 1, M - 1, \quad i = 1, n - 1,$$

$$y_i^0 = u_i^0, \quad y_i^1 = \bar{D}^{-1} \bar{y}_1, \quad x_i \in \bar{\omega}_h, \quad y_0^n = \mu_1(t_n), \quad y_N^n = \mu_2(t_n), \quad t_n \in \omega_\tau.$$

Algorithms are written in a similar form for the two-dimensional and three-dimensional cases.

Note. Based on scheme (18), it is possible to construct the two-parameter scheme

$$\bar{D} y_{\bar{n}} + A y^{(\sigma_1, \sigma_2)} = \varphi, \quad y^{(\sigma_1, \sigma_2)} = \sigma_1 \hat{y} + (1 - \sigma_1 - \sigma_2) y + \sigma_2 \overset{\vee}{y},$$

which will be the subject of a separate article.

7. Conclusions. In this article, difference schemes of high-order accuracy were proposed and studied for two-dimensional second-order hyperbolic equations in the class of generalized

solutions. An increase in the order of accuracy of the scheme was achieved by discretizing time variables by the method of lines and space variables by the finite difference method. Stability conditions were obtained and, based on a special technique, a priori estimates and accuracy estimates were obtained for solving difference schemes with minimal requirements for the smoothness of solutions to the original differential problems. An algorithm for implementing the method was proposed.

References:

1. Samarskii A.A., Lazarov R.D., Makarov V.L. Difference schemes for differential equations with generalized solutions. M.: Nauka, 1978. – 296 p.
2. Makarov V.L., Samarskii A.A., Application of Exact Difference Schemes to the Estimation of the Rate of Convergence for the Method of Lines // Computational Mathematics and Mathematical Physics. – 1980. – Vol. 20. – № 2. – P. 371–387.
3. Lazarov R.D. On the convergence of difference schemes for some axially symmetric problems of mathematical physics in classes of generalized solutions // Reports of the Academy of Sciences. – 1981. – Vol. 258. – № 6. – P. 1301–1304.
4. Lazarov R.D., Makarov V.L. [Convergence of a difference method and the method of lines for multidimensional problems of mathematical physics in classes of generalized solutions](#) // Reports of the Academy of Sciences. – 1981. – Vol. 259. – № 2. – P. 282–286.
5. [Lazarov R. D.](#), [Makarov V.L.](#), Samarskii A.A. Application of exact difference schemes to the construction and study of difference schemes for generalized solutions // Math. USSR-Sb. – 1982. – Vol. 117 (159). – № 4. – P. 469–480.
6. [Djuraev I. N.](#), [Kolesnik T. V.](#), [Makarov V. L.](#) On the accuracy of the method of lines for second-order quasilinear hyperbolic equations with a small parameter multiplying the highest time derivative // Differ. Equations. – 1985. – [Vol. 21](#). - № [7](#), P. 1164–1170.
7. [Djuraev I. N.](#), [Moskalkov M. N.](#) Investigation of the convergence of the solution of a difference scheme with weights to the generalized solution of the vibrating string equation in the class $W_2^2(Q_T)$ // Differ. Equations. 1985. – [Vol. 21](#). - № [12](#), P. 2145–2152.
8. Moskalkov M.N., Burkovskaya V.L., Djuraev I.N. Convergence rate of discretization methods for the wave equation with generalized solutions // Computational and Applied Mathematics. - Kyiv, 1985. - Issue 57. P. 26–33.
9. Moskalkov M.N., Utebaev D. Numerical modeling of nonstationary processes in continuum mechanics. Tashkent: Fan va technology, 2012. – 176 p.
10. Zlotnik A.A. Projection-difference scheme for the equation of string vibrations // DAN USSR. - 1979. - V. 245. - No. 2. P. 292–295.
11. Samarskii A.A. The Theory of Difference Schemes. New York, Marcel Dekker, 2001. – 762 p.
12. Samarskii A.A., Vabishchevich P.N. Computational heat transfer. M.: Editorial URSS, 2003. – 784 p.
13. Samarskii A.A., Gulin A.V. Stability of difference schemes. M.: URSS, 2019. – 416 p.
14. Marchuk G.I. Methods of computational mathematics. M.: Lan. – 2009. – 608 p.
15. Marchuk G.I. Splitting methods. M.: Nauka, 1989. – 608 p.
16. Yanenko N.N. Methods of fractional steps for solving multidimensional problems of mathematical physics. Novosibirsk: Nauka, 1967. 196 p.
17. Ladyzhenskaya O.A. Boundary value problems of mathematical physics. M.: Nauka, 1973. 408 p.
18. Ladyzhenskaya O.A. Mixed problem for a hyperbolic equation. M.: Gostekhizdat, 1953. – 279 p.
19. Moskalkov M.N., Utebaev D., Utebaev D.B. Difference schemes for hyperbolic equations with generalized solutions. Nukus, “PRINT DARHAN”, 2024. – 168 p.

Rezyume. *Ushbu maqolada tekis bo'lmagan yechimlar sinfida ikki o'lchovli ikkinchi tartibli giperbolik tenglamalar uchun yuqori tartibli aniqlikga ega ayirmali sxemalar taklif etilgan va tadqiq qilingan. Sxemalarning yuqori tartibli aniqligiga vaqt va fazo o'zgaruvchilarini maxsus diskretlashtirish orqali erishilgan. Barqarorlik shartlari olingan. Maxsus texnikaga asoslanib, dastlabki differentsial masalani yechishning etarli darajada silliqiligiga zaif taxminlar ostida aprior baholar va aniqlik baholari olingan. Ayirmali sxemalarining aniqligi haqidagi teoremlar berilgan. Usulni amalga oshirish algoritmi ishlab chiqilgan.*

Резюме. *В настоящей работе предложены и исследованы разностные схемы высокого порядка точности для двумерных гиперболических уравнений второго порядка в классе негладких решений. Высокий порядок точности схемы достигнута за счет*

специальной дискретизации временных и пространственных переменных. Получены условия устойчивости. На основе специальной методики получены априорные оценки и оценки точности при слабых предположениях о гладкости решений исходной дифференциальной задач. Приведены теоремы о точности разностных схем. Разработан алгоритм реализации метода.

Kalit so'zlar: giperbolik tenglamalar, sillqlik, umumlashgan yechimlar, turg'inlik, yaqinlashish, aniqlik.

Ключевые слова: гиперболические уравнения, гладкость, обобщенные решения, устойчивость, сходимост, точност.

UDC 517.923

FRACTIONAL DIFFERENTIAL EQUATIONS AND EULER FUNCTIONS

Otarova J.A., Shamuratov D.S.

Karakalpak state university named after Berdakh

Summary: *This paper discusses solutions to fractional order differential equations using Euler's Gamma function.*

Key words: *fractional order differential equations, Euler functions, general solution, fractional integrodifferentiation, Riemann-Liouville integral.*

Fractional integration and differentiation is a rapidly developing area of modern analysis, which has a long history and rich content, due to penetration and relationships with various issues of the theory of functions, integral and differential equations, functional analysis, special functions and integral transformations. Generalization of the concept of differentiation $\frac{d^p f(t)}{dt^p}$ to non-

integer values p , arose from the very beginning of differential calculus. The first steps were taken by J.I. Euler in 1738, P. Laplace in 1812, J. Fourier in 1822. The actual history of fractional calculus should be traced back to the works of N.H. Abel and J. Liouville, who appeared in the 30s of the 19th century. Next to the works of J. Liouville in importance should be placed the works of B. Riemann, who came to the construction of fractional integration, which has since served as one of the main forms of fractional integration.

The history of the development of fractional integrodifferentiation includes many works, in which already known results were rediscovered at different times, sometimes with the same means as the previous ones, and sometimes based on other methods. This circumstance was aggravated by the fact that there are a large number of different approaches to fractional integro-differentiation and different directions in fractional calculus. Comparisons between these approaches and trends have been rare and relatively little is known. An important step in development was the writing of a book that combined various studies in the direction of studying fractional derivatives and integrals, written by S.G. Samko, A.A. Kilbas and O.I. Marichev [1]. A few years later, a book appeared by Miller K., Ross V. [2]. The further development of fractional calculus was promoted by AM Nakhushiev's book [3]. This monograph presents the thoughts and ideas that the author had in the process of searching for methods for solving various, both local and nonlocal initial, mixed and boundary value problems for partial differential equations of basic and qualitatively new types. A.V. Pskhu [4] conducts a study of linear equations with two independent variables of order less than or equal to unity. The cited books contain an extensive list of publications devoted to differential equations with fractional derivatives. Among them are the works of Aleroev T.S. [5], [6], Voroshilova A.A. and Kilbasa A.A. [7], Gekkieva S.Kh. [8], Arendt W. [9], Schneider WR, Wyss W. [10], etc.

Euler's gamma functions are important in the theory of fractional integration and differentiation since they are a generalization of the factorial concept for non-natural numbers. The beta function is generally defined in terms of the gamma function. The psi function is the logarithmic derivative of the gamma function.

Let $z \in C$. Gamma function $\Gamma(z)$ was defined by Euler as the limit [3]

$$\Gamma(z) = \lim_{N \rightarrow \infty} \frac{N! N^z}{z(z+1)(z+2)\dots(z+N)}, \quad z \in C,$$

but, more often the definition is used in the form of an Euler integral of the second kind

$$\Gamma(z) = \int_0^{\infty} y^{z-1} e^{-y} dy, \quad \operatorname{Re} z > 0, \quad (1)$$

which converges for all $z \in C$, for which $\operatorname{Re} z > 0$.

Integration by parts of the expression (1) leads to the recurrent formula

$$\Gamma(z+1) = z\Gamma(z). \quad (2)$$

Because the $\Gamma(1) = 1$, then recurrent formula (2) for positive integers n leads to equality

[1]

$$\Gamma(n+1) = n \Gamma(n) = n(n-1)\Gamma(n-2) = \dots = n(n-1) \cdot \dots \cdot 2 \cdot 1 \cdot \Gamma(1),$$

or

$$\Gamma(n+1) = n!,$$

which allows us to consider the gamma function as a generalization of the concept of factorial.

Rewriting the formula (2) in the form,

$$\Gamma(z-1) = \frac{\Gamma(z)}{z-1}, \quad (3)$$

we will obtain an expression that allows us to determine the gamma function from negative arguments for which definition (1) is unacceptable.

Formula (3) shows that $\Gamma(z)$ has at points $z = 0, -1, -2, -3 \dots$ ruptures of the second kind.

After repeatedly applying the equality (3) we obtain the formulas for decreasing and increasing, which, respectively, have the form

$$\Gamma(z+n) = z(z+1)\dots(z+n-1)\Gamma(z), \quad n = 1, 2, \dots$$

and

$$\Gamma(z-n) = \frac{\Gamma(z)}{(z-n)(z-n+1)\dots(z-1)}, \quad n = 1, 2, \dots$$

note that

$$\Gamma\left(\frac{1}{2} + n\right) = \frac{(2n)! \sqrt{\pi}}{4^n n!}; \quad \Gamma\left(\frac{1}{2} - n\right) = \frac{(-4)^n n! \sqrt{\pi}}{(2n)!}.$$

The following relations hold: complement formula,

$$\Gamma(z)\Gamma(1-z) = \frac{\pi}{\sin z\pi},$$

doubling formula (Legendre's formula)

$$\Gamma(2z) = \frac{2^{2z-1}}{\sqrt{\pi}} \Gamma(z) \Gamma\left(z + \frac{1}{2}\right).$$

We also present some values of the Gamma function [11],

$$\left. \begin{aligned} \Gamma(n) &= (n-1)!, & \Gamma(n+1) &= n\Gamma(n), \\ \Gamma(1) &= 0! = 1, & \Gamma\left(\frac{1}{2}\right) &= \sqrt{\pi}, \\ \Gamma(2) &= 1! = 1, & \Gamma\left(\frac{3}{2}\right) &= \frac{1}{2}\Gamma\left(\frac{1}{2}\right) = \frac{\sqrt{\pi}}{2}, \\ \Gamma(3) &= 2! = 2, & \Gamma\left(\frac{5}{2}\right) &= \frac{3}{2}\Gamma\left(\frac{3}{2}\right) = \frac{3\sqrt{\pi}}{4} \end{aligned} \right\} \quad (4)$$

Let's consider solutions to fractional order differential equations using Euler's Gamma functions.

1. Find the solution to the equation $y^{\left(\frac{1}{2}\right)} + \sqrt{x}y = xe^{-x}$.

Multiplying both sides of the equation by e^x we get,

$$y^{\left(\frac{1}{2}\right)}e^x + e^x\sqrt{x}y = x.$$

Let us reduce the right side of the equation to the form $(e^x y)^{\left(\frac{1}{2}\right)} = x$. Calculating the order

integral $\frac{1}{2}$, using the Riemann-Liouville integral [1], we obtain

$$\begin{aligned} \left(I_{a^+}^{\left(\frac{1}{2}\right)} f \right) (x) &= \frac{1}{\Gamma\left(\frac{1}{2}\right)} \int_0^x \frac{t}{\sqrt{x-t}} dt = \frac{2}{\sqrt{\pi}} \int_0^{\sqrt{x}} (x-p^2) dp = \\ &= \frac{2}{\sqrt{\pi}} \left(\left(xp - \frac{p^3}{3} \right) \Big|_0^{\sqrt{x}} \right) = \frac{2}{\sqrt{\pi}} \left(\frac{2x\sqrt{x}}{3} \right) = \frac{4x\sqrt{x}}{3\sqrt{\pi}}, \end{aligned}$$

then the equation will be reduced to the form where C – arbitrary constant,

$$ye^x = \frac{4x\sqrt{x}}{3\sqrt{\pi}} + C,$$

solution, which will be written in the form

$$y = \frac{4x\sqrt{x}}{3\sqrt{\pi}} e^{-x} + Ce^{-x}.$$

2. Find a solution to the equation that satisfies the given condition

$$y^{\left(\frac{1}{2}\right)} + y = x^2 + 2x^{\frac{3}{2}}, \quad y(0) = 0, \quad \text{let } \Gamma\left(\frac{5}{2}\right) \approx 1.$$

using relation [2] $D^{\alpha+\beta}(\varphi(x)) = D^\alpha(D^\beta(\varphi(x)))$, we get

$$\frac{d^{\frac{1}{2}}}{dx^{\frac{1}{2}}} y^{\left(\frac{1}{2}\right)} + \frac{d^{\frac{1}{2}}}{dx^{\frac{1}{2}}} y = \frac{d^{\frac{1}{2}}}{dx^{\frac{1}{2}}} x^2 + 2 \frac{d^{\frac{1}{2}}}{dx^{\frac{1}{2}}} x^{\frac{3}{2}},$$

$$y' + y^{\left(\frac{1}{2}\right)} = \frac{\Gamma(2+1)}{\Gamma\left(2+1-\frac{1}{2}\right)} x^{2-\frac{1}{2}} + 2 \frac{\Gamma\left(\frac{3}{2}+1\right)}{\Gamma\left(\frac{3}{2}+1-\frac{1}{2}\right)} x^{\frac{3-\frac{1}{2}}{2}},$$

equation of the form

$$y' + y^{\left(\frac{1}{2}\right)} = \frac{\Gamma(3)}{\Gamma\left(\frac{5}{2}\right)} x^{\frac{3}{2}} + 2 \frac{\Gamma\left(\frac{5}{2}\right)}{\Gamma(2)} x.$$

Considering that $\Gamma\left(\frac{5}{2}\right) \approx 1$ and relations (4),

$$y^{\left(\frac{1}{2}\right)} = -y + x^2 + 2x^{\frac{3}{2}},$$

we obtain an ordinary differential equation of the form,

$$y' - 2x = y - x^2,$$

the solution of which will be written in the form $y = x^2 + Ce^x$, where $C = const$, from the initial condition we get $C = 0$. Then the solution will be written in the form $y = x^2$.

3. Find the solution to the equation,

$$\frac{dy}{dt} + \frac{d^{\frac{1}{2}}y}{dt^{\frac{1}{2}}} - 2y^2 = 0,$$

We look for a solution in the form where $y_0 = c$, $c = const$,

$$y = \sum_{n=0}^{\infty} t^{\frac{n}{2}} y_n,$$

Substituting into the equation we get,

$$\frac{d}{dt} \left(\sum_{n=0}^{\infty} t^{\frac{n}{2}} y_n \right) + \frac{d^{\frac{1}{2}}}{dt^{\frac{1}{2}}} \left(\sum_{n=0}^{\infty} t^{\frac{n}{2}} y_n \right) - 2 \left(\sum_{n=0}^{\infty} t^{\frac{n}{2}} y_n \right)^2 = 0.$$

Using the fractional differentiation formula [1],

$$D^{\alpha} (t^n) = \frac{\Gamma(n+1)}{\Gamma(n-\alpha+1)} t^{n-\alpha},$$

we get an equation of the form,

$$\sum_{n=0}^{\infty} \frac{n}{2} t^{\frac{n-1}{2}} y_n + \sum_{n=0}^{\infty} \frac{\Gamma\left(\frac{n}{2}+1\right)}{\Gamma\left(\frac{n}{2}+\frac{1}{2}\right)} t^{\frac{n}{2}} y_n - 2 \left(\sum_{n=0}^{\infty} t^{\frac{n}{2}} y_n \right)^2 = 0,$$

expanding the series

$$\left(0 + \frac{1}{2}t^{-\frac{1}{2}}y_1 + t^0y_2 + \frac{3}{2}t^{\frac{1}{2}}y_3 + \dots \right) + \left\{ \frac{\Gamma(1)}{\Gamma\left(\frac{1}{2}\right)}t^{-\frac{1}{2}}y_0 + \frac{\Gamma\left(\frac{3}{2}\right)}{\Gamma(1)}t^0y_1 + \frac{\Gamma(2)}{\Gamma\left(\frac{3}{2}\right)}t^{\frac{1}{2}}y_2 + \frac{\Gamma\left(\frac{5}{2}\right)}{\Gamma(2)}ty_3 + \dots \right\} - 2\left(y_0 + t^{\frac{1}{2}}y_1 + ty_2 + t^{\frac{3}{2}}y_3 + \dots \right)^2 = 0.$$

Using (4),

$$\left(0 + \frac{1}{2}t^{-\frac{1}{2}}y_1 + t^0y_2 + \frac{3}{2}t^{\frac{1}{2}}y_3 + \dots \right) + \left(\frac{1}{\sqrt{\pi}}t^{-\frac{1}{2}}y_0 + \frac{\sqrt{\pi}}{2}t^0y_1 + \frac{2}{\sqrt{\pi}}t^{\frac{1}{2}}y_2 + \frac{3\sqrt{\pi}}{4}ty_3 + \dots \right) - 2\left(y_0 + t^{\frac{1}{2}}y_1 + ty_2 + t^{\frac{3}{2}}y_3 + \dots \right)^2 = 0,$$

$$t^{-\frac{1}{2}} : \frac{1}{2}y_1 + \frac{1}{\sqrt{\pi}}y_0 = 0,$$

$$t^0 : y_2 + \frac{\sqrt{\pi}}{2}y_1 - 2y_0^2 = 0,$$

$$t^{\frac{1}{2}} : \frac{3}{2}y_3 + \frac{2}{\sqrt{\pi}}y_2 - 2(2y_0y_1) = 0$$

.....

Using $y_0 = c$ we get, $y_1 = -\frac{2c}{\sqrt{\pi}}$. Substituting it into the second equality we have,

$$y_2 + \frac{\sqrt{\pi}}{2}\left(-\frac{2c}{\sqrt{\pi}}\right) - 2c^2 = 0, \quad y_2 = 2c^2 + c. \text{ Next, substituting into the third equality:}$$

$$y_3 = -\frac{8c^2}{\sqrt{\pi}} - \frac{4c}{3\sqrt{\pi}}.$$

The general solution will be written in the form,

$$y = c - \frac{2c}{\sqrt{\pi}}t^{\frac{1}{2}} + (2c^2 + c)t + \left(-\frac{8c^2}{\sqrt{\pi}} - \frac{4c}{3\sqrt{\pi}}\right)t^{\frac{3}{2}} + \dots$$

References

1. Самко С.Г., Килбас А.А., Маричев О.И. Интегралы и производные дробного порядка и некоторые их приложения. Мн: Наука и техника.—1987.— 688 с.
2. Miller K. S., Ross B., 1993, An Introduction to the Fractional Calculus and Fractional Differential Equations, John Wiley & Sons. Inc., New York.
3. Нахушев А.М. Дробное исчисление и его применение. Москва. Физ-матлит. 2003 272 с.
4. Псху А.В. Краевые задачи для дифференциальных уравнений с частными производными дробного и континуального порядка. Нальчик. 2005 186 с.
5. Алероев Т. С. К проблеме о нулях функции типа Миттаг-Леффлера и спектре одного дифференциального оператора дробного порядка. Дифференциальные уравнения. 2000. Т. 36. № 9 - с. 1278 - 1279.
6. Алероев Т. С. О собственных значениях одной краевой задачи для дифференциального оператора дробного порядка. Дифференциальные уравнения. 2000. Т. 36. № 10 с. 1422 - 1423.
7. Ворошилов А.А., Килбас А.А. Задача Коши для диффузионно-волнового уравнения с частной производной Капуто. Белорусский государственный университет. Минск. 14 с.
8. Геккиева С.Х. Задача Коши для обобщенного уравнения переноса с дробной производной по времени. Доклады Адыгской (Черкесской) Международной академии наук. 2000. Т. 5. № 1 с. 16 - 19.
9. Arendt W. Vector valued Laplace transforms and Cauchy problems. Israel. Matem. 1987, V.59, P. 327-352.
10. Schneider W.R., Wyss W. Fractional diffusion and wave equations. Journal of Mathematical Physics, 30, 1989. P. 134 - 144.
11. Прудников А.П. Интегралы и ряды. Т.2. Специальные функции / А.П. Прудников, Ю.А. Брычков, О.И. Маричев. — М.: Физматлит.— 2003.-749 с.

Rezyume: *Ushbu maqolada Eylerning Gamma funksiyasi yordamida kasr tartibli differensial tenglamalar yechilishi keltirilgan.*

Резюме: *В работе рассматриваются решения дифференциальных уравнений дробного порядка с помощью Гамма-функции Эйлера.*

Kalit sózlar: *kasr tartibli differensial tenglamalar, Eyer funksiyalari, umumiy yechim, kasrli integrodifferentsiyallash, Riman-Liuvil integrali.*

Ключевые слова: *дифференциальные уравнения дробного порядка, функции Эйлера, общее решение, дробное интегродифференцирование, интеграл Римана-Лиувилля.*

UDK 66.091.2

SYNTHESIS AND PROPERTIES OF HYDROXYBENZOIC ACIDS DERIVATIVES WITH IMIDAZOLE AND PYRAZOLE

Sadullayeva G.G¹., Brel A.K²., Niyazov L.N³.

¹Bukhara Engineering-Technological Institute,

²Volgograd State Medical University,

³Bukhara State Medical Institute named after Abu Ali ibn Sino

Summary: Compounds based on hydroxybenzoic acids, 3-aminopropanoic acid with imidazole and pyrazole have been synthesized. The physicochemical properties of the synthesized derivatives have been studied. The potential biological activity and pharmacological properties of the substances were investigated using the PassOnline program. It has been determined that substances may have potentially diverse biological activity.

Key words: Hydroxybenzoic acids, 3-aminopropanoic acid, imidazole, pyrazole, synthesis, amide, properties, molecule.

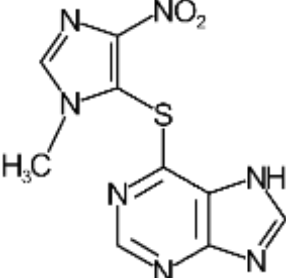
Introduction

Throughout history, drugs containing heterocyclic nuclei have demonstrated remarkable chemotherapeutic potential, serving as valuable remedies for various ailments. These compounds have played a pivotal role in the development of novel drugs, particularly in the realm of infectious diseases. The presence of heterocyclic rings in drugs has been associated with enhanced efficacy, improved selectivity, and reduced side effects.

Nowadays, there is an increasing interest in compounds like imidazole and pyrazole. This is due to the fact that compounds based on them have a variety of properties as antimicrobial, antifungal, antiviral, anti-anxiety, anti-inflammatory, antitumor, analgesic, antipyretic, analgesics, antihypertensive, antiulcer, antidepressant, antimalarial and other activities [1.37; 2.1; 23. 8708; 4. 1300; 5. 106365; 6.2].

Currently it is becoming relevant to create medicines based on already known molecules or fragments of molecules with known biological activity. Including the long-known imidazole and pyrazole are interesting from the point of view of organic synthesis. Some drugs that are derivatives of imidazole and pyrazole listed in Table 1 and Table 2.

Table 1.
Drugs based on imidazole

Formula	Name
	Azathioprine

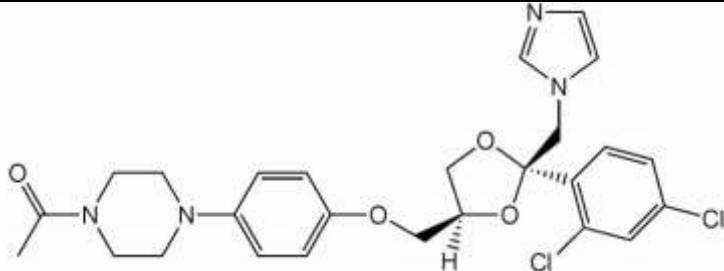
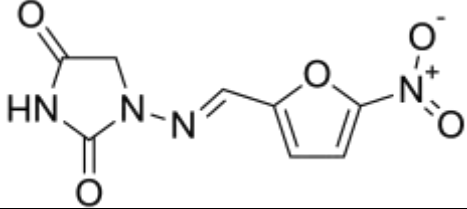
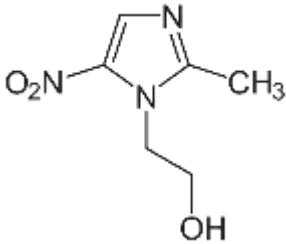
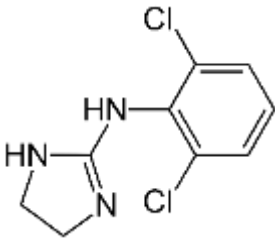
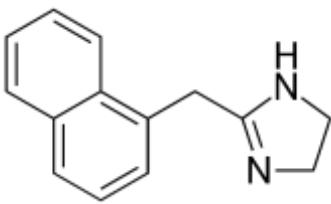
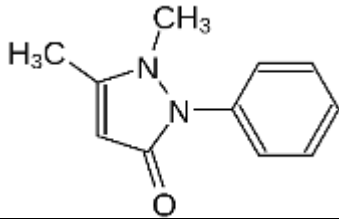
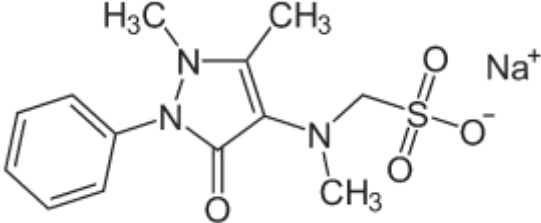
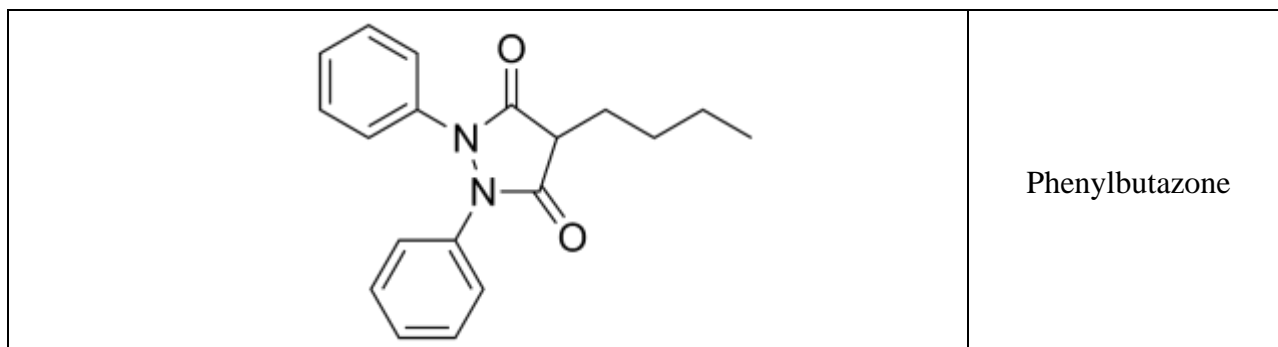
	Ketoconazole
	Nitrofurantoin
	Metronidazole
	Clonidine
	Naphazoline

Table 2.
Drugs based on pyrazole

Formula	Name
	Phenazone
	Metamizole



The discovery of Azathioprine's medical use can be traced back to the work of Nobel Laureates George Herbert Hitchings and Gertrude Elion in 1954. They conducted research on nucleic acid metabolism in various types of cells, including normal cells, tumor cells, and bacterial cells. Their objective was to disrupt the purine pathway in order to hinder the production of nucleotides like adenine and guanine. This interference would then inhibit DNA synthesis and the replication of cells [8.175]. Over the past years, azathioprine has been used in the treatment of hematologic malignancies, rheumatologic diseases, solid organ transplantation, and inflammatory bowel disease [9.1123].

According to reviews and meta-analysis Ketoconazole mainly used as antifungal drug which blocks multiple enzymes involved in adrenal steroidogenesis pathways [10.2].

A broad-spectrum antibiotic, Nitrofurantoin (NF), has been available since 1953 and is used extensively to treat urinary tract infections due to its ability to remain active against drug-resistant uropathogens. The exponential rise in usage of Nitrofurantoin has been attributed to new guidelines that have repositioned it as the primary therapy for simple lower urinary tract infection [11.2].

One more representative of this line of drugs is Metronidazole. It was used as preventive drug from protozoal infections first time in 1959 and after widespread of using against parasitic infections appeared Metronidazole resistances [12.56].

Clonidine was synthesized by chemists at Boehringer Ingelheim in 1962. Initially available as a nasal decongestant under the brand name Catapres, it was later used as an antihypertensive agent and as a migraine treatment. The sedative and analgesic effects of Clonidine are noteworthy in anesthesiology. A multitude of studies indicate that clonidine as an adjunct to anaesthetic and analgesic agents in pre, during, and after procedures can decrease post-operative pain, opioid requirements, and risk of delirium in both pediatric and adult patients. The use of clonidine as an adjunct to opioids has been associated with non-malignant chronic pain treatment [13.2].

Naphazoline originally patented in 1934, it was introduced into medical practice in 1942. is a pharmaceutical product utilized as a decongestant and an ingredient in eye drops to alleviate redness of the eyes. When applied to mucous membranes, it swiftly reduces swelling. This sympathomimetic agent exhibits notable alpha adrenergic activity, targeting alpha-receptors in the conjunctival arterioles to induce constriction and subsequently alleviate congestion [14.3054; 15.12].

Phenazone (Antipyrine or Amprone) is widely recognized as a highly potent antipyretic and analgesic agent, with its effectiveness extending to the treatment of various conditions such as neuralgia, lung inflammation, and soft tissue disorders [16.1].

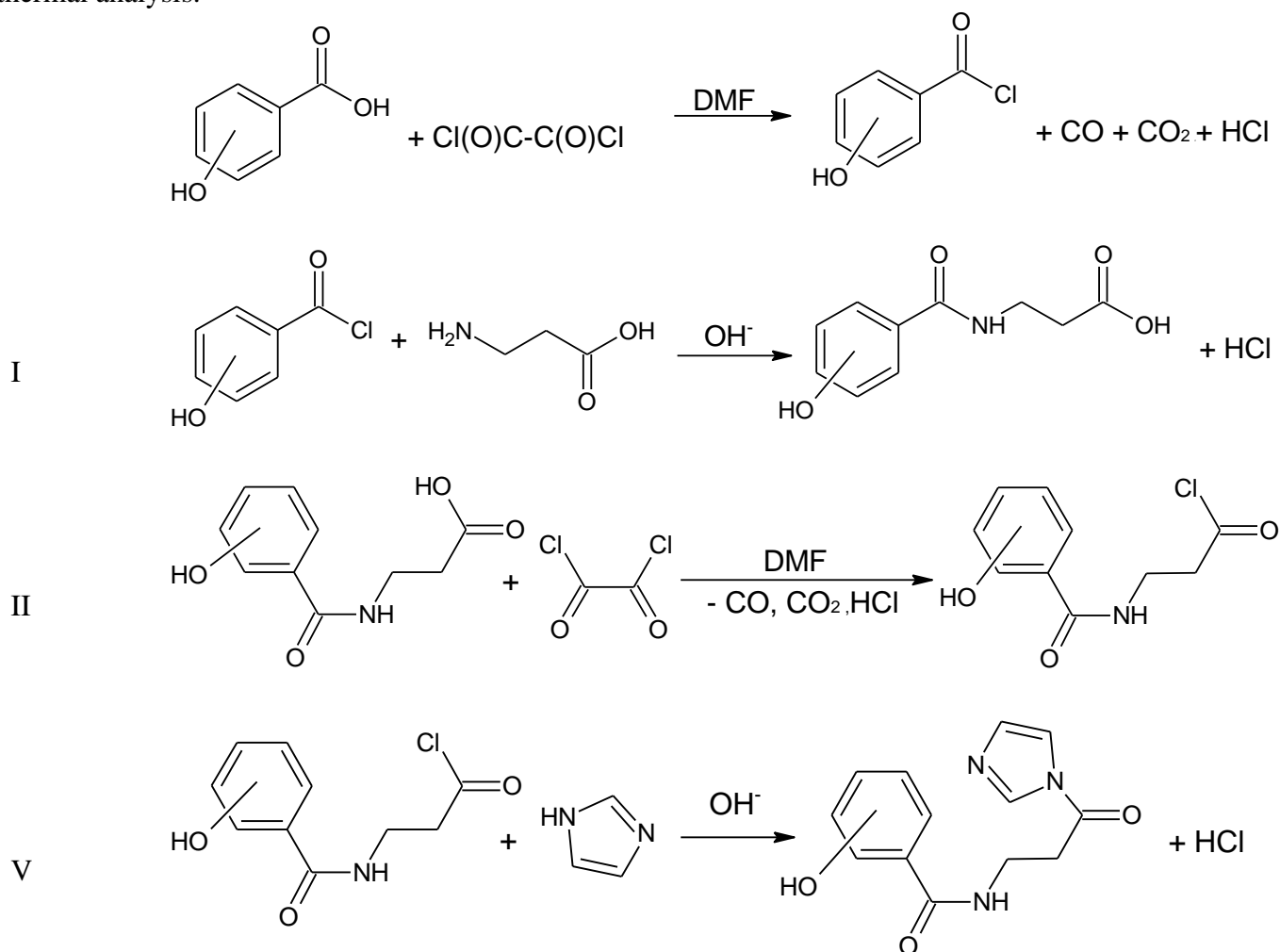
Metamizole is a prodrug has analgesic, antypretic and spasmolytic effects [17.2].

Phenylbutazone, a non-steroidal anti-inflammatory medication, possesses analgesic and antipyretic properties. It can be employed in specific instances of acute pain and musculoskeletal disorders, such as ankylosing spondylitis and rheumatoid arthritis. Synthesized in 1946 and introduced into medical practice in 1949, phenylbutazone faced significant restrictions in human usage by 1980. This was due to the discovery that the drug could lead to severe blood disorders, including aplastic anemia, leukopenia, agranulocytosis, and thrombocytopenia, potentially resulting in fatality [18.143]. There are known cases of the use of this compound on animals as drugs [19;20].

Methods

In [7.67], a synthesis technique based on hydroxybenzoic acids and a heterocyclic nitrogen-containing substance by the Schotten-Bauman method is presented, which is a convenient method for obtaining new substances based on hydroxybenzoic acids, imidazole and pyrazole.

Based on the analysis of data on the use of imidazole and pyrazole, we synthesized (Scheme 1) substances using hydroxybenzoic acids, 3-aminopropanoic acid with imidazole and pyrazole. The synthesized compounds were investigated by IR, NMR methods, thin-layer chromatography, thermal analysis.

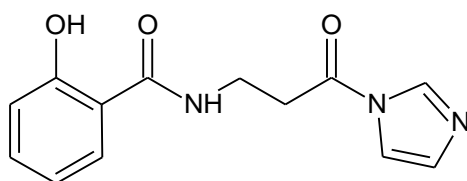


Scheme 1. Synthesis of compounds

Results

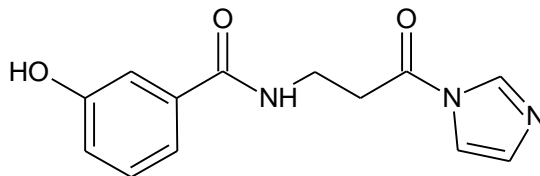
The synthesized compounds were investigated by IR, NMR methods, thin-layer chromatography, thermal analysis. Purification and isolation of substances were carried out according to the procedure described in [21].

2-hydroxy-N-[3-(1H-imidazol-1-yl)-3-oxopropyl]benzamide



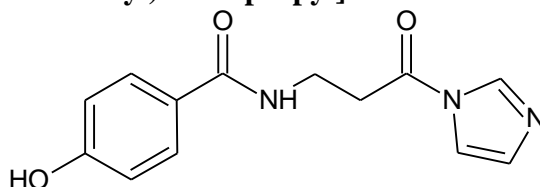
Yield 87 %. White powder substance. $T_m = 258$ °C. $R_f = 0,8$ (butanol). $^1\text{H NMR}$ (500 MHz, CD_3OD): 6,95-8,1 Hz (7H, aromatic H), 2,70, 3,73 Hz (4H, CH_2). IR: 1702, 1760 (-C(O)-), 3468 (-NH-), 3500 (-OH).

3-hydroxy-N-[3-(1H-imidazol-1-yl)-3-oxopropyl]benzamide



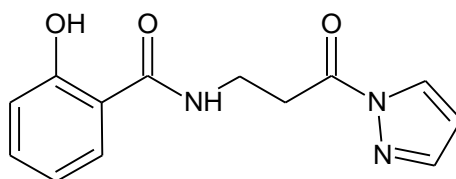
Yield 88%. $T_m = 298$ °C. $R_f = 0,82$ (butanol). $^1\text{H NMR}$ (500 MHz, CD_3OD): 7,20-8,15 (7H, aromatic H), 2,71, 3,74 Hz (4H, CH_2). IR: 1710, 1765, (-C(O)-), 3470 (-NH-), 3512 (-OH).

4-hydroxy-N-[3-(1H-imidazol-1-yl)-3-oxopropyl]benzamide



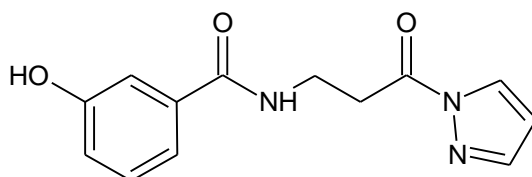
Yield 83%. $T_m = 287$ °C. $R_f = 0,81$ (butanol) $^1\text{H NMR}$ (500 MHz, CD_3OD): 6,9-8,15 (7H, aromatic H), 2,72-3,74 (4H, 2CH_2). IR: 1707, 1748 (-C(O)-), 3472 (-NH-), 3511 (-OH).

2-hydroxy-N-[3-oxo-3-(1H-pyrazol-1-yl)propyl]benzamide



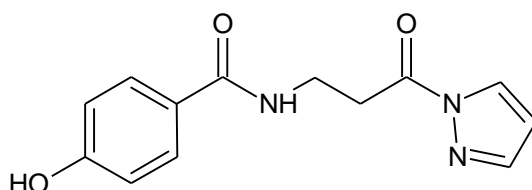
Yield 80%. $T_m = 296$ °C. $R_f = 0,79$ (butanol). $^1\text{H NMR}$ (500 MHz, CD_3OD): 6,56-8,11 (7H, aromatic H), 5,35 (-OH). IR: 1702, 1760 (-C(O)-), 3468 (-NH-), 3500 (-OH).

3-hydroxy-N-[3-oxo-3-(1H-pyrazol-1-yl)propyl]benzamide



Yield 73%. $T_m = 287$ °C. $R_f = 0,78$ (butanol). $^1\text{H NMR}$ (500 MHz, CD_3OD): 7,20-8,11 (7H, aromatic H), 2,7-3,73 (4H, 2CH_2).

4-hydroxy-N-[3-oxo-3-(1H-pyrazol-1-yl)propyl]benzamide



Yield 82%. $R_f = 0,78$ (butanol). $^1\text{H NMR}$ (500 MHz, CD_3OD): 6,88-8,12 (7H, aromatic H), 2,68-3,75 (4H, 2CH_2).

For analysis potential biological activity, we have used the PassOnline. Probable activity according to the forecast: Glucan endo-1,6-beta-glucosidase inhibitor, N-acetylneuraminase 7-O(or 9-O)-acetyltransferase inhibitor, Protein-glutamate methyltransferase inhibitor, Antiseborrheic, Phobic disorders treatment, Oxygen scavenger, Threonine aldolase inhibitor, Kidney function stimulant, Mucositis treatment, Neurodegenerative diseases treatment, Membrane integrity agonist and etc. This, in turn, indicates that the synthesized compounds exhibit a wide range of biological activity.

Conclusion

In conclusion, the significance of heterocyclic compounds in the development of novel drugs cannot be overstated. Their remarkable therapeutic potential, spanning infectious diseases and various other ailments, highlights their invaluable contribution to modern medicine. As research continues to delve deeper into the intricate world of heterocyclic chemistry, we can anticipate the discovery of even more effective and targeted therapies that will improve the lives of countless individuals worldwide. The synthesis we carried out is simple and does not require strict conditions, which makes it convenient to perform and at lower costs.

References:

1. Shalini K., Sharma P. K., Kumar N. Imidazole and its biological activities: A review //Der Chemica Sinica. – 2010. – T. 1. – №. 3. – C. 36-47.
2. Siwach A., Verma P. K. Synthesis and therapeutic potential of imidazole containing compounds //BMC chemistry. – 2021. – T. 15. – C. 1-69.
3. Alam M. J. et al. Recent advancement in drug design and discovery of pyrazole biomolecules as cancer and inflammation therapeutics //Molecules. – 2022. – T. 27. – №. 24. – C. 8708.
4. Li G. et al. Pyrazole-containing pharmaceuticals: target, pharmacological activity, and their SAR studies //RSC Medicinal Chemistry. – 2022. – T. 13. – №. 11. – C. 1300-1321.
5. Ravindar L. et al. Pyrazole and pyrazoline derivatives as antimalarial agents: A key review //European Journal of Pharmaceutical Sciences. – 2023. – T. 183. – C. 106365.
6. Nitulescu G. M. et al. The importance of the pyrazole scaffold in the design of protein kinases inhibitors as targeted anticancer therapies //Molecules. – 2023. – T. 28. – №. 14. – C. 1-32.
7. Brel A. K., Budaeva I. J. N., Lisina S. V., Niyazov L. N. Synthesis of hydroxybenzamides with 6-amino-1,3-dimethylpyrimidine-2,4-dione // Izvestiya Volgogradskogo gosudarstvennogo texnicheskogo universiteta. – 2022. – №. 12(271). – C. 66-69.
8. Rios-Usuga C., Martinez-Gutierrez M., Ruiz-Saenz J. Antiviral Potential of Azathioprine and Its Derivative 6-Mercaptopurine: A Narrative Literature Review //Pharmaceuticals. – 2024. – T. 17. – №. 2. – C. 174-188.
9. Maltzman J. S. et al. Azathioprine: old drug, new actions //The Journal of clinical investigation. – 2003. – T. 111. – №. 8. – C. 1122-1124.
10. Viecceli C. et al. Ketoconazole as second-line treatment for Cushing's disease after transsphenoidal surgery: systematic review and meta-analysis //Frontiers in Endocrinology. – 2023. – T. 14. – C. 1145775.
11. Ari M. M. et al. Nitrofurantoin: Properties and potential in treatment of urinary tract infection: A narrative review //Frontiers in cellular and infection microbiology. – 2023. – T. 13. – C. 1-13.
12. Solárová Z. Metronidazole—drug of many indications //FOLIA. – C. 124.
13. Amna S. et al. Review of clinical pharmacokinetics and pharmacodynamics of clonidine as an adjunct to opioids in palliative care //Basic & Clinical Pharmacology & Toxicology. – 2024. – C. 1-13.
14. Ponomarev D. B. et al. Experimental Study of the Effectiveness of Naphazoline and Co-Administration of Filgrastim in Combined Radiation Injury //Biology Bulletin. – 2023. – T. 50. – №. 11. – C. 3054-3060.
15. Uehara H. et al. Naphazoline intoxication with transient QT prolongation and acute myocardial injury //Journal of Cardiology Cases. – 2024. – T. 29. – №. 1. – C. 11-14.
16. Khurshid A. et al. Synthesis of phenazone based carboxamide under thiourea reaction conditions. Molecular and crystal structure, Hirshfeld surface analysis and intermolecular interaction energies //Journal of Molecular Structure. – 2023. – T. 1278. – C. 134948.
17. Gavati C. C. Quantitative Analysis Method of Sodium Metamizole in Tablets by Visible (VIS) Spectrophotometry: Spectrophotometric Analysis Method in Visible Range (VIS) //ScienceOpen Preprints. – 2024. – C. 1-26.

18. Borges R. S. et al. Toward of safer phenylbutazone derivatives by exploration of toxicity mechanism //Molecules. – 2019. – T. 24. – №. 1. – С. 143.

19. Kemp K. L., Skinner J. E., Bertin F. R. Effect of phenylbutazone on insulin secretion in horses with insulin dysregulation //Journal of Veterinary Internal Medicine. – 2024.

20. Bertin F. R. et al. Diagnosis and management of thyroid disorders and thyroid hormone supplementation in adult horses and foals //Equine Veterinary Journal. – 2024.

21. Brel, A. K., Lisina, S. V., Sidorenko, P. V., & Niyazov, L. N. o-aminoacyl derivatives of hydroxybenzoic acids and evaluation of their biological activity Izvestiya Volgogradskogo gosudarstvennogo texnicheskogo universiteta. – 2022. – №. 5(276). – С. 48-55.

Rezyume: *Gidroksibenzoy kislotalari, 3-aminopropanoik kislota, imidazol va pirazol asosida birikmalar sintez qilindi. Sintez qilingan hosilalarning fizik-kimyoviy xossalari o‘rganildi. PassOnline dasturi yordamida moddalarning potentsial biologik faolligi va farmakologik xususiyatlari o‘rganildi. Moddalar turli xil potentsial biologik faollikka ega ekanligi aniqlandi.*

Резюме: *Синтезированы соединения на основе гидроксibenзойных кислот, 3-аминопропановой кислоты с имидазолом и пиразолом. Изучены физико-химические свойства синтезированных производных. Потенциальную биологическую активность и фармакологические свойства веществ исследовали с помощью программы PassOnline. Было определено, что вещества могут обладать потенциальной разнообразной биологической активностью.*

Kalit so‘zlar: *Gidroksibenzoy kislotalari, 3-aminopropan kislota, imidazol, pirazol, sintez, amid, xossalar, molekula.*

Ключевые слова: *Гидроксibenзойные кислоты, 3-аминопропановая кислота, имидазол, пиразол, синтез, amid, свойства, молекула.*

**STUDY OF $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ QUANTUM WELLS USING METHODS
LOW TEMPERATURE PHOTOLUMINESCENCE**

Sharibaev M.B.

Karakalpak state university named after Berdakh

***Summary:** Using low-temperature photoluminescence, structures with $\text{In}_x\text{Ga}_{1-x}\text{As}$ quantum wells in GaAs obtained by epitaxy from molecular beams were studied. Installed heterogeneity of the composition of quantum wells over thickness. The heterogeneity of the composition of quantum wells over their thickness has been established. The energy position of exciton recombination lines in quantum wells with a stepwise indium distribution profile has been calculated, the results of which are in good agreement with experiment.*

***Key words:** Photoluminescence, molar mass, quantum well recombination, relaxation.*

Introduction

Basic Scope of Work for Creation and Investigation structures with single or multiple hetero-transitions, such as heterostructures with selective alloying, quantum pits and superlattices, you are full on the basis of gallium and aluminum arsenides [1]. The crystal lattice parameters of these two materials represent an almost perfect heteropara, that enables to obtain high quality structures. One-to-one use of other materials can be significant improve the performance of existing instruments and expand their functionality. Recently, structures with stressed $\text{In}_x\text{Ga}_{1-x}\text{As}$ layers limited by barriers from GaAs or AlGaAs [2,3]. So, use $\text{In}_x\text{Ga}_{1-x}\text{As}$ as high transistor channel electron mobility (NEMT) made it possible to obtain in one of the latest works [4]. maximum steepness 1510 mS/mm and a cutoff frequency of 220 GHz, which is one of the best achievements for the NEMT. Creation near-contact varizon layers $\text{In}_x\text{Ga}_{1-x}\text{As}$ allows make non-melting ohmic contacts, which significantly simplifies the technology of manufacturing circuits with high degree of integration [5]. We have proposed an original method for creating independent ohmic contacts to quantum pits of isotopic conductivity in a two-pit heterostructure based on the use of quantum wells of various compositions, including $\text{In}_x\text{Ga}_{1-x}\text{As}$ [6]. Such a wide application of strained InGaAs-heterostructures requires full-scale studies properties of the obtained samples in order to optimize technological modes of In-containing generation layers and interfaces. Another problem is to identify the zone diagram of structures with heterojunctions InGaAs-AlGaAs or quantum wells, which is a necessary condition for creating devices with specified characteristics. In particular, in the development of the technology of obtaining quantum-dimensional layers InGaAs you need to know the basic layer settings, such as molar fraction of indium and layer thickness. To control these ex situ parameters in quantum-dimensional structures the photoluminescence (FL) method of various compositions is usually used, including $\text{In}_x\text{Ga}_{1-x}\text{As}$. Two structures were grown with a single quantum well – A and B samples, as well as structure with three quantum wells – sample C. Based on the varying relationships of the equivalent pressures of the molecular beams Ga and In with the temperature of the corresponding molecular sources and calibrations by velocities growth of GaAs and InAs layers, the molar fraction of indium (x) p-personal quantum wells was to vary from 0.08 up to 0.25, and the widths of quantum wells (d) - from 3 to 13.5 nm.

The focus was on relatively wide quantum $x \approx 0.2$ pits, which can be used in field effect transistors of various types. In connection with with this to ensure high conductivity of such two-dimensional growth temperature channels In-containing layers exceeded the commonly used values on 30–40°C. Temperature substrates with GaAs growth was 610°C, speed growth of GaAs - 0.6 $\mu\text{m}/\text{h}$, ratio of equivalent yes-changes of flows As and Ga - 20:1. During formation both boundaries of $\text{In}_x\text{Ga}_{1-x}\text{As}$ layers were pre sprayed for 90 seconds in an arsenic stream for smoothing the interfaces and changing the temperature substrate, which was first lowered to a certain a temperature dependent on the composition of the quantum well, and after growing $\text{In}_x\text{Ga}_{1-x}\text{As}$

layers were raised again up to 610° C. Fast electron diffraction patterns on various stages of the technological process of forming structures lagged behind rod-like,

Experimental result

Photoluminescence FL measurements were performed at nitrogen fluid temperature with Ar+ excitation- laser on length 488 nm waves. Excitation radiation was formed in a spot of diametrom~50 μm. Maximum density excitation was 200 W/cm². The spectra were rearranged using a monochromator MDR-23 and cooled photomultiplier FEU-62 in counting mode photons. FL I_{PL} (E) samples A, B and C, precore in Fig. 1, a, b show intense and however, relatively wide bands corresponding to exciton recombinations e1-hh1quant wells. Band maximum energies E_{e1-hh1} and their width at half height are shown in Table 1 (FL column).

Widening of FL bands can be a consequence of imperfections of the boundaries of the partition of the yam-barrier, leading to fluctuations in the width of the quantum well, so and heterogeneity of composition in depth of quantum wells. Of note is the high intensity of radiator recombination I_{PL} from InGaAs layers exceeding by 2 orders of magnitude signal from barrier layers even for peak FL of the smallest amplitude (sample C - quantum wells 3 nm wide).

am les	FL		Calculation-1		Calculation-2						
	E _{e1-hh1} eV	Line width meV	d, nm	x ₁	d ₁ nm	x ₁	d ₂ nm	x ₂	d ₃ nm	(x)	Σd nm
	1,4391	9	14.6	0.064	3.3	0.03 3	10	0.07	1.3	0.04	14.6
	1.3306	21	13.4	0.175	3.4	0.01	10	0.17			13.4
	1.3272	12	12	11	1.6	0.11	10	0.175			11.6
	1.4459	13	13	3.0	1.6	0.11	1.4	0.175			3.0
	1.2999	25	25	6.0	1.0	0.17	5.0	0.25			6.0

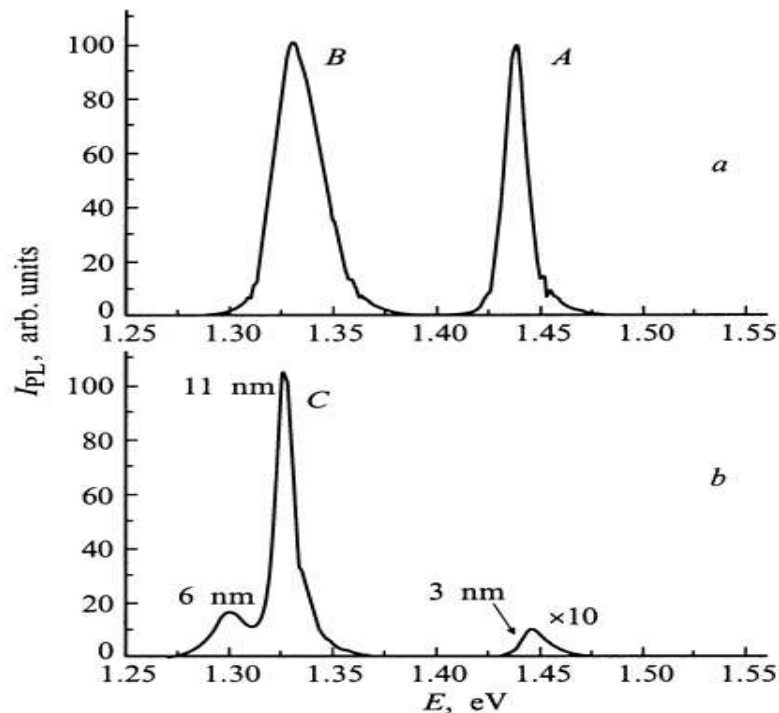


Fig. 1. Photoluminescence spectra of the samples under study: a - structures A and B with single quantum wells; b—structure C with three quantum wells. T=77 K

Calculation of the energy of the photoluminescent transition E_{e1-hh1} and determination of the parameters of quantum wells. Since the grown samples contained predominantly wide quantum wells, the main levels of dimensional quantization in which are located near the edges of the corresponding allowed zones, the heights of potential barriers, and therefore the choice of a specific value of $\Delta E_c/\Delta E_g$ are not essential for the calculation the energy position of the peak of the FL. For certainty, was selected the average value of the parametra $\Delta E_c/\Delta E_g$ iz mentioned in literature equal to 0.7. Exciton recombination energy in a quantum well was determined by summing the width $In_xGa_{1-x}As$ band gap at 77 K and plausions of the levels of dimensional quantization corresponding to e1 and hh1 and counted from the edges of the corresponding zones, minus exciton bond energy. Dependence the band gap $E_g(In_xGa_{1-x}As)$ from the indium compound is mainly described by the polynomial of the 2nd order [7-9]. Polynomial coefficients for terms 1st and 2nd orders were taken from [10], and for the beginning of the countdown a band gap value has been selected for GaAs at 77 K equal to 1.508 eV:

$$E_g [eV] = 1.508 - 1.214x + 0.264x^2. (1)$$

Position of the first levels of dimensional quantization for electrons and heavy holes were numerically using the Schrödinger equation, which was solved in one-electron approximation within the envelope-wave function method. Effective Carrier Weights charges (electrons and heavy holes) were considered single-cow for all layers of the structure and equal to the corresponding values in the quantum well, calculated from ratios:

$$\begin{aligned} m^*_e &= 0.0665 - 0.0642x, \\ m^*_{hh} &= 0.62 - 0.22x. \end{aligned} (2)$$

The transfer matrix method was used for the solution. The shape of the quantum well was considered rectangular with reskimi boundaries. For sample E_{e1-hh1} was calculated with parameters quantum wells taken from Table 1 (MBE column). The bond energy of exciton e1 – hh1 of grown quantum pits varies within 6-9 meV, where the maximum value corresponds to the $In_xGa_{1-x}As$ layer with thickness 3nm [11,12]. For most quantum wells, this sense is 7 ± 1 meV. Therefore, the average value exciton bond energy of 7 meV to calculate all FL peaks are a good approximation. In Figure 2, the symbols (1-3) show the experimental results, and (10-30) - calculated values E_{e1-hh1} for samples A, V and C. Calculation errors parameters of quantum wells for samples are returned to the errors of determination specified in Table 1 weighted average parameters of A, B, C samples. From the figure it can be seen that a satisfactory match of results calculation with energy position of FL peaks has location for a wide quantum sample A and C samples. Discrepancy with a narrow hole (3nm) is very significant. Possible the reason for this is the heterogeneity of the distribution indium in quantum pits. In Figure 2, the symbols (1-3) are shown. It should be noted that the expenormally observed energies of the e1-hh1 transitions give underestimated values of molar fraction of indium by compared to expected. Figure 2 shows the values molar fraction of indium in right-angled quantum pits, in which the calculation results and expe-dimensional data coincide. Defined in this way image from dependencies $E_{e1-hh1} = f(d, x)$ parameters quantum wells are given in Table 1 (calculation 1).

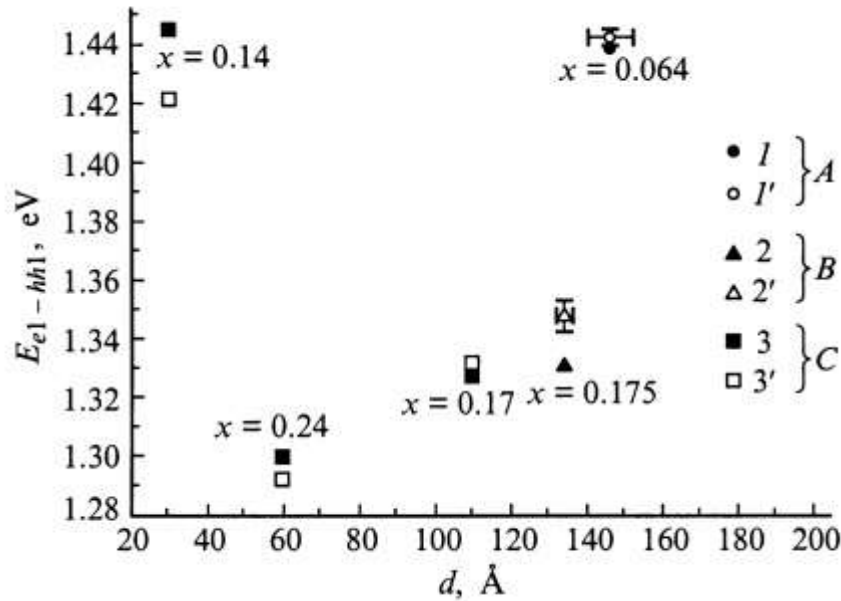


Fig. 2. Experimental exciton recombination energies $e1 - hh1$ in the quantum wells of the studied samples (1-3) and corresponding design values for the rectangular model pit (10–30).

It should be noted that the experimentally observed energies of the $e1-hh1$ transitions give underestimated values of molar fraction of indium by compared to expected. Figure 2 shows the values molar fraction of indium in right-angled quantum pits, in which the calculation results and experimental data coincide. Defined in this way image from dependencies $E_{e1-hh1} = f(d, x)$ parameters quantum wells are given in Table 1 (calculation 1). To find the reasons for the difference between theoretical and experimental results were calculated fluorescent transition energy in quantum wells stepped shape. Formation of such an area of impoverishment due to surface segregation of indium atoms in the process of quantum well growth. Used by us the increased growth temperatures required to radiate the high conductivity of the In-containing channels; contribute to the realization of this effect. As a result, the excess indium formed in the superstoichiometric region of the quantum well is either desorbed into the process of disrupting growth at the upper limit, or diffuses into the adjacent GaAs layer. In this case, the depleted layer is formed by diffusion of In atoms in nearby 3 mono layer GaAs barrier area designed to prevent evaporation indium when growth is interrupted. Desorption of excess indium occurs for sample B not coated with protective GaAs film when growth is interrupted on the upper heterostructure border Taking into account the above, the energy positions of the FL peaks of quantum wells consisting of several areas with different indium content. When calculating energies fluorescent transitions of quantum wells of sample C it was assumed that InGaAs layers consist of two oblong: an area depleted in indium due to surface segregation, and the core of the pit, the composition of which is close to the expected one of the epitaxy modes. It was also assumed that molar fractions of indium in these layers differ 1.5 times. Coincidence of calculated transition energies $e1-hh1$ with experimental values for grown quantum wells taking into account the averaged coupling energy an exciton of 7 meV was observed at, indicated in Table 1. From the presented data should be taken into account the heterogeneous profiles of the composition of quantum wells. This is especially true for narrow (less than 6 nm) quantum wells and increased epitaxy temperature, since the thickness is depleted the indium of the region is comparable to the thickness of the core of the quantum wells Fig. 4. Photoluminescence spectra of the test samples: a - structures A and B with single quantum wells; b - structures by three quantum wells $T=77$ K.

Conclusion

Comprehensive photoluminescent studies carried out in this work heterostructures In_xGa_{1-x} As allowed to establish connection of energy position of photoluminescence lines of quantum wells with heterogeneity of their composition. Using an empirical formula to determine band

$\text{In}_x\text{Ga}_{1-x}\text{As}$ in the presence of stresses involving a model of a quantum well of a pre-molar shape gives satisfactory agreement with experiment for relatively wide (more than 6nm) quantum wells with low (less than 0.17) molar share of indium. The most recent refinement of the model for calculating the FL spectra of narrow quantum wells require accurate knowledge of the jump ratio potential in the conduction zone to the forbidden width zones $\text{In}_x\text{Ga}_{1-x}\text{As}$ ($\Delta E_c/\Delta E_g$).

Reference:

1. M.H. Herman, D. Bimberg, J. Christen. J. Appl. Phys.,70,R1 (1991).
2. H. Jurgen, T.P.E. Broekaert, C.C. Fonstad. J. Appl. Phys.,71, 2475(1992).
3. N.N. Ledentsov, V.A. Shchukin, M. Grundmann, N. Kirstaedter, J. Bohrer, O.G. Schmidt, D. Bimberg, S.V. Zaitsev, V.M. Ustinov, A.E. Zhukov, P.S. Kop'ev, Zh.I. Alferov, O.A. Kosogov, S.S. Ruvimov, P. Werner, Phys. Rev. B,54, 8743 (1996).
4. F. Diette, D. Langrez, J.L. Codron, P. Delos, D. Theron, G. Salmer. Electron. Lett.,32, 848 (1996).
5. Y. Shiraishi, N. Furuhashi, A. Okamoto. J. Appl. Phys.,76, 5099 (1994).
6. С.В. Евстигнеев, Ю.В. Копаев, Ю.Г. Садофьев, Д.С. Шипицин, С.С. Шмелев. Микроэлектроника, 27, 317(1998).
7. E. Kuphal, A. Pocker, A. Eisenbach. J. Appl. Phys.,73, 4599 (1993).
8. K.H. Goetz, D. Bimberg, H. Jurgensen, J. Solders, A.V. Solomonov, G.F. Glinski, M. Razeghi. J. Appl. Phys.,54, 4543(1983).
9. T.Y. Wang, G.B. Stringfellow. J. Appl. Phys., 67 (1), 344 (1990).
10. I.V. Bradley, W.P. Gillin, K.P. Homewood, J. Appl. Phys.,73, 1686 (1993).
11. M.J.L.S. Haines, N. Ahmed, S.J.A. Adams, K. Mitchell, I.R. Agoon, C.R. Pidgeon, B.C. Cavenett, E.P. Phys. Rev. B,43, 11 944 (1991).
12. K.J. Moore, G. Duggan, K. Woodbridge, Phys. Rev. B,41, 1090 (1990).

Rezyume: *Molekula nurli epitaksiya yo'li bilan o'sirilgan $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ kvantli yamasining past temperaturali fotoluminesentsiya spektrlari aniqlandi. Kvantli yamaning qalinligi bo'yicha tarkibi bir jinsli bo'lmaganligi aniqlandi. Indiyning bosqichma-bosqich taqsimlash profiliga ega kvant yamalarida eksitonlarning rekombinatsiya liniyalarining energiya holatini hisoblash amalga oshirildi, ularning natijalari eksperimentga yaxshi mos keladi*

Резюме: *Методами низкотемпературной фотolumинесценции исследованы структуры с квантовыми ямами $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$, полученные эпитаксией из молекулярных пучков. Установлена неоднородность состава квантовых ям по толщине. Проведен расчет энергетического положения линий рекомбинации экситонов в квантовых ямах со ступенчатым профилем распределения индия, результаты которого хорошо согласуются с экспериментом*

Kalit so'zlar: *Fotoluminesentsiya, molyarlik massa, kvantli yama rekombinatsiya, relaksatsiya.*

Ключевые слова: *Фотolumинесценция, молярная масса, квантовая яма рекомбинация, релаксация.*

RESEARCH ON THE EFFECTIVENESS OF THE ACTION OF DEPRESSOR ADDITIVES ON THE HYDROCARBON CONTENT OF SUMMER DIESEL FUEL

Vafaev O.Sh.

*Karakalpak State University named after Berdakh
"Tashkent Scientific Research Institute of Chemical Technology LLC"*

Summary: *The article explores the properties of depressor additives in PTGS-1, PTGS-2, PTGS-3, PTGS-4 brands by adding them to the composition of DYO-1 brand summer diesel fuel hydrocarbons in different concentrations. Further proposed depressor additives have been found to be 0.1-0.75% of summer diesel fuel hydrocarbon content in terms of filtration temperature restriction (FHCH) and solidification temperature (tq).*

Key words: *Diesel, hydrocarbons, paraffin, depressor and depressor-dispersing additives, naphthenes, aromatic and kerosene hydrocarbons.*

The low-temperature properties of diesel fuel largely depend on its hydrocarbon content, determined by the composition of hydrocarbon raw materials used in its production and the technology for the production of this fuel at a particular oil refinery. The composition of direct-acting hydrocarbon diesel fuel can be partially changed [8; 489-502-b.]:

- saturated hydrocarbons (paraffin and naphthenes) - 60-90 of the mass%;
- saturated side chain alkylaromatic hydrocarbons-10-40 of the mass%;
- unsaturated side chain alkylaromatic hydrocarbons, unsaturated hydrocarbons, etc. - 0-3% of the mass.

Low-temperature diesel fuel according to its properties, Bir diesel fuel is classified as part of a turbine with hydrocarbon combustion in relation to physical heating and in terms of odor constant. Gorenje A strong class of doping of hydrocarbons: molecular melting point and melting point of ortadi, melting point of the Erish-point of ortadi. Bunda hydrocarbon training tuzilish erish temporatiga sezilarly kursatadi effect [25].

High melting temperatures refer to hydrocarbon molecules that have a symmetrical structure or a long branched paraffin chain. With an increase in direct chain length, the melting temperature of hydrocarbons increases, and with a sufficiently long side chain in naphthenes and aromatic hydrocarbons, the effect of the chain on the properties of low-temperature diesel fuel begins to prevail. With an increase in the number of side chains with an increase in the branching of the hydrocarbon chain adjacent to aromatic or naphthene rings, the melting temperature of hydrocarbons becomes lower. For example, simple paraffin hydrocarbons starting at C₁₂H₂₆ have a higher-temperature solubility than appropriately branched paraffin hydrocarbons. The properties of isoparaffin hydrocarbons vary greatly and will depend on the length and number of alkyl substituents. While the isoparaffin hydrocarbon molecule has more alkyl substituents, the hydrocarbons solidify at lower temperatures. Highly branched naphthenes with low melting temperatures, aromatic and kerosene hydrocarbons have the property of losing mobility at temperatures below minus 60 °C, when crystals are not formed, they move to an amorphous state, that is, their bottleneck occurs [9; 38-40-b.].

This article investigated the effectiveness of depressant additives in the hydrocarbon composition of summer diesel fuel. When the temperature is below 0oos, there is a solidification of diesel fuel, and difficulties arise with the breakdown of this fuel pump. Therefore, special attention is paid to the low-temperature properties of diesel fuel. The composition of the fuel includes the following indicators: turbidity temperature, maximum filtration temperature and solidification temperature.

There is no local production of depressors and depressors-dispersing additives based on local raw materials in Uzbekistan.

Currently, depressor-dispersant additives, which are economically expensive in oil

refineries, are being imported and used in production.

Table 1. Annual amount of use of imported additives

Designation	Production	Consumption norm, kg / tn	Demand per year, tn
Complex depressor-dispersing additives for the production of DT - euro and winter diesel fuel "ECO-Z"	Main production tsexi	0.05-1.0 kg/tn	10

Table 2. Technical description of diesel fuel when using the additive

№	Specification designation	Value for the brand		Control method
		ECOS-1	DT-EURO-Z-K3,K4 K5	
1	Cetane sony, not much	50	49	GOST 3122 or GOST 32508, or GOST en 15195 or GOST ISO 5165, or [2] or [3]
2	Tsetan index, not much	-	46	GOST 27768 or [4], or [5]
3	Density, kg / m ³ , - Up to 15 °C, - 20 °C not much	863,4 860,0	800,0- 845,0 842,0	GOST 3900 or GOST 31392, or GOST 33364, GOST ISO 3675, or GOST ISO 12185, [6], or [7], or [8]
4	Fraction composition: When driven at a temperature of 250 °C, % (in volume), 350 °C when driven, % (in volume), When driven at 95% (volume), at a temperature of.	50% expulsion at a temperature of 280 °C; 95 % expulsion at a temperature of 360 °C;	65 85 360	GOST 2177 or GOST 33098, or GOST ISO 3405, or [9]
5	Suvning weight of the earpiece mg/kg (%) (DT-EURO 3,4,5) Water composition (DT-ECO Z-1)	Not available	200 (0,02)	GOST 2477 or GOST 31394, or GOST 32055, or own DSt 3271, GOST ISO 3733, or [10], or [11]
6	The maximum filtering temperature, °C, is not high	minus 15	minus 20	GOST 22254 or GOST 33755, or GOST EN 16329, or GOST EN 116, or [12], or [13], or [14]
7	10% coking capacity of the residue, %, no more	0,20	0,3	GOST 19932 or GOST 32392, GOST ISO 10370, or [15], or [16], or [17]
8	Zol composition, % (mass)	0,01		GOST 1461 or, GOST

	fraction)			28583, or GOST ISO 6245, or [18]
9	Sulfur mass fraction, mg/kg (%), for fuel of the ecological category: K3 K4 K5	Sulfur mass fraction (%), I 0,100 II 0,050 III 0,035	350 (0,035) 50 (0,005) 10 (0,001)	GOST 32139, or GOST 32403, or GOST 33194, or gost 33253, or GOST ISO 8754, or GOST ISO 14596, or GOST ISO 16591, GOST ISO 20846, GOST ISO 20847, or [19], or [20], or [21]
10	Corrosion of Miss plate (3 h do 50 °C), units on scale	Class 1		GOST 6321 or, GOST 32329, or GOST ISO 2160, or [22]
11	Kinematic viscosity at 20°C, mm ² /s (DT-eco Z-1, Kinematic viscosity at 40°C, mm ² /s (DT-euro 3,4,5)	1,8-5,0	1,5-4,0	GOST 31391 or GOST 33, or [23], or [24]
12	In a closed tigel for eco-class fuel, °C, a flash point detected without low: K3 K4 K5	For general purpose diesel fuel 35	55 55 55	GOST 3900 or GOST 31392, or GOST ISO 3675, or GOST ISO 12185, or [13], or [14]
13	Mass fraction (%) of polycyclic aromatic hydrocarbons for eco-class fuels, K3 K4 K5		11 11 8,0	GOST 31872 or GOST EN 12916, or [27], or [28], or [29], or [30]
14	Total pollution mg / kg	24		GOST EN 12662 or [31]
15	Oxidation stability: Total amount of sediment g/m ³ , clock		25 20	GOST EN 15751, or [32], or [33], or [34], or [35], or [36], GOST EN 15751
16	Volumetric proportion of methyl ether of fatty acid (%)		7,0	GOST EH 14078 or [37]
17	Lubrication feature: adjustable diameter of Wear site (wsd 1,4) at 60 °C μ,		460	GOST ISO 12156-1 or [38]
18	Hardening temperature (°C)	minus 25	unspecified	GOST 20287
19	Turbidity temperature	minus 5	unspecified	GOST (5066 Method 2)

The technologically simplest and most economically feasible way to regulate the low-temperature properties of diesel fuel is the use of depressor additives, which is of great importance and is generally accepted by manufacturers around the world.

Experimental tests were conducted on the effect of PTGS-1, PTGS-2, PTGS-3, PTGS-4 brand depressor additives synthesized in four samples of the proposed summer diesel fuel by adding them to diesel fuel in a concentration of -- 0.1 to 0.75 percent.

As you know, depressor additives do not affect important low-temperature indicators of diesel fuel, such as dimming temperature (TX), but have the property of improving filtration temperature restriction (FHCH) and hardening temperature (tq). This is explained by the fact that the introduction of a depressor additive in diesel fuel helps to reduce the volume of N-paraffin hydrocarbon crystals formed in the fuel volume when the ambient temperature decreases, but the amount of hydrocarbons to be crystallized does not change. as a result of this, the TX of the fuel does not decrease. The high efficiency of the samples with the addition of depressor inserts, which we offer, was investigated in experimental test processes, in which the indicator of dimming temperature (TX) increased by 1-3 °C.

There are various concentrated depressor additives, and experimental data obtained from the analysis of low-temperature properties of diesel fuel are presented in the tables. The results of the experiment showed that all twelve synthesized depressor additives contribute to improving the performance characteristics of diesel fuel engines in low-temperature weather.

The properties of depressor additives in PTGS-1, PTGS-2, PTGS-3, PTGS-4 brands were studied by adding them to the composition of DYO-1 brand summer diesel fuel hydrocarbons in different concentrations.

As the result is presented in table 2 PTGS-1 brand depressor additive 0.1-0.75% DYO-1 brand summer diesel fuel has been found to increase the dimming temperature (TX) -4 °C to -6 °C when added to the hydrocarbon content, filtration temperature restriction (FHCH), -5 °C to -25 °C, and solidification temperature (tq) -10 °C to -35 °C.

PTGS-2 brand depressor additive 0.1-0.75% DYO-1 brand summer diesel fuel has been found to increase dimming temperature (TX) - 4 °C to -7 °C when added to hydrocarbon content, filtration temperature restriction (FHCH), -5 °C to -24 °C, and solidification temperature (tq) -10 °C to -34 °C.

PTGS-3 brand depressor additive 0.1-0.75% DYO-1 brand summer diesel fuel has been found to increase dimming temperature (TX) - 4 °C to -5 °C when added to hydrocarbon content, filtration temperature restriction (FHCH), -5 °C to -24 °C, and solidification temperature (tq) -10 °C to -33 °C.

PTGS-4 brand depressor additive 0.1-0.75% DYO -1 brand summer diesel fuel has been found to increase dimming temperature (TX) - 4 °C to -6 °C when added to hydrocarbon content, filtration temperature restriction (FHCH), -5 °C to -25 °C, and solidification temperature (tq) -10 °C to -33 °C.

Table 3. The effect of Depressor additives on the composition of various concentrates DYO-1 brand summer diesel fuel hydrocarbons

Suffixes	Additive concentration,%	Th, °C	FCHH, °C	Tq, °C
	0	-4	-5	-10
PTGS-1	0,1	-5	-11	-15
	0,2	-5	-13	-19
	0,3	-6	-15	-23
	0,4	-6	-17	-27
	0,5	-7	-23	-33
	0,75	-6	-25	-35
PTGS-2	0,1	-5	-10	-13
	0,2	-6	-15	-16
	0,3	-5	-17	-17
	0,4	-6	-21	-23

	0,5	-5	-21	-29
	0,75	-7	-24	-34
PTGS-3	0,1	-5	-6	-12
	0,2	-4	-9	-12
	0,3	-6	-15	-18
	0,4	-5	-19	-24
	0,5	-6	-24	-28
	0,75	-5	-24	-33
	PTGS-4	0,1	-4	-9
0,2		-5	-14	-19
0,3		-6	-17	-24
0,4		-5	-17	-27
0,5		-6	-23	-31
0,75		-6	-25	-33

When these proposed depressor additives were analyzed by adding DYO -1 brand summer diesel fuel to the hydrocarbon content in various concentrations, the PTGS-1 brand depressor additive was found to be effective compared to depressor additives in PTGS-2, PTGS-3, PTGS-4 brands.

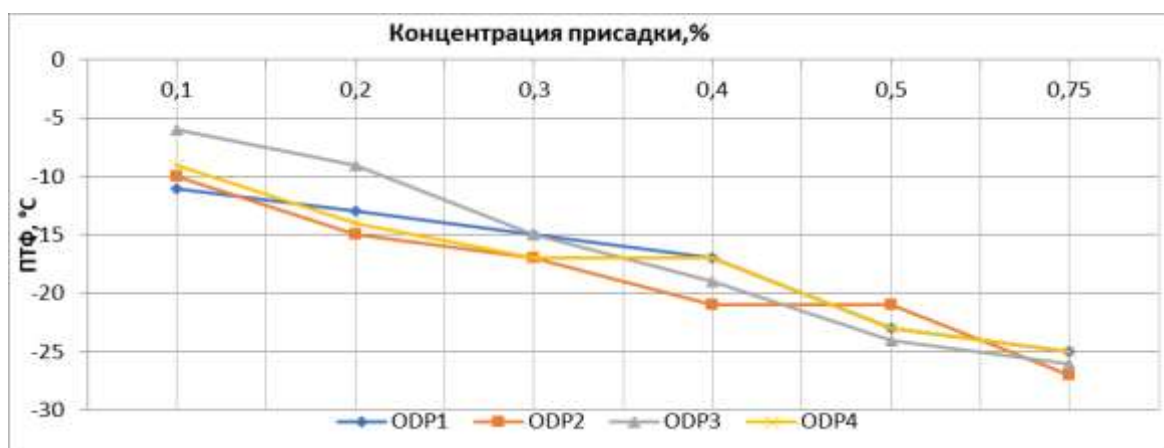


Figure - 1-effect of depressor additives in different concentrations on DYO -1 filtration temperature limitation (FHCH) of dieselfuels

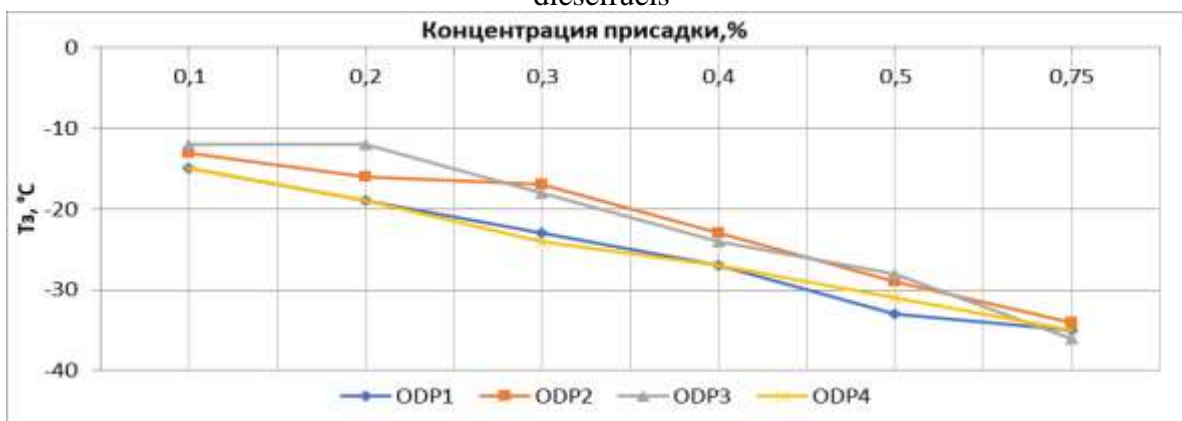


Figure-2-effect of depressor additives in different concentrations on dyo-1 solidification temperature (tq) of diesel fuels

PTGS-1, PTGS-2, PTGS-3, PTGS-4 brand depressor additives are added to the DYO -1 brand summer diesel hydrocarbon composition in different concentrations when the results of their

characteristics were analyzed compared with the proposed depressor additives 0.1-0.75% DYO-1 brand summer diesel fuel in comparison with analogues in filtration temperature restriction (FHCH) and solidification (tq).

References:

1. Ivanova L. V., Koshelev V. N., Burov E. A. Influence of the group hydrocarbon composition of diesel fuels on their operational properties //Petrochemistry. - 2014. – Vol. 54. – No. 6. – p. 478.
2. Archakova R. D. et al. SEALING REACTIONS DURING THERMOLYSIS //Fundamental and applied problems of biology and chemistry. – 2020. – pp. 141-146.
3. Bifunctional additive for diesel fuels / D.B. Zemtsov, K.B. Polyansky, D.M. Panov [et al.] // Oil refining and petrochemistry. - 2020. - No. 2. - pp. 31-34.
4. Kameshkov A.V. Obtaining diesel engines with improved low-temperature properties (review) // A.V. Kameshkov, A.A. Gaile // Izvestiya SPbGTI(TU). -2015- No. 29. - pp. 49-60.
5. Fuels, lubricating materials, technical liquids. Assortment and application: Reference book / Edited by V.M. Shkolnikov. - 2nd ed., reprint. and additional. - M.: Publishing Center "Techinform", 1999. - 596 p
6. Mitusova, T.N. Stability of winter diesel fuels during cold storage / T.N. Mitusova, M.V. Kalinina, I.V. Kapitonov // World of petroleum products. Bulletin of Oil Companies. - 2012. - No. 9. - pp. 21-23.
7. Grishin D. F. Depressant, anti-wear and antioxidant additives for hydrotreated diesel fuels with low and ultra-low sulfur content (Review) //Petrochemistry. – 2017. – Vol. 57. – No. 5. - pp. 489-502.
8. Konoplin R. R., Smyshlyaeva K. I., Kondrasheva N. K. Development of marine low-viscosity fuels with improved low-temperature properties //Bulatovskie readings. - 2017. – Vol. 4. – pp. 165-170.
9. The current state of production of low-hardening diesel fuels in Russian factories / T.N. Mitusova, V.A. Khavkin, L.A. Gulyaeva [et al.] // The world of petroleum products. Bulletin of oil companies. - 2012. - No. 2. - pp. 6-8.
10. Kandelaki, T.L. Oil refining, gas processing and petrochemistry in the Russian Federation / T.L. Kandelaki. - M.: InfoTEK-CONSULT LLC, 2019. - 657 p.
11. Kapustin, V.M. Chemistry and technology of oil refining / V.M. Kapustin, M.G. Rudin. - M.: Chemistry, 2013. - 496 p.
12. Duker A. Use new catalyst technologies to process ultra-low-sulfur diesel / Duker A // Hydrocarbon Processing. - 2008. - No. 2. - P. 10-15.
13. Production of winter diesel fuel in Russia / B.L. Lebedev, I.P. Afanasyev, A.V., Ishmurzin [et al.] // Oil refining and petrochemistry. - 2015. - No. 4. - pp. 19-27.
14. Modern technologies for the production of diesel fuels / V.A. Khavkin, L.A. Gulyaeva, N.Ya. Vinogradova [et al.] // The world of petroleum products. Bulletin of Oil Companies. - 2013. - No. 4. - pp. 17-25.
15. Investigation of the efficiency of the process of isodeparaffinization of diesel fuel using a zeolite-containing nickel-molybdenum catalyst / D.O. Kondrasheva, A.V. Kleymanov, L.A. Gulyaeva [et al.] // Innovations in the production of diesel fuels. - 2016. - Vol. 16. - No. 6. pp. 14-22.
16. Kapustin, V.M. Innovative technologies in the field of production and application of combustible and lubricating materials: collection of proceedings of the I St. Petersburg International Forum / V.M. Kapustin // New technologies in Russian oil refining and petrochemistry. - St. Petersburg: Publishing House of the Polytechnic University, 2013. - pp. 12-15.
17. PJSC Slavneft YANOS:[website]. Text: electronic. Yaroslavl.URL: <https://www.yanos.slavneft.ru/> (date of reference: 02/18/2023).
18. Khavkin, V.A. Hydrogenation processes of obtaining motor fuels / V.A. Khavkin, E.A. Chernyshova, L.A. Gulyaeva. Ufa: Publishing House GUP INHP RB, 2013. 264 p.

Rezyume: maqolada yozgi dizel yoqilgilarining uglevodorod tarkibiga depressant qo'shimchalarning ta'sir samaradorligi muhokama qilinadi.

Резюме: в статье рассматривается эффективность действия депрессантных добавок на углеводородный состав летнего дизельного топлива.

Kalit so'zlar: Dizel, uglevodorodlar, kerosin, depressor va depressorni tarqatuvchi qo'shimchalar, naftenlar, aromatik va kerosinli uglevodorodlar.

Ключевые слова: Дизельное топливо, углеводороды, парафин, депрессорные и депрессорно-диспергирующие присадки, нафтенны, ароматические и керосиновые углеводороды.

RESEARCH OF PHYSICO-CHEMICAL LOSS OF POLYMER COATINGS THAT PROTECT OIL AND GAS PIPELINES FROM SOIL CORROSION

Vafaev O.Sh.

Karakalpak State University named after Berdakh

"Tashkent Scientific Research Institute of Chemical Technology LLC"

Summary: *This article explores the acquisition of euxp-1, EUXP-2 and EUXP-3 branded polymer coatings based on epoxide tar and their physicochemical properties. The proposed polymer coating has been researched for reliable protection of pipes against long-term corrosion, dielectric properties, good elasticity and resistance to chemical environment, atmospheric exposure, solar radiation and soil corrosion.*

Key words: *epoxide tar, polymer coatings, corrosion-stable coatings, anticorrosion polymer coating, epoxy polyurethane.*

Currently, pipelines for the oil and Gas Complex are difficult to imagine without the use of anti-corrosion protection, which can make the metal more durable and melt to a relatively improved environmental impact. At the same time, corrosion protection of the metal pipe line allows, in general, continuous operation. In the United States, Canada, the United Kingdom, and a number of other countries, it is common to use epoxy tar-based polymer coatings with a thickness of 350-400 microns to protect pipes against external corrosion. But the effectiveness of these epoxy-based corrosion-stable polymer coatings in regions with low temperatures has been found to be poor, especially at temperatures below zero, significantly limiting the scope of their application in Russia.

Two-layer epoxy tar-based corrosion-stable coatings can be used as independent protective coatings for pipe insulation, and the good efficiency of pipes when applied under ground and above-ground conditions means higher efficiency than analogs.

However, in recent years there has been a growing demand for double-layer coatings based on epoxy powder paints abroad. The mechanical properties of such coatings, consisting of an internal insulation and an external protective layer with a total thickness of 750-1000 microns, are highly resistant and have practically unchanged impact strength at ambient temperatures from + 40 °C to -40 °C.

This article is a research work aimed at the production and application of polymer coatings designed to protect various products and substances from soil corrosion in the field of pipeline transport, more precisely, pipelines and Oil Products Pipelines, Gas Pipelines, sewer pipes, etc.

It is known that today the main protection of trunk underground pipes from soil corrosion is widely used by their insulation coating using polymer coating tapes. But since insulating materials cannot withstand the loads that occur during the repair and operation of pipes, it is considered uneconomical to apply a large amount of a layer of materials to it to protect the coatings from mechanical damage.

In the application of the proposed double-layer polymer coating, great attention is paid to protecting oil and gas pipelines from soil corrosion by using polymer coatings of epoxy polyurethane synthesized on the basis of butylene diuretic and ethylene diuretic. In the first layer, epoxy polyurethane, an inhibitor and plasticizer and a hardener are added. The second layer is made up of technology based on the formation of a thin-layer coating with a solution of chlorsulfolated polyethylene in 20% organic solvents.

On the basis of the epoxy Tar of the first layer of anticorrosion polymer coating, polymer coatings of the brands EUXP-1, EUXP-2 and EUXP-3 were created, and with them the production of polymer coatings that protect several oil and gas pipelines from soil corrosion was introduced into practice at objects.

Based on the epoxy Tar of the first layer of anticorrosion polymer coating, the structure of euxp-2 brand polymer coatings using IR spectroscopy to characterize epoxide groups as well as

mixtures of substances applied to the formation of polymer coating was analyzed. From IQ spectroscopy it can be seen that absorption lines characterizing epoxide Tar belong to areas 700-1050 cm⁻¹. In addition-Ch₂ gardens are considered the main one their absorption line corresponds to Valence oscillations in the area of 2980-1450 cm⁻¹ and it was found that in the areas of 1290-1445 cm⁻¹ oscillation, s-N held bonds belong.

The presence of absorption lines in the 3950-3400 cm⁻¹ areas of chemical compounds containing nitrogen added to the polymer composite based on epoxide tar was determined by the results of the analysis.

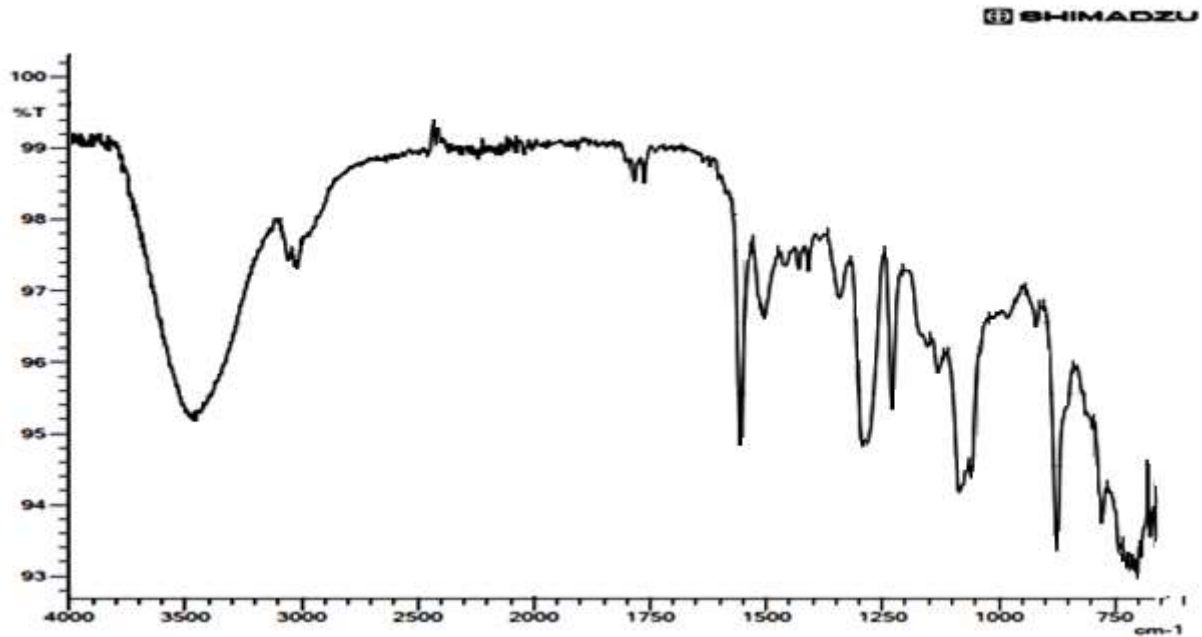


Figure 2.6. IQ-spectroscopy analysis of a polymer coating based on EUXP-2 brand epoxide Tar.

A two-layer coating based on epoxy polyurethane and chlorosulfonated polyethylene is applied to the metal surface in the form of a two-layer coating with a total thickness of 2.0 mm to protect against corrosion on metal surfaces.

The physicochemical properties of oil and gas pipeline coatings obtained using the above methods are presented in Table 4.1 and 4.2. As can be seen from the data in Table 4.1 and 4.2, the physicochemical properties of the coatings obtained in examples 1 and 4 are considered the most durable and reliable. The protective strength of the coatings (density, elastic recovery rate, water resistance, abrasion resistance, UV and ozone resistance, corrosion resistance) was determined by storing steel plates in various aggressive environments for 3 months.

Table 4.1. The main physical and chemical properties of oil and gas pipeline coatings

№	Display name	Example 1		Example 2		Example 3		Example 4	
		1.Layer one	2.Layer two	1.Layer one	2.Layer two	1.Layer one	2.Layer two	1.Layer one	2.Layer two

1	Appearance and color	Transparent	Mustard color	Transparent	Mustard color	Transparent	Mustard color	Transparent	Mustard color
2	Density, g/cm ²	1,05	1,16	1,12	1,15	1,05	1,16	1,12	1,15
3	Temperature range	-40... +100°C	-40... +100°C	-40... +100°C	-40... +100°C	-40... +100°C	-40... +100°C	-40... +100°C	-40... +100°C
4	Elastic recovery rate, %	85-95	90-100	85-95	90-100	85-95	90-100	85-95	90-100
5	Oil product resistance	Resistant to gasoline, petroleum products, resistant to bitumen solution							
6	Water resistance	**	***	**	***	**	***	**	***
7	Friction resistance	**	***	**	***	**	***	**	***
8	Resistance to UV and ozone	**	***	**	***	**	***	**	***
9	Fungal resistance	***	***	***	***	***	***	***	***
1	Drying time at 80 °C. moisture before applying the next layer	10	-	10	-	10	-	10	-
1	Clock at +20 °C	24	-	24	-	24	-	24	-
1	Corrosion resistance	***	***	***	***	***	***	***	***
1	Sticking, ball	1	1	1	1	1	1	1	1

*** *excellent*, ** *high*, * *bad*.

The proposed polymer coating creates a solid monolithic coating on the entire surface of the pipe, thereby reliably protecting the pipes against long-term corrosion. Based on the above, the offered coating has the following advantages and distinctive features:

- the studied insulation coating composites solidify in a minimum time under normal conditions;

- insulation coatings-heat insulation in the temperature range from 40s to + 100s, have dielectric properties and good elasticity and are very resistant to chemical environment, atmospheric exposure, solar radiation and soil corrosion resistance (table 4.1 and 4.2).

Table 4.2. Determination of resistance to the action of the chemical environment was carried out by GOST 12020-72.

Corrosive environment	Test time, clock	Test temperature °C	Test time, clock				Test temperature, °C			
	Prototype	Prototype	Example 1	Example 2	Example 3	Example 4	Example 1	Example 2	Example 3	Example 4
H ₂ SO ₄ , 3%-solution	24	80	24	24	24	24	80	80	80	80
H ₂ SO ₄ , 3%- solution	-	-	2160	2160	2160	2160	35	35	35	35
H ₂ SO ₄ , pH -3	24	100	24	24	24	24	100	100	100	100
H ₂ SO ₄ , pH -3	-	-	2160	2160	2160	2160	35	35	35	35
KOH, 5%- solution	24	80	24	24	24	24	80	80	80	80
KOH, 5%- solution	-	-	2160	2160	2160	2160	35	35	35	35
KOH, pH-14	24	100	24	24	24	24	100	100	100	100
KOH, pH-14	-	-	2160	2160	2160	2160	35	35	35	35
Isopropyl alcohol	24	80	24	24	24	24	80	80	80	80
Isopropyl alcohol	-	-	2160	2160	2160	2160	35	35	35	35
10% H ₂ SO ₄ and dichloroethane	729	20	729	729	729	729	20	20	20	20
HCl, 5%- solution	729	20	729	729	729	729	20	20	20	20
HCl, 5%- solution	-	-	2160	2160	2160	2160	35	35	35	35

Thus the indicators of the proposed polymer coatings are compared (shock resistance, adhesion, porosity, drying time, relative hardness). Polymer coatings that protect oil and gas pipelines from soil corrosion can be applied as a protective layer that increases the reliability of thermal insulation, weather-resistant, corrosion-resistant, sealing the pipeline surface.

References:

1. Borodavkin P.P. Podzemnie Highway. M.: Nedra, 1998. 384 P.
2. Kutukov S.E. Informasionno-analiticheskie system magistralnix truboprovodov. M.: SIP RIA, 2002. 324 P.
3. Korshak A.A. Trunk pipe. Ufa: Designpoligrafservis, 2008. 448 P.
4. Kuandikov T.S. Razvitie innovacionnix prosesov V neftegazovom Komplexe Kazakhstana: dis. ... kand. economy. nauk. - Almaty, 2010.
5. Ermakov A.V. Aktualnie zadachi protivocorrosionnoy zatshiti v promishlennosti // Anticorrosionnaya zatshita-2015: material shestoy Mejotraslevoy conferencing. 2015, Moscow.
6. Veretshagin T.S. Zatshita ot korzorsii Reservoir Park I neftegazovogo oborudovaniya // Mezhdunarodnaya Vistavka-Congress technologist, oborudovaniya I materialov anticorrosionnoy zatshiti "Zatshita ot korozii-2015". - St. Petersburg, 2015.
7. Nadirov K.S., Sakibaev B.A., Sadirbaeva A.S., Turebekova A.M., Besbaeva N.A. Ispitania trexslonogo pokritia dlya zatshiti nefteprovodov horse korozii // Innovacionnoe razvitie sovremennoy nauki: problemi I perspective: material Mejdunarodnoy nauchno-prakticheskoy conference. 13 Maya 2017 g. Astana, Casahstan. S. 46-52.
8. Khuzakhanov, R.M. Razrabotka anticorrosionnix materialov dlya zatshiti vozdukhovodov I ventilatorov / R.M. Khuzakhanov, R.M. Garipov, A.A. Efremova // Vestnik Kazan. Technol un-ta. - 2010. - №9. - S.262-266

9. J. Xu, Y. Zhu, H. Huang and J. Lu, "recent advances in shape-memory polymers: structure, mechanism, functionality, modeling and applications", progress in Polymer Science, Vol. 37, no. 12, PP. 1720-1763, 2012.

10. C. Liu, H. Qin and P. T. Mather, "review of progress in shape-memory polymers", Journal of Materials Chemistry, Vol. 17, no. 16, PP. 1543-1558, 2007.

11. T. Xie, "recent advances in polymer form memory", polymer, Vol. 52, PP. 4985-5000, 2011.

12. F. Xie, L. Huang, Y. Liu and J. Leng, "synthesis and description of high temperature cyanate-based shaped memory polymers with functional polybutadiene/acrylonitrile", polymer, vol. 55, no. 23, PP. 5873-5879, 2014.

13. X. Xiao, D. Kong, X. Qiu et al., "Shape-memory polymers with adjustable high glass transition temperature", macromolecules, vol. 48, no. 11, PP. 3582-3589, 2015.

14. X. Zhang, Q. Zhou, H. Liu and H. Liu, "induced uv plasticization and memory of the lightly activated form of ethylene-vinyl acetate copolymers with the addition of spiropyran", soft matter, vol. 10, no. 21, PP. 3748-3754, 2014.

Summary: maqolada epoksid smolasi asosida EUXP-1, EUXP-2 va EUXP-3 markali polimer qoplamalar olish va ularni fizik-kimyoviy hossalari muhokama qilinadi.

Резюме: в статье рассматривается получение полимерных покрытий марок EUXP-1, EUXP-2 и EUXP-3 на основе эпоксидной смолы и их физико-химические свойства.

Kalit so'zlar: epoksid smola, polimer qoplamalar, korroziyaga chidamli qoplamalar, korroziyaga qarshi polimer qoplamasi, epoksi poliuretan.

Ключевые слова: эпоксидная смола, полимерные покрытия, устойчивые к коррозии покрытия, антикоррозийное полимерное покрытие, эпоксидно-полиуретановое покрытие.

UDK 621.316.1

**APPLICATION OF PROBABILISTIC METHODS IN VOLTAGE QUALITY ANALYSIS
IN CITY DISTRIBUTION POWER GRIDS**

Rasulov A.N¹., Melikuziev M.V¹., Najimova A.M².

¹Tashkent State Technical University named after Islam Karimov. Uzbekistan 100095,

²Karakalpak State University named after Berdakh.

Rezyume: *The article examines the distribution of random voltage change curves and the probability of their occurrence using a probability calculation method, taking into account the randomness of the voltage change at the connection points of electric consumers when evaluating the operating modes of city distribution power networks. Differential and integral histograms of the voltage deviation are given.*

Key words: *distribution power grid, power quality, voltage deviation, random value, probability value, frequency deviation.*

Introduction

The operating modes of urban distribution power grids are probability based, with the most efficient voltage estimation being a sufficiently complex task. Urban distribution power grids are very abundant, with a large number of electricity consumers connected at various points. Changes in electrical loads over time are in most cases random. Therefore, the change in voltage at certain points of the electrical network and in the clamps of electric consumers also has the property of randomness. At a number of points in the electrical circuit, the change in voltage is a function of $Un(t)$, while the deviation of the voltage from the nominal value is sified by the dependence $V(t)$. The variation of this function at the point being seen depends on many of the following factors:

- change of voltage mode in the supply center (SC) tire;
- change in electrical charge value;
- types of electricity consumers;
- daily, annual running time, etc.

In these conditions, the most well-founded probabilistic method is considered analysis, in which an event or process is studied on the basis of generalized indicators that characterize it. The probability calculation method can be assessed by applying sufficient reliability for the sum of each electric consumer supplied from the city distribution power grid under consideration to allow voltage deviations to occur in most electricity consumers, one or the other. In this case, a series of voltage quality integrally generalized criteria can be applied in distributive electrical networks [1].

Problem statement

In voltage mode analysis, the voltage deviation at an arbitrary connection point of an electrical network can be viewed as a random time function or a random process. This shows that this function looks different at different times. In other words, it consists in carrying out random processes. For practical calculations, the random process being seen shows its convenience in losing long-time implementations and taking its random values sequentially. In addition, a number of specific periods of daily time are often of interest, for example, the change in random functions of voltage deviation during the largest and smallest electrical charge hours. In this case, the study represents random values in the moment of time. The possibility of such a limitation of the task, that is, the study of its values in the place of random processes, significantly simplifies the voltage mode.

When using probabilistic methods, the distribution of the values of random curves is considered. They establish a connection between random values and their probability of occurrence.

It is understood in probability that this reality may or may not occur. Under the conditions under consideration, random events at this moment of time coincide with the occurrence of a deviation V at a number of points of the electrical network. A value V can have a number of essences, each of which corresponds to its own P value probability with its own P value probability. Probabilistically identifiable random event law is manifested from a sufficient number of observations or experiments (statistics). To describe in figure 1.a, values the random V values of the abscissa axis sequentially, in the ordinate axis the probability density $\varphi(V)$ is set. From distribution curve outputs (figure 1.a) it is seen that the probability essence of random values under the conditions under consideration is a series of its average V value, giving the greatest probability in this case $\varphi(V)$ e.k. the value holds [2].

In probability theory, the average value of a random magnitude is called mathematical expectation. In statistical description, The probability of mathematical expectation is approximately equal to the arithmetic mean of the observed value.

For a discrete variable random magnitude V , the following expression is appropriate:

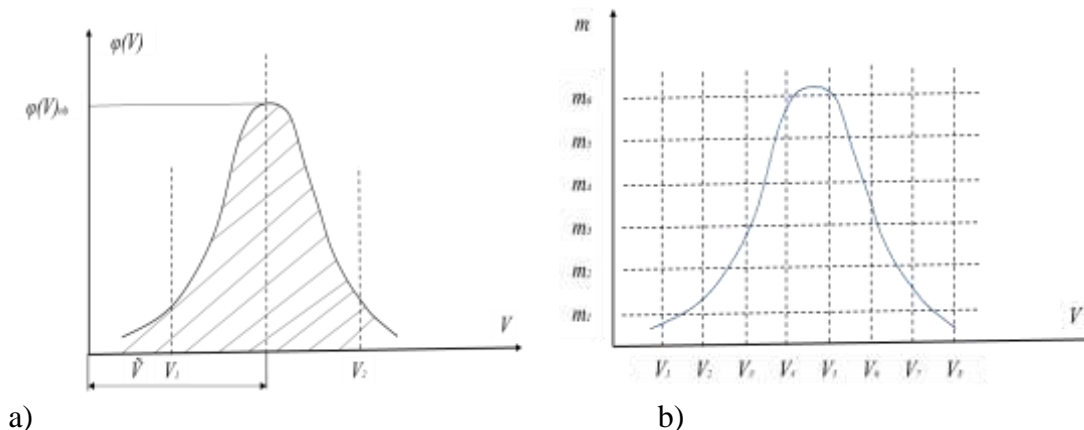
$$\tilde{V} = \frac{\sum_{i=1}^n \hat{V}_i}{n} \tag{1}$$

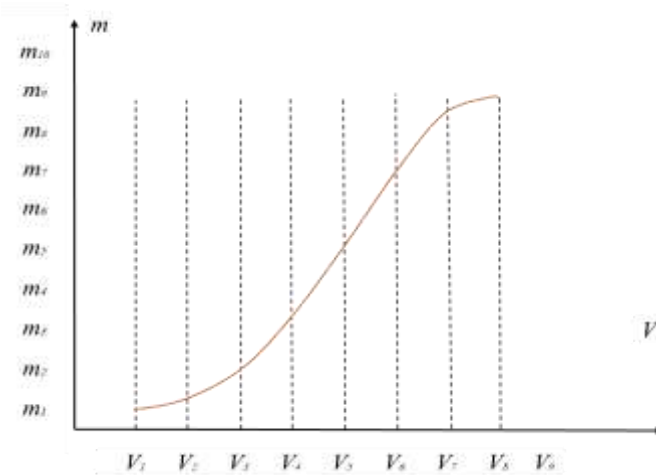
For a continuously changing magnitude, the following expression is appropriate:

$$\tilde{V} = \frac{1}{T} \int_0^T V dt \tag{2}$$

here, $n - t$ the number of qymat of the work of the voltage obtained from the observation of the process under consideration at a time interval.

In the statistical analysis of the voltage deviation, the distribution of the deviation is constructed in the form of a stepped histogram or a uniform curve of the variation series. In the abscissa axis (V_1, V_2), the possible value of the deviation is sequential, while in the ordinate axis, the deviation frequency or change frequency is constructed. In this case, the frequency of this Vt deviation is understood as the amount of its absolute value, which has in the observed range T . Frequency deviation is understood as the relative value of the frequency, that is, the proportion of all values of the observed N voltage deviation. The total area of histograms is equal to the sum of frequencies, that is, one.





c)

Figure 1. Random value distribution curves and series: a - a curve distributed in normal law is; b - differential histogram and uniform distribution curves; c - integral (cumulative) histogram and uniform distribution curves.

The uniform distribution of histogram or voltage deviation curves is differential, when the value of the V_1 voltage deviation in each range on the ordinate axis is equal to its frequency m_1 (figure 1.b) may be true. Which part of the deviation they all observed is at Y or other limit (figure 1.c) shows that it has a small value [5].

From mathematical expectation, the dispersion of random values of the value of the voltage deviation as the spread of the generalized indicator (or average arithmetic) is taken. Y is equal to the square of the deviation of the random value from its mathematical expectation. In statistical determination of probability dispersion, approximately equal to:

$$D = \sigma^2 = \frac{\sum_{i=1}^n (v_i - \tilde{V})^2}{n} \quad (3)$$

here, in non-multiple quantitative observations of the ratio n , the dispersion value from the 3-expression must be corrected by multiplying the value D by the relation $[n \cdot (n-1)]$.

For values that change continuously, it is equivalent to:

$$D = \sigma^2 = \frac{1}{T} \int_0^T (V - \tilde{V})^2 dt \quad (4)$$

The value σ equal to the average square deviation is called the standard deviation. The size of σ corresponds to the size of the random value V . In a number of cases, different voltage deviations can be used.

$$N = (\tilde{V})^2 + \sigma^2 \quad (5)$$

In some cases, an average modulus of random value V from the mathematical expectation \tilde{V} representing the mean deviation m_v is used to estimate the spread.

For a discrete random value, is equivalent to:

$$m_v = \frac{\sum_{i=1}^n (v_i - \tilde{V})}{n} \quad (6)$$

For continuity, is equivalent to:

$$m_v = \frac{1}{T} \int_0^T (V - \tilde{V}) dt \quad (7)$$

The analytical description of normal law is quite simple - it depends only on two parameters: mathematical expectation \tilde{V} and standard deviation σ . figure 1.a describes the scattering curves of the deviation from the nominal voltage based on the normal law. Its equation has the following appearance:

$$\varphi(V) = \frac{1}{\sigma \cdot \sqrt{2\pi}} e^{-\frac{(V-\tilde{V})^2}{2\sigma^2}} \quad (8)$$

The normal scattering curve is symmetric with respect to the corresponding mathematical expectation ordinate of deviation \tilde{V} . Has the greatest ordinate value:

$$\varphi(V)_{e.k.} = \frac{1}{\sigma \cdot \sqrt{2\pi}} \approx \frac{0,4}{\sigma} \quad (9)$$

The dependence of standard deviation σ and deviation mv is determined from $\sigma=1.25 \cdot mv$. Its probability is that the difference in voltage deviation over absolute values $V-\tilde{V}$ does not exceed some number $k=t \cdot \sigma$ The integral probability is determined from $\Phi(t)$:

$$\Phi(t) = \frac{2}{\sqrt{2\pi}} \int_0^t e^{-\frac{t^2}{2}} dt \quad (10)$$

Using the probability integral, it is possible to determine that probability $P(V_1 < V < V_2)$ is located at any interval $(V_1 V_2)$ with deviation V subject to the normal law that the approximation changes (figure 1.a):

$$P(V_1 < V < V_2) = \frac{1}{2} \Phi(t_2) - \frac{1}{2} \Phi(t_1) \quad (11)$$

here, $t_1 = \frac{V_1 - \tilde{V}}{\sigma}; t_2 = \frac{V_2 - \tilde{V}}{\sigma}; \Phi(-t) = -\Phi(t)$ (11a)

We think, $V_1 = -t \sigma$ and $V_2 = t \sigma$ ($t_1 = t$ and $t_2 = t$). Then the probability deviation V and the mean value \tilde{V} difference do not exceed $\pm \sigma t$, determined from the following expression:

$$\frac{1}{\sqrt{2\pi}} \int_{-t}^t e^{-\frac{t^2}{2}} dt = \frac{2}{\sqrt{2\pi}} \int_0^t e^{-\frac{t^2}{2}} dt = \Phi(t) \quad (12)$$

here, $t=(V-\tilde{V}) / \sigma$.

From the table of Integral probabilities, the mean value for the characteristic values of $t \tilde{V}$ its sought V value will have the following probability value [1]:

table 1

t	3	2,5	2	1,5	1	0,5
Probability value	0,9973	0,9876	0,9544	0,8664	0,6826	0,3830

Thus, knowing the values the mathematical expectation \tilde{V} and the standard deviation σ , it is possible to determine the probability location of the magnitude V that is being sought during the time interval being seen in a given circle. We describe this in a specific example. Suppose, based on measurements, that T is the value of the average arithmetic deviation during some interval of time $\tilde{V}=2\%$, and σ is the standard deviation from the value $\sigma, 2\%$. It is required to determine that the probability of deviation from the nominal voltage at the point being seen does not deviate from $\pm 5\%$ [6-7]. This corresponds to values $V_1=-5\%$ and $V_2=+5\%$. From the expression (11a) we define:

$$t_1 = \frac{V_1 - \tilde{V}}{\sigma} = \frac{-5-2}{2} = -3,5\% \quad t_2 = \frac{V_2 - \tilde{V}}{\sigma} = \frac{5-2}{2} = 1,5\%$$

From table 1 [3] we define:

$$0,5 \cdot \Phi(t_1) = 0,5 \cdot \Phi(-3,5) = -0,4995 \text{ and } 0,5 \cdot \Phi(t_2) = 0,5 \cdot \Phi(+1,5) = 0,433.$$

We define the probabilities being sought from the expression (11):

$$P(-5\% < V < 5\%) = 0,433 - (-0,4995) = 0,932.$$

It is seen from expression that if the voltage deviation curve converges to the law of normal distribution, quantification of voltage quality descriptors over a number of T timeframes is done simply enough. The distribution curve shown in real often does not conform to normal law, so it becomes complicated to obtain a quantitative assessment of voltage quality [8, 9].

The relationship between the values σ and mv can be determined from the following approximation in different distribution laws:

$$mv \cong (1,2-1,25) \cdot \sigma \quad (13)$$

In a number of cases the voltage regime analysis has to have a system of several random magnitudes describing the correlation. A system of two random magnitudes can be described in terms of random points with X and Y coordinates on the cross-sectional Surface [4]. There may or may not be a functional link between them [10, 11]. This connection is expressed in linear terms. In a number of cases, there is a probability or correlation cross-positive correlation between the two system magnitudes. It is characterized by the moment of quantitative probable bond correlation:

$$k_{XY} = \sum_{ij}(X_i - X)(Y_i - Y)P_{ij} = \sum X_i Y_i P_{ij} - XY \quad (14)$$

If the magnitudes X and Y are not related, then the correlation moment is zero. If the relation is rectilinear, then:

$$k_{XY} = \pm r \sigma_X \sigma_Y \quad (14a)$$

A positive sign is acceptable if the growth of one magnitude is consistent with the growth of the other, in the negative – inverse case. It is convenient to use the correlation coefficient in practical terms, in which its value is obtained below:

$$r_{XY} = \pm \frac{k_{XY}}{\sigma_X \sigma_Y}$$

In the associated magnitudes, $r = 0$. $r = \pm 1$ when there is a functional link, $-1 < r < 1$ when there is a probability link. If the magnitude dispersion and correlation coefficient are determined from a bounded n-number experiment, then they must be multiplied by $n \cdot (n-1)$.

The numerical descriptions of the two related magnitudes are defined as follows: $\tilde{V} = \tilde{V}_X + \tilde{V}_Y$; dispersion: $D = DX + DY + 2 \cdot r \cdot \sigma_X \cdot \sigma_Y$.

For unrelated random magnitudes: $D = DX + DY$; for functionally connected quantities: $\sigma_2 = (\sigma_X + \sigma_Y)^2$.

Let us show the application of the correlation coefficient in the evaluation of different electrical loads of certain lines connecting to SC, using the example of choosing the desired law of adjusting the voltage to SC. It is known that the correlation moment of one different electrical charge graphs of different types of electrical loads can be characterized by a numerical or correlation coefficient r. One different level of the electrical loading graph affects one kind of voltage graph at different points in the network at a certain level. But from the truth, different types of electrical loadings flow from a single line section itself [12]. Therefore, the change in the voltage graph at some point in the urban distribution electric grid will depend only on the electric load connected to that point of the grid, and the electric load graph connected to other points of that grid. [2, 3] shown, the sum of the voltage loss dispersion on a number of sections of the line is the result of the sum of the voltage loss dispersion from certain electrical loads. Each of them is involved in the sum with a oscillation v, and the sum of the hesitant correlation moments is taken downstream:

$$\sigma_{\Delta}^2 = \sum_{i=1}^n \sigma_{\Delta i}^2 b_i + 2 \sum_{i,j=1} r_{i,j} \sigma_{\Delta i} \sigma_{\Delta j} b_i b_j \quad (15)$$

From the expression (15) it follows that under other equal conditions, the smaller the rij magnitude, the smaller the dispersion of the voltage loss. This shows that the connection of each different electrical load to one distribution line reduces the distribution of voltage loss to a certain extent and, as such, reduces the distribution of voltage deviation. The result of the calculations shows that the magnitude of the connected to one line is relatively high in the degree of uniformity of the voltage graph on the graph of various electrical loads. It can be seen from this that when grouping the types of electrical loadings connected to a single general distribution electrical grid line, it is not necessary to strive for a high degree of uniformity of the electrical loadings graph. If, in this case, the correlation coefficient between certain electrical loads is in the range $r \geq 0.6$, then is itself sufficient.

If different lines of the medium voltage (MV) power grid provide different electrical loads of the same type at each line boundary, one type of graph of the voltage of certain lines will be

close to one type of load graph. In this case, it is desirable to group the lines of a large degree of one-variety graphs, for example $r \geq 0.8$.

Conclusion

1. When assessing voltage quality in urban power grids, it is recommended to use an integrated statistical method in which the measurement volume does not depend on sufficient duration. In this case, in a sufficiently long implementation of a random function, the time is divided into discrete slices and replaced by a sequence of random magnitudes.

2. Standard magnitude σ is not considered a criterion of voltage quality. In all cases, it does not provide data that satisfies the requirements of voltage quality analysis and control. Sufficient complete information can be obtained when both description – mathematical expectation \tilde{V} and standard deviation σ are used together. If the distribution of the voltage deviation is subject to the normal law, then it is possible to obtain complete information about the quality of the voltage based on these two descriptions.

References:

- Вентцель Е.С. Теория вероятностей. М., Физматгиз. 2002. – 564 ст.
- Баркан Я.Д. автоматизация регулирования напряжения в распределительных сетях. М., “Энергия”, 2001. – 231 ст.
- Баркан Я.Д. использование статических информации в качестве напряжения в электрических сетях. М., “Энергия”, 2002. – 120 ст.
- Ulrich Butz, Dieter Heinze, Wiss. Wassili, N. Winoslawskiy, I.Taradaj // Automatisierung der projektierung von elektroenergieversorgungssystemen // Berlin vez deutscher verlag fur grundstoffindustrie, 2008. pages 207.
- Таслимов А.Д., Меликузиев М.В., Рахимов Ф.М. // Унификация параметров распределительных электрических сетей в условиях неопределенности исходной информации // Научно-технический журнал «Проблемы энерго-и ресурсосбережения». Ташкент, 2019. - №1-2. С. 229-235. (05.00.00; № 21).
- Taslimov A.D., Melikuziyev M.V., Rakhimov F.M. // Methodology in multicriteria problems optimization and unification of parameters of power supply systems // Scientific journal «European Science review». Austria, Vienna, 2018. - № 9-10. September-October. PP. 214-216. (05.00.00; № 3).
- Taslimov A.D., Rakhimov F.M., Yuldashev A.A., Melikuziev M.V. // Multiparameter optimization of the parameters of distributed electrical networks taking into account unification // International Journal of Advanced Research in Science, Engineering and Technology. ISSN: 2350-0328. India. December 2019. Vol.6, Issue 12, P.12059-12063. <http://www.ijarset.com/currentissue.html> (05.00.00; № 8).
- В.Г. Сазыкин // Проектирование систем электроснабжения // Учебное пособие, Краснодар 2019, ст.248.
- A.D.Taslimov, A.A.Alimov, F.M.Rakhimov, M.V.Melikuziev. // Determination of the optimal parameters of power distribution networks by the method of criterion analysis // International Journal of Advanced Science and Technology Vol. 29, №11s, (2020), PP. 1578-1583.
- Таслимов А.Д., Меликузиев М.В., Дехконбоев А.А. // Определение оптимальных параметров распределительной электрической сети до 1000 В // Сб. научных статей международная научная конференция «INNOVATION-2018». – Ташкент, 2018. – С. 110-112.
- Меликузиев М.В., Таслимов А.Д., Юлдошев А.З. // Результаты исследования глубокой унификации сечений кабелей городских электрических сетей // Сборник трудов международной научно-практической конференции «Проблемы повышения эффективности работы современного производства и энерго-ресурсосбережения». –Андижан, 2018. – С. 465-468.
- В.Н. Радкевич // Проектирование систем электроснабжения промышленных предприятий // Учебное пособие, 2018. – ст. 380.

Rezyume: *Maqolada shahar taqsimlovchi elektr tarmoqlarining ish rejimlarini baholashda elektr iste'molchilarning ulanish nuqtalarida kuchlanish o'zgarishining tasodifiyligini hisobga olgan holda ehtimollik hisoblash usulini qo'llash orqali tasodifiy kuchlanish o'zgarishi egri chiziqlarini taqsimlanishi va ularni yuzaga kelish ehtimolligi ko'rib chiqiladi. Kuchlanish og'ishining differensial va integral gistogrammalari keltiriladi*

Резюме: *В статье рассматривается распределение кривых случайных изменений напряжения и вероятность их возникновения путем применения вероятностного метода расчета с учетом случайности изменения напряжения в точках подключения*

электропотребителей при оценке режимов работы распределительных электрических сетей постоянного тока. Приведены дифференциальные и интегральные гистограммы отклонений напряжения.

Kalit so‘zlar: *taqsimlovchi elektr tarmoq, elektr energiyasi sifati, kuchlanishning og‘ishi, tasodifiy qiymat, ehtimollik qiymat, chastotaning og‘ishi*

Ключевые слова: *распределительная электрическая сеть, качество электроэнергии, отклонение напряжения, случайное значение, вероятность значение, отклонение частоты.*

STUDY OF COLLOID-CHEMICAL AND FILTRATION PROPERTIES OF DRILLING FLUIDS WITH STABILIZERS AND ELECTROLYTE SALT ADDITIVES

Tileubaev S.O¹, Abdikamalova A.B², Eshmetov I.D².

¹*Karakalpak State University named after Berdakh,*

²*Institute of General and Inorganic Chemistry, Academician of Sciences of the Republic of Uzbekistan*

Summary: *The article presents the results of the influence of NaCl electrolyte on the properties of drilling fluids. It has been established that the hydrolyzed form of the copolymer of acrylamide and maleic acid (C2-7) has a high structure formation, resulting in high viscosity and filtration properties of drilling fluids. The results of the studies showed that an increase in the stabilizing effect was detected when using mixtures of stabilizers in drilling fluids.*

Key words: *Electrolyte, CMC, PAA, C2-7, suspension, viscosity, drilling fluid, filtration, stabilizer, clay, water loss.*

Introduction. In drilling practice, regulation of the processes of structure formation and stability of clay suspensions is carried out using chemical reagents. The main goal of chemical treatment of drilling fluids is to improve the required technological, structural and mechanical properties with low consumption of chemical reagents.

The construction of oil and gas wells is mainly determined by the composition and properties of drilling fluids, which must ensure smooth drilling and penetration of the productive formation. To overcome these problems, drilling fluids must perform a number of functions. They, in turn, are determined by structural, mechanical, rheological, filtration and other properties [1]. To stabilize drilling fluids, chemical reagents and thickeners are added. To study the colloidal chemical and filtration properties of clay suspensions, salts and polymer reagents are added to the electrolyte [2]. The necessary structural, mechanical and filtration characteristics of boron solutions are achieved by using stabilizers - chemical reagents that maintain the characteristic characteristics of boron solutions at high storage temperatures and the presence of salt electrolytes [3].

During the research work, the effect of NaCl electrolyte on the properties of the suspension was studied; We used a filtration reducer CMC-900, PAA produced by Navoiyazot (TSh6.1-00203849-29:2014), synthesized polymer and copolymer samples. Initially, solid clay suspensions were prepared with a concentration of 5 to 10%.

Part of the experience

The density of the suspensions was measured using a pycnometer. The relative viscosity of suspensions is one of the main criteria that determines the suitability of clays for the preparation of drilling fluids, and characterizes how many m³ of drilling fluid can be obtained from one ton of clay. The relative viscosity of the suspensions was determined using a VBR-2M funnel with a tube with a diameter of 5 mm.

Static shear stress was determined using VSN-2 and SNS-2M devices. The water separating properties of drilling fluids were determined using a VM-6 device designed to measure filtration at temperatures from +10°C to 80°C and a pressure of 1 kg f/sm².

The concentration of hydrogen ions was determined calorimetrically using indicator paper and potentiometrically using various pH meters (ionomer brand I-160 MI).

Stability is determined by calculating the difference in density between the upper and lower halves of the suspension. Daily clean water content (SSM). The amount of pure water released in the upper part of the suspensions after 24 hours of storage was measured in %.

Based on clays, clay powders were prepared from dried clay using grinding technology in a ball mill and technological research was carried out in accordance with GOST 25796.83 "Clay raw materials in the production of clay powders for drilling fluids. Test methods"[4]. To prepare

suspensions with different concentrations of the solid phase, boiled, cooled household water was used.

Discussion of the results obtained

Initially, changes in the viscosity properties of aqueous polymer solutions were studied depending on concentration. The results obtained are presented in Figure 1.

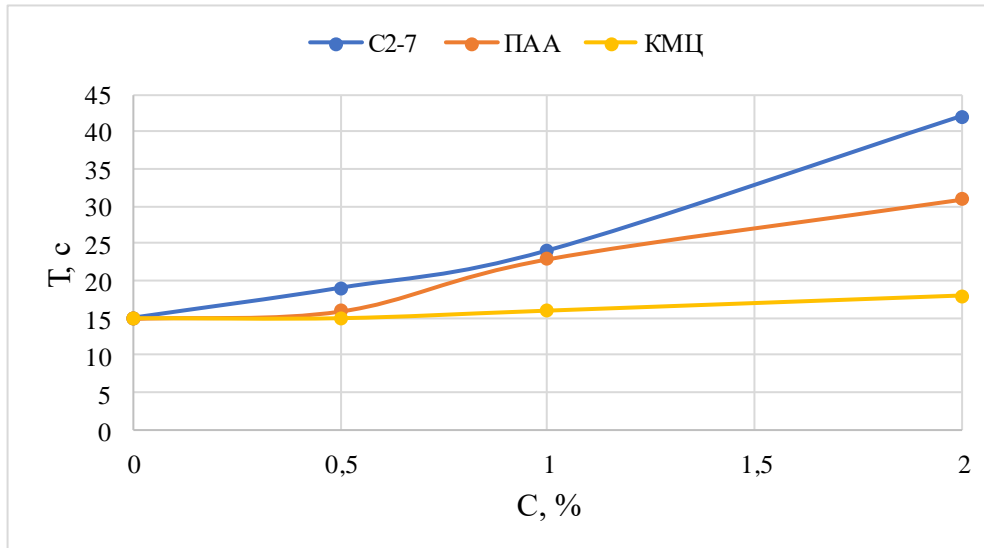


Figure 1. Effect of stabilizer concentration on the relative viscosity of solutions.

From the curves in Figure 1 it is clear that the C2-7 copolymer solution has higher viscosity values than other stabilizer solutions of the same concentration. The relative viscosity of solutions of low concentrations of the hydrolyzed stabilizer PAA (pH=8) is relatively low, but the viscosity increases slightly at concentrations exceeding 1%. This indicates that hydrolysis of the synthesized acrylamide polymers improves structure-forming properties. Therefore, we can use these stabilizers as highly stabilizing reagents in drilling fluids.

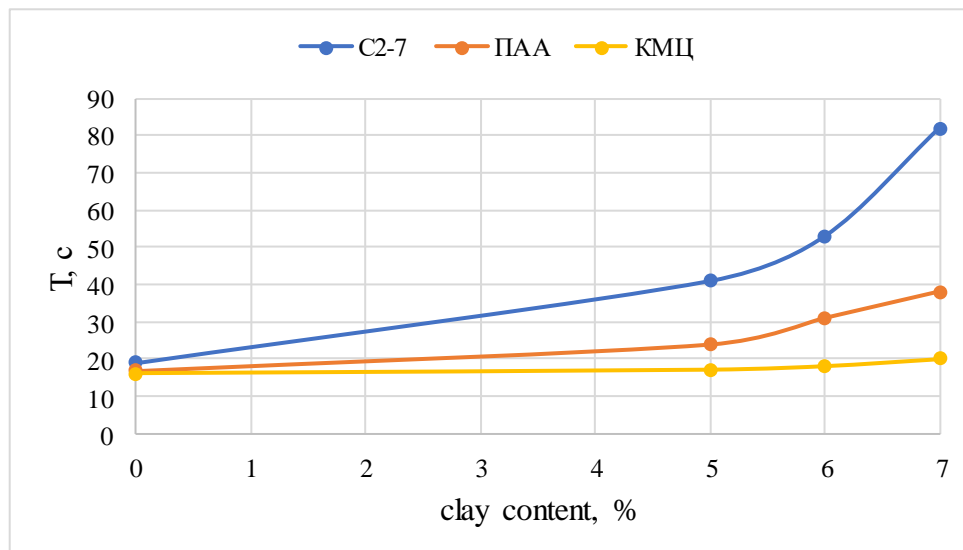


Figure 2. Change in viscosity depending on clay concentration. The amount of stabilizer in clay is 0,5%.

From the curve diagrams it is clear that the conditional viscosity of a drilling fluid with a stabilizer content of 0,5% depends on the clay content, that the stabilizing effect of polymer solutions depends on the composition of the solid phase in suspensions, and the more clay particles in the drilling fluid, the higher the viscosity. From the data obtained it is clear that an increase in the viscosity properties of aqueous solutions of polymers is also characteristic of clay suspensions of NIB.

The influence of polymer compounds that reduce filtration-viscosity properties in mineralized suspensions has been studied. It has been established that the stabilizing effect of chemical reagents depends not only on their nature and concentration, but also on the concentration of clay in suspensions. When high-concentration suspensions are treated with chemical reagents, their stabilizing effect begins to manifest itself sharply. This is especially true for C2-7 and PAA. As a result of the adsorption of charged parts of polymer macromolecules on the surface of the dispersed phase, the properties of the dispersed system radically change. This leads to a change in the rheological and filtration properties of suspensions.

Below are the changes in viscosity, SSS and water release properties of NIB suspensions depending on the concentration of various polymer compounds. Figures 3-5 show that polymer treatment improves the viscosity, SSS and filtration properties of suspensions.

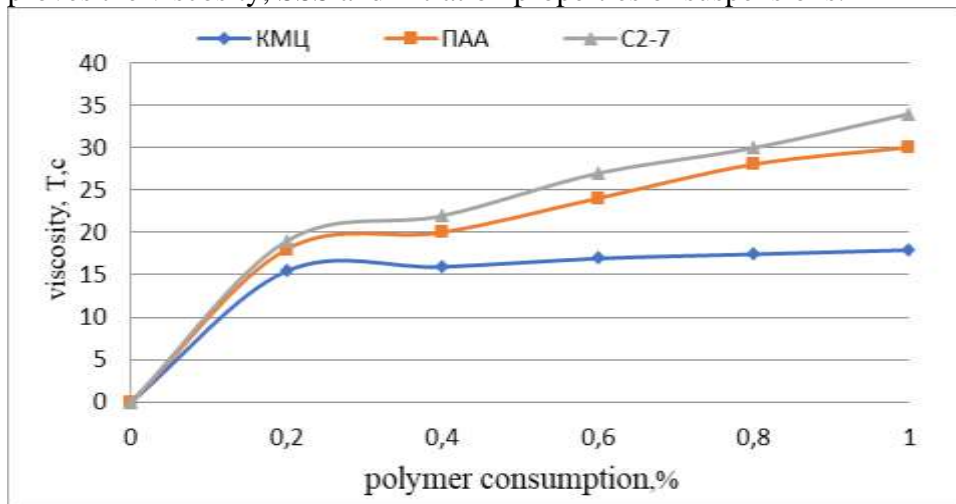


Figure 3. Effect of polymer concentration on the nominal viscosity of mineralized (NaCl 5%) 5% NIB suspensions.

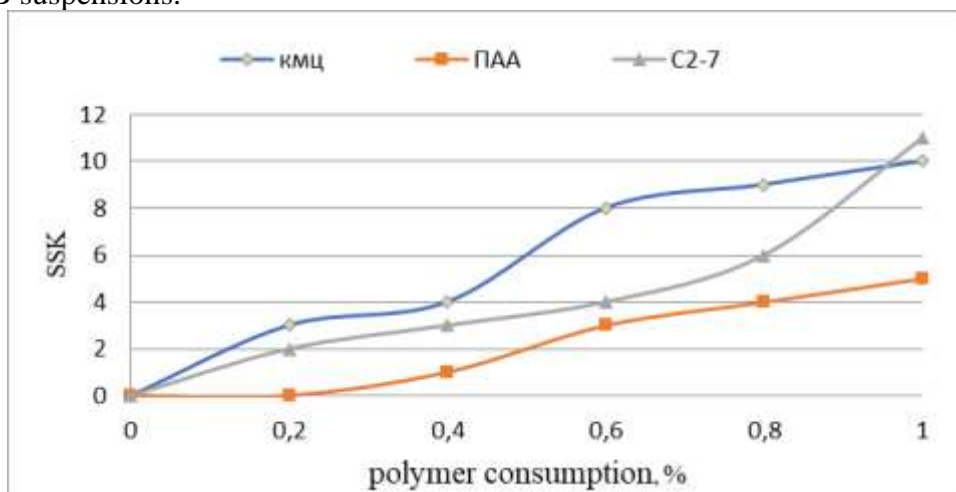


Figure 4. Effect of polymer concentration on SSS of mineralized (NaCl 5%) 5% NIB suspensions.

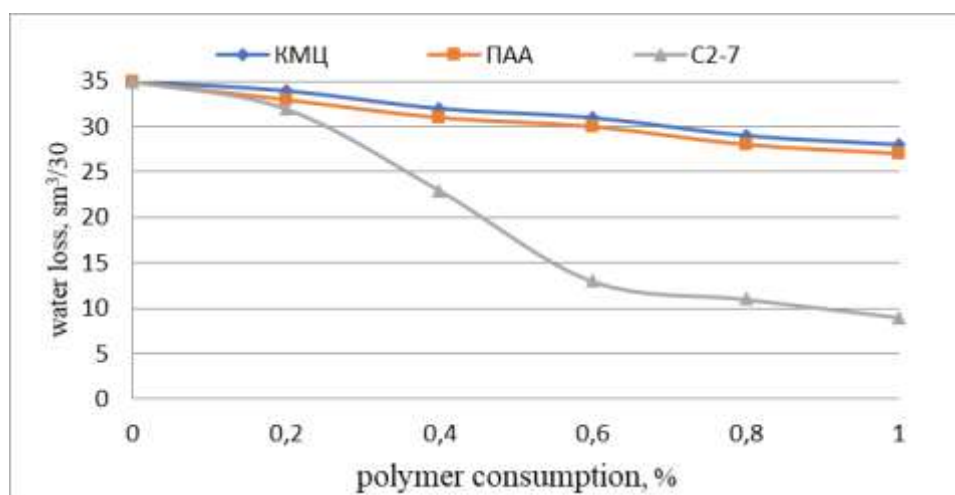


Figure 5. Effect of polymer concentration on water release of mineralized (NaCl 5%) 5% NIB suspensions.

It turns out that all studied stabilizers significantly lose their properties in the presence of mineralization in the solution. As a result, despite the treatment of clay drilling fluids with stabilizers, highly mineralized water or drilled rocks when drilling a salt formation, a change in technological properties occurs, such as increased water separation, decreased viscosity and kinetic stability. In such conditions, stabilizing reagents are used during drilling operations.

The effect of stabilizer additives on drilling fluids was also studied. The mechanism of influence of a mixture of stabilizers on the stability of the system is complex, and it is shown that when adding them to a drilling fluid, it is necessary to pay attention to the sequence of their introduction into the solution. Thus, when 1% CMC was first added to the suspension, and then 1% C2-7, the water separation indicators of the newly prepared drilling fluid based on NIB at 25°C decreased to a minimum level. At the same time, the water separation rates of highly mineralized drilling fluid are 1-2 sm³/30 min was equal. At the same time, changing the sequence of introduction of reagents increases the water separation of highly mineralized suspensions by 3-4 sm³/30 min. a decrease was found. In this case, we can confidently speak about the synergistic effect of increasing the stabilizing ability of these reagents.

Synergism is the combined effect of two or more reagents, which is stronger than the sum of the effects of these reagents when used separately [5]. Based on the results of laboratory studies, an improvement in the rheological and filtration properties of drilling fluids was noted at the lowest possible concentration of reagents, which confirms the presence of a synergistic effect.

This, in turn, requires a revision of the sequence of introducing chemical reagents when preparing drilling fluids, and this situation can negatively affect the technological properties. Finding a solution to this problem in industry is considered economically beneficial, while simultaneously controlling the rheological properties of drilling fluids and significantly reducing material consumption [6].

When treated with 1% solutions of CMC and 1% PAA, water separation from the original and mineralized solutions is reduced to 0-1 and 4-6 sm³, respectively.

Thus, to stabilize clayey drilling fluids in the presence of mineralization, it has been shown that they must be treated with mixtures of CMC (or CMC and oxidized starch) and synthetic polymer stabilizers. The best results were achieved when using a stabilizer based on AA and MA.

References:

1. Shershnev O.V. Burovie i tamponajnie rastvori: prakticheskoe rukovodstvo / O. V. Shershnev ; M-vo obrazovaniya RB, Gom. gos. un-t im. F. Skorini. – Gomel: GGU im. F. Skorini, 2015. – 33 s.
2. Ryazanov Ya.A. Entsiklopediya po burovim rastvoram. – Orenburg. Letopis. 2005. – 664 s.
3. Tileubaev S.O., Abdikamalova A.B., Eshmetov İ.D. İssledovanie termostoykosti burovix rastvorov, obrabotannix sintezirovannimi stabilizatorami // Universum: texnicheskie nauki : elektron. nauchn. jurn. – 2023. № 10(115). URL: <https://7universum.com/ru/tech/archive/item/16132>

4. GOST 25796.83. Sire glinistoe v proizvodstve glinoporoshkov dlya burovix rastvorov. Texnicheskie usloviya. – M.: 01.01.1985.

5. Tileubaev S.O., Kalilaev M.U., Abdikamalova A.B., Eshmetov I.D. Issledovanie ingibiruyushix xarakteristik polimernix burovix rastvorov // Universum: texnicheskie nauki : elektron. nauchn. jurn. 2022. № 5(98). URL: <https://7universum.com/ru/tech/archive/item/13697>

6. Abdikamalova A.B. Razrabotka polifunksioanlnix burovix rastvorov na osnove glinistix mineralov i otxoda sodovogo proizvodstva Karakalpakstana Dissertatsiya. dok. (PhD) texn. nauk (02.00.11). – Tashkent. 2018. – 36 s.

Rezyume: *Maqolada NaCl elektrolitining burg'ilash eritmaları xossalari tasiri keltirilgan. Aniqlanishicha, akrilamid va malein kislotasi sopolimerining (C2-7) gidrolizlangan shakli yuqori struktura hosil qilish xususiyatiga ega, buning natijasida burg'ilash eritmalarining yuqori qovushqoqligiga va filtratsiya xususiyatiga erishildi. O'tkazilgan tadqiqotlar natijasi shuni ko'rsatdiki, burg'ilash eritmaları tarkibiga stabilizator aralashmalaridan foydalanilganda stabillovchi tasirining kuchayishi aniqlandi.*

Резюме: *В статье представлены результаты влияния электролита NaCl на свойства буровых растворов. Установлено, что гидролизованная форма сополимера акриламида и малеиновой кислоты (C2-7) обладает высокой структурообразованностью, в результате чего достигаются высокие вязкостные и фильтрационные свойства буровых растворов. Результаты проведенных исследований показали, что усиление стабилизирующего эффекта выявлено при использовании смесей стабилизаторов в составе буровых растворов.*

Kalit so'zlar: *Elektrolit, KMTs, PAA, C2-7, suspenziya, qovushqoqlik, burg'ilash eritma, filtratsiya, stabilizator, gil, suv ajralishi.*

Ключевые слова: *Электролит, КМЦ, ПАА, С2-7, суспензия, вязкость, буровой раствор, фильтрация, стабилизатор, глина, водоотдача.*

UDC 678.66.017:66.018.666.321

DEVELOPMENT OF COMPOSITION AND RESEARCH OF TRIBOLOGICAL PROPERTIES OF MECHANICALLY ACTIVATED HETERO-COMPOSITE POLYMER MATERIALS TAKING INTO ACCOUNT OF ENERGY FACTORS

Ziyamuhamedova U^{1.}, Rahmatov E^{2.}, Nafasov J^{1.}, Turgunaliev E^{3.}, Jalolova Z^{3.}, Rustamov M^{4.}

¹Tashkent State Transport University, Tashkent, Uzbekistan

²Economics and Pedagogical University, Karshi, Uzbekistan

³Andijan Mechanical Engineering Institute, Andijan, Uzbekistan

⁴Sanoat Energetika Guruhi LLC IP CCI Mubarek

***Summary:** This article discusses the creation of a new material, a method of mechanochemical processing of their fillers, with an in-depth analysis of the advantages and disadvantages of the methods used in the formation of heterocomposite polymer materials. A new method of mechanochemical activation and the influence of activation process parameters on the structural and tribological properties of the resulting hetero-composite polymer materials are analyzed. A large number of experiments have proven that the amount of mechanically activated fillers is important for improving the wear-resistant properties of heterocomposite polymer materials.*

***Key words:** Heterocomposite, mechanochemical activation, tribocharge, epoxy resin, PEPA, dibutyl phthalate, kaolin, petroleum pek, fibreglass.*

A wide range of polymer materials creates conditions for their research in various fields [1-4], and it is not unimportant to take into account their operational properties such as deformation resistance, strength and wear resistance [5-11]. Improving the physical and mechanical properties of polymers is achieved by modifying them and adding fillers of various structures and natures [12]. Analysis of the literature in the field of tribology of materials makes it possible to draw a conclusion and develop research in the field of polymer materials science due to their flexibility of properties, manufacturability and cost-effectiveness. However the high coefficient of friction of polymer materials, leading to a reduction in durability, requires optimization of the compositions by their modification, which dictates the development of research in this area.

Wear of materials under external friction is usually, based on an analysis of generalizations of theoretical premises, considered [13-16] as a process of plastic deformation and destruction, characterized by the localization of a friction pair in the surface layers of the material. This process is carried out under conditions of a complex, heterogeneous and time-variable stress-strain state of the surface layers of the material and is complicated by the physicochemical interaction of the deformed volumes of the material with the environment (Figure 1 a, b).

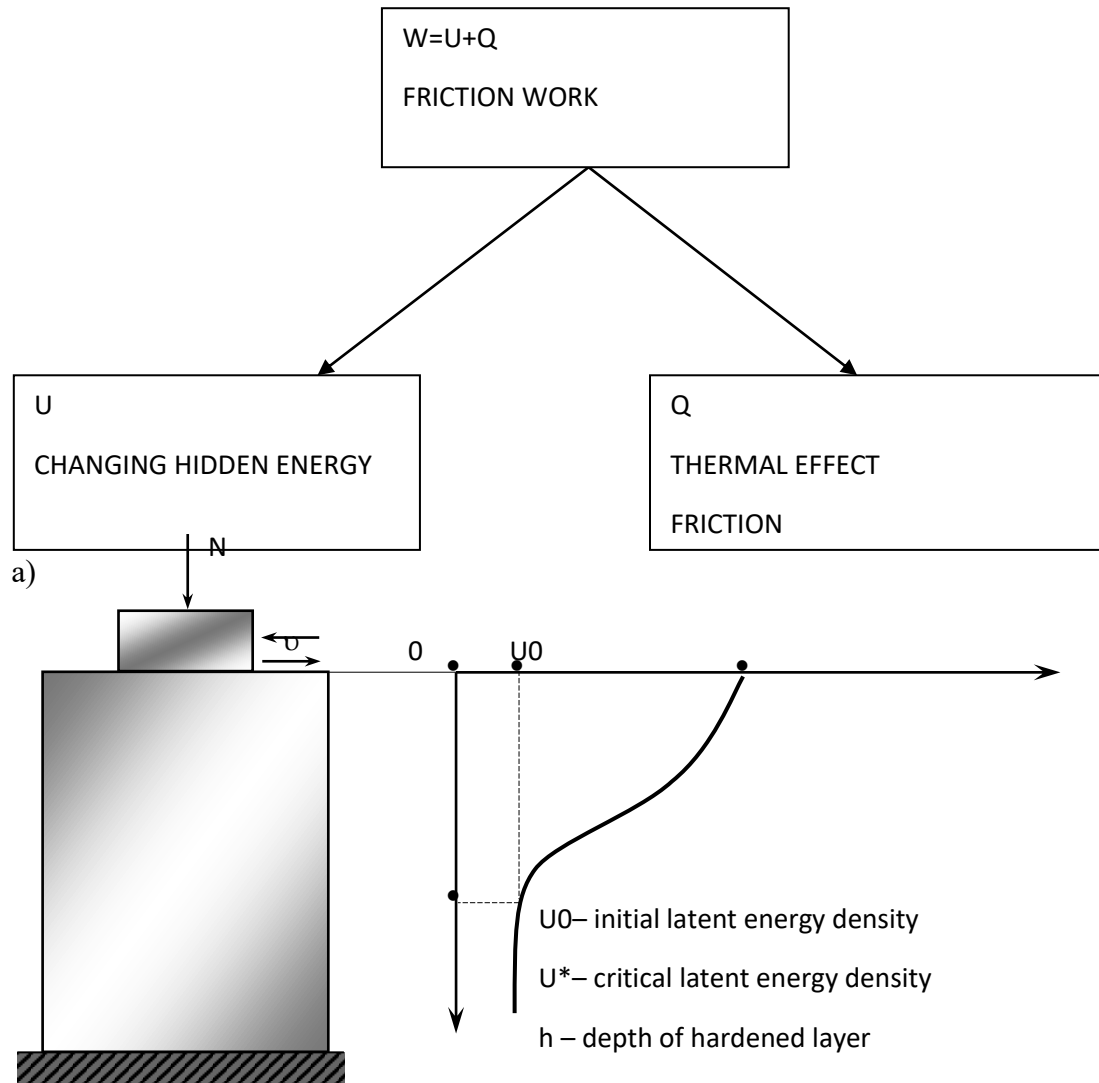
The first significant (up to 70–90%) part of the friction work, due to oscillatory motion and processes of return (destruction) of defects and damage, is irreversibly transformed into heat Q , i.e. is associated with the thermal effect of friction. This energy characterizes the softened state of the material.

The second, relatively small part (up to 30%) is due to the accumulation of latent energy U in deformed volumes of material and wear products, which is associated with the nucleation and retention of various types of defects (dislocations, vacancies, etc.) and damage (submicroscopic) in damage (deformed continuity violations).

The latent energy density in the deformed surface layers of the friction pair material is not the same. The uppermost, near-surface layer is saturated with defects to the limit. It is no longer able to accept plastic deformation and, as a result of subsequent frictional interaction, cracks appear in it, which, closing, form wear particles. As we move deeper h , the latent energy density U^* in the

deformed layer decreases and at the boundary separating the strengthened and unstrengthened volumes, it becomes equal to the latent energy density U_0 of the material in the initial (before deformation) state (see Fig. 1).

The higher the wear resistance, the greater the total amount of latent energy U_k , which accumulates in the deformed near-surface volumes of the material at the time of destruction.



b)

Figure 1. Energy balance diagram (a) and dependence of the latent energy density on the depth of the strengthened layer (b).

Hence,

$$\frac{\delta_1}{\delta_2} = \frac{U_{k1}}{U_{k2}}, \quad (1)$$

where δ_1 and δ_2 are the wear resistance of materials; U_k is the latent energy of deformation accumulated in the surface layers of the wear material at the time of failure.

Thus, equation 1 is a universal expression for the analytical description of the wear resistance of materials on the value of the latent energy of deformation.

When studying the nature and mechanism of abrasive wear under various operating conditions characteristic of various machines and mechanisms, the wear of various materials [14] was considered in-depth, up to non-destructive testing. Studying these works, we settled on the

sources that are closest to the works to justify the choice of a physical model - an experimental setup stand.

Objects of research and methodology

The objects for research were samples of composite materials based on epoxy resin ED-20, dispersed kaolin fillers AKT-10, reinforcing fibreglass, modifying oil refining waste, carbon-containing industrial waste, plasticizer dibutyl phthalate to reduce the fragility of the material, hardener polyethene polyamine to form a network structure of the material from oligomeric resin.

The technological process for obtaining materials is shown in figure 2.

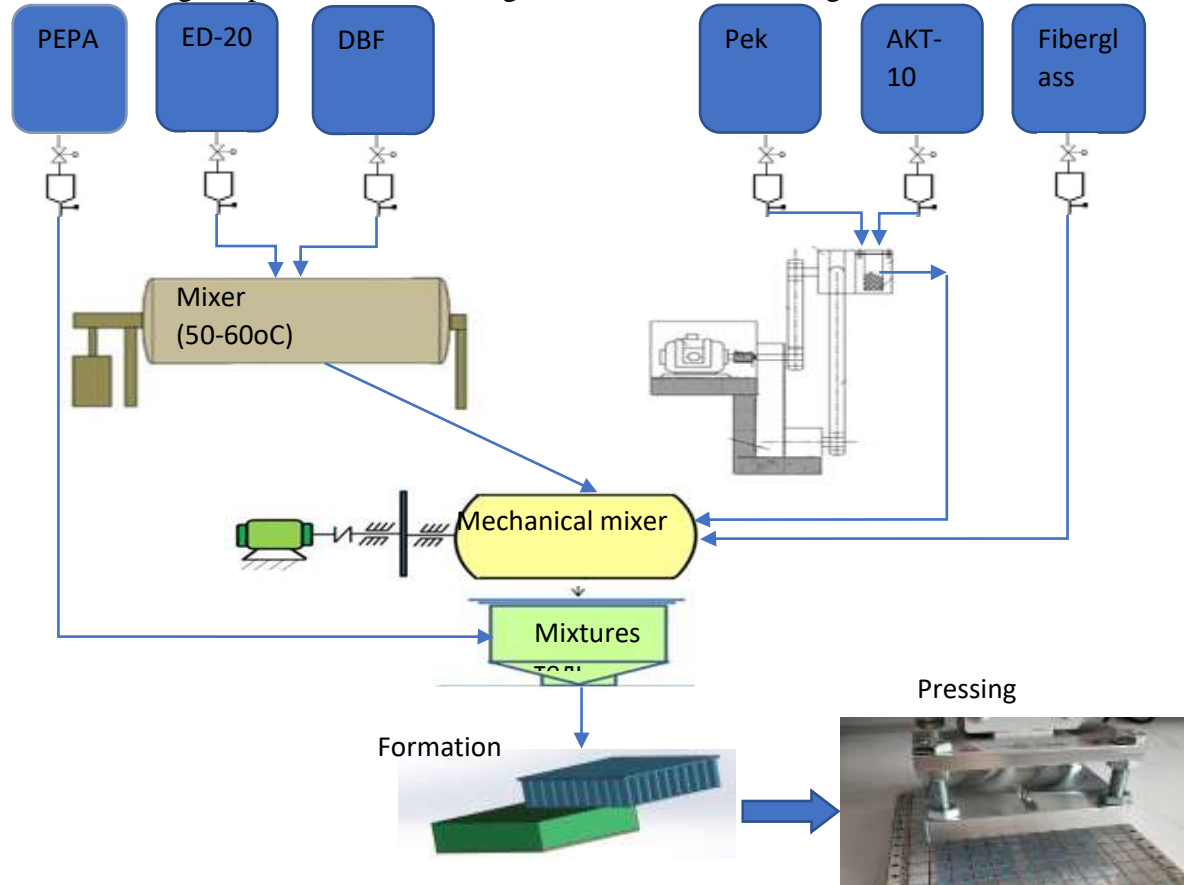


Figure 2. Technology for manufacturing parts from hetero-composite materials

To study the effect of mechanical activation as one of the methods of physical modification of the mineral filler, structural studies of the AKT-10 filler were carried out before and after mechanical activation together with reinforcing fillers. The mechanical activation process was carried out in laboratory conditions on a Miller 500 installation to obtain a mechanically activated modification.

The tribological properties of samples obtained based on hetero-composite polymer materials and three-dimensional profiles of wear traces over a given time were determined using a universal MFT-500 tribometer in the “ball and plate” mode.

Structural studies were carried out using emission scanning electron microscopy on a Gemini 500 instrument (FE-SEM). Using the capabilities of this equipment, a qualitative analysis was carried out based on spectral lines and the quantitative content of elements based on the intensity of spectral lines. The Gemini 500 Field Emission Scanning Electron Microscope (FE-SEM) is a high-resolution FE-SEM that provides nanoscale imaging. Fractional analysis of the molecular composition was studied using a smart LAB XRD laboratory X-ray diffractometer.

Testing of samples for wear resistance and coefficient of friction during dry friction was studied using a “Micron-tribe” tribometer, which allows conducting research for both metals and polymer materials. The device is designed for testing materials using the “ball-disc” and “finger-disc” methods.

The purpose of the research was to study the friction coefficient and wear rate in metal-polymer heterocomposite tribopairs. Tests were carried out according to the ASTM G99 standard using the “ball-disk” scheme on samples with a diameter of 50 mm and a thickness of 6-10 mm (Fig. 3).

Based on the analysis of existing methods of installations for experimental research on the wear of materials with some corresponding changes in the design.

As mentioned above, the mechanical activation process was carried out in laboratory conditions on a Miller 500 installation to obtain a mechanically activated modification. At the same time, interest arose in studying the mechanism of particle movement during mechanical activation and its influence on the process itself. In this regard, we studied the mechanism of particle movement during mechanical activation.



Figure 3. Samples for laboratory research

Results of the research

To theoretically study the process of mechanical activation, we used grinding of materials, taking into account the trajectory of the activator in rocker mills (Figure 4).

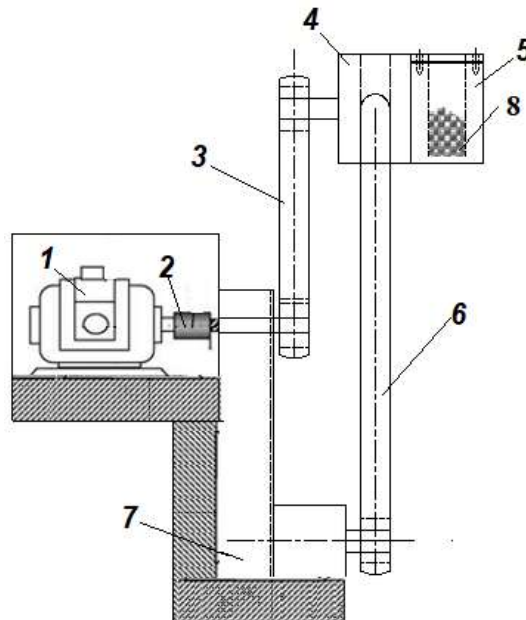


Figure 4. Scheme of a rocker mill: 1 - electric motor; 2 – coupling; 3- crank; 4- stone; 5 - glass; 6 - rocker arm; 7 - mill body; 8 - grinding bodies

The shaft rotation frequency is from 1000 to 3000 rpm, and the vibration amplitude of the mill body is 600 mm.

The grinding bodies, receiving frequent impulses from the walls of the mill body, perform complex movements. They jump, collide and slide along the walls of the mill body. As a result of friction against the walls of the mill, they begin to rotate. The particles of the crushed material are subject to impact, compressive and shearing forces of variable magnitude. The impact impulse of a single grinding body in a rocker mill is relatively large compared to the impact impulse in a rotating ball mill. The device chosen for the study allows, along with expanding the scope of its application, to obtain reliable and more accurate indicators of the goal.

The samples differ in their composition, where the difference lies in the amount of filler (Table 1). The purpose of the study was to find the optimal composition of a polymer heterocomposite with optimal tribological characteristics.

Table 1.

Samples	ED-20, %	DBF, %	PEPA, %	Waste oil, %	AKT-10, %	Fiberglass, %
Sample 01	83,3	8,3	8,3	0,0	0,0	0,0
Sample 02	0,0	0,0	0,0	0,0	0,0	0,0
Sample 03	27,0	2,7	2,7	0,0	67,6	0,0
Sample 1	76,9	7,7	7,7	3,8	3,8	0,0
Sample 2	71,4	7,1	7,1	7,1	7,1	0,0
Sample 3	66,7	6,7	6,7	10,0	10,0	0,0
Sample 4	55,6	5,6	5,6	16,7	16,7	0,0
Sample 5	45,5	4,5	4,5	22,7	22,7	0,0
Sample 6	74,1	7,4	7,4	3,7	3,7	3,7
Sample 7	66,7	6,7	6,7	6,7	6,7	6,7
Sample 8	62,5	6,3	6,3	9,4	9,4	6,3
Sample 9	52,6	5,3	5,3	15,8	15,8	5,3
Sample 10	43,5	4,3	4,3	21,7	21,7	4,3

During an experimental test, when a St3 steel ball with a diameter of 5 mm, mounted on a handle, is pressed against the sample with a force $F = 23 \text{ N}$ (Fig. 5), the disk-shaped sample rotates with a frequency $n = 500 \text{ rpm}$ for a time $t = 60 \text{ min}$. The rotation diameter on the surface of the ball sample was set to 40 mm. In this case, the distance travelled by the ball when in contact with the heterocomposite material is calculated as follows.

$$L = \pi \cdot d \cdot n \cdot t = 3,14 \cdot 0,04 \cdot 500 \cdot 60 = 3768 \text{ m.}$$

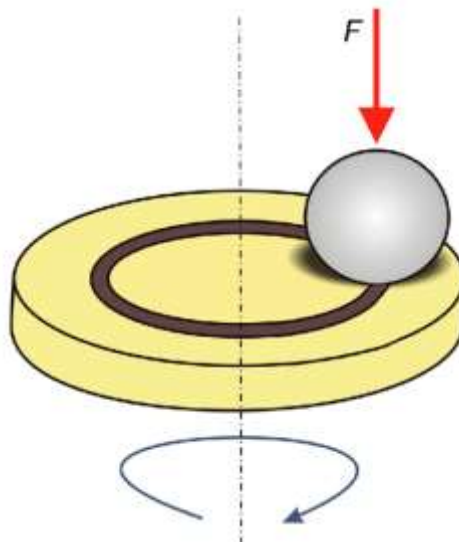


Figure 5. Friction diagram of a tribocouple metal-polymer heterocomposite

During testing, the friction force value is continuously recorded and the friction coefficient is calculated automatically by graphically recording it on the screen. The testing process continues until the ball has completely passed the specified friction path ($L = 3768$ m). After this, the linear deformation (h) of the heterocomposite material was measured using a microscope and the bending intensity of the material, which is a dimensionless quantity, was calculated using the formula $I_h = h/L$ (Table 2).

As is known, the amount of wear due to friction between bodies varies in direct proportion to the coefficient of mutual friction between them. The lower the friction coefficient value, the higher the wear resistance property of the object. Analyzing the results obtained in Table 2, the lowest value of the friction coefficient can be observed in the fifth sample. However, the absence of glass fibre fillers in the material obtained in the fifth sample reduces the impact properties of such materials.

Table 2.

Samples	Wear path L, m	Linear wear h, μm	Wear intensity I_h , 10 ⁻⁸	Friction coefficient, f
Sample 01	3768	170	4,51	0,42
Sample 02	3768	140	3,72	0,22
Sample 03	3768	155	4,11	0,35
Sample 1	3768	160	4,25	0,4
Sample 2	3768	150	3,98	0,32
Sample 3	3768	120	3,18	0,26
Sample 4	3768	110	2,92	0,16
Sample 5	3768	108	2,87	0,14
Sample 6	3768	140	3,72	0,44
Sample 7	3768	135	3,58	0,36
Sample 8	3768	115	3,05	0,28
Sample 9	3768	112	2,97	0,18
Sample 10	3768	110	2,92	0,16

If we look at sample material number ten, we see that the coefficient of friction value is not significantly different from the coefficient of friction of sample material number five, which does not contain glass fibres. However, the presence of glass fibres in the composition of this material increases the resistance of such materials not only to wear due to friction but also to impact stresses resulting from dynamic loads.

One of the other methods for determining the wear resistance characteristics of samples is the profilogram method (Figure 6).

PT textlitite-based parts, widely used in friction and wear parts, continue to be the main material used in abrasive wear and wear processes. Currently, these materials are considered imported, and due to several objective and subjective reasons, their widespread use is not possible. Application studies show that such materials are widely used in the production of wear-resistant bushings in the mechanical engineering field.

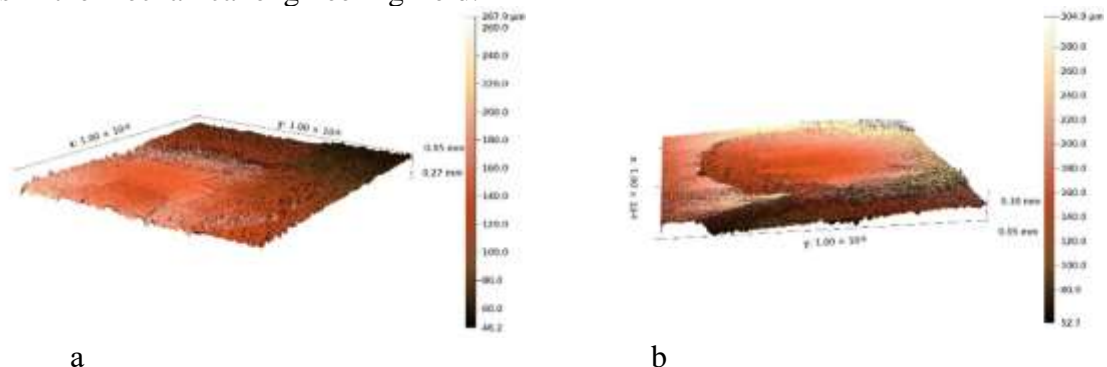


Figure 6. Profiles of textolite PT(a) and GCPM(b), determined on the multifunctional tribometer MFT-5000

However, the use of these materials is not always possible due to certain political and economic reasons. For this reason, the use of existing components in the production of friction

bushings, and the creation of compositions that are not inferior to traditional materials in physical and mechanical properties, creates ample opportunities for the practical application of the research carried out.

For this purpose, the wear resistance of samples obtained from a heterocomposite polymer material was compared with standard textile materials PT, which are currently used for attaching brake suspensions of freight railway cars to the side frame, and the wear of profiles was analyzed; samples were analyzed in metal-polymer systems.

The results of the study are presented in Figure 6. When checking the trace of both samples under the influence of a pressure force of 12.5 N for 27 minutes using a multifunctional tribometric device MFT-5000, it was found that the depth of the surfaces of the samples in both cases averaged 0.30 mm. From this, we can conclude that the tribological properties of heterocomposite materials are close to the tribological properties of composite materials based on phenol-formaldehyde.

Analysis of the results obtained indicates that an increase in the number of fillers in the heterocomposite composition increases the contact area of the friction surface of the tribocouple, leading to a monotonous increase in the friction coefficient (Table 2). Moreover, if you analyze the values of the friction coefficient depending on the amount and composition of the filling, you can notice its decrease, which tends to increase the amount of oil waste containing amorphous carbon, which is identical to the studies carried out in [17].

To explain this phenomenon, let us analyze the composition and properties of petroleum pitch, which are given in Table 3. The table shows that its main properties are explained by the content of the α -fraction, which is a set of high-molecular compounds, determines the possibility of mesophase formation and is responsible for the graphitizing properties of pitch [18, 19], and one can notice the uniform distribution of fine petroleum coke (Fig. 7)

Table 3

Product indicator name	Petroleum Pitch PND (ANKH)
Mass fraction of water in solid pitch, % no more	absent
Softening temperature, C	95-106
α -fraction. %	18-25
Release of volatile substances. %	60-66
Ash content, % no more	0.08
Benzo(a) pyrene content, %	absent
Density	1.25-1.32

The fibrous filler, which increases the deformation properties of the materials in the composition of the samples, increases the coefficient of friction; the explanation is the increase in the contact area during friction.

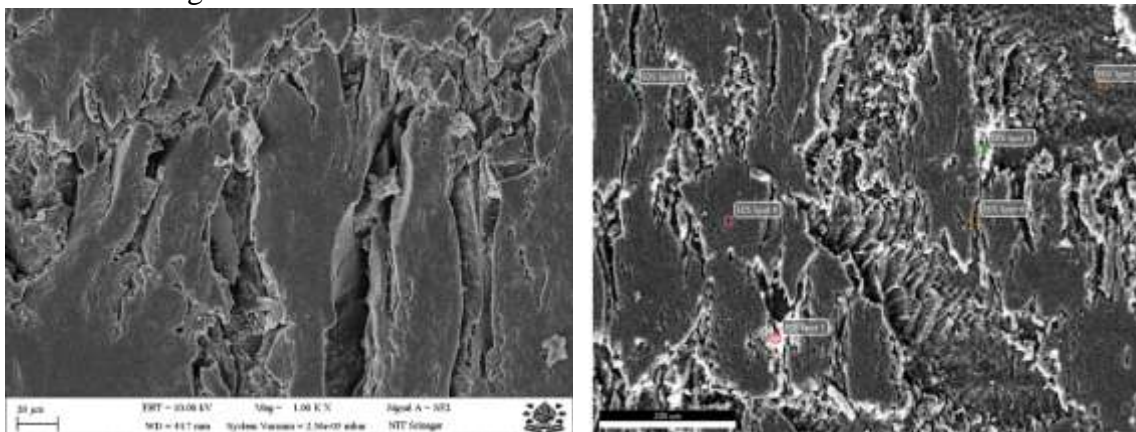


Figure 7. Surface structure of the material after friction

Conclusion

To obtain a new optimal composition of a hetero-composite polymer material, it is recommended to use 35-45% epoxy resin ED-20, 2-5% dibutyl phthalate, 2-5% polyethene polyamine, 20-25% oil waste (PEK), 20-25% Angren kaolin AKC grade -10 and 5-10% reinforcing glass fibres.

References:

1. Baurova N., Zorin V. Application of polymer composite materials in mechanical engineering. INFRA-M Academic Publishing LLC. P.301 https://doi.org/10.12737/textbook_5a65d038520df1.41774771.
2. Magrupov, M.A., Umarov, A.V., Khamidov, Sh.R., Makhmudov, R.Kh., About the interacting of glass-binder and current-conducting phase in resistive compositions, // *Elektrichestvo*, 1994, (6), p. 70–72
3. Magrupov, M.A., Umarov, A.V., Khamidov, Sh.R., Makhmudov, R.Kh., Electrical conductivity of a sitall // *Glass and Ceramics*, 1992, 49(7), p. 313–314
4. Akhmetkhanov R.S., Dubinin E.F. Problems of Mechanical Engineering and Machine Reliability, 2020, No. 2, pp. 106-112. OI: 10.31857/S0235711920020030
5. Anil K. Bhowmick. MECHANICAL PROPERTIES OF POLYMERS. MATERIALS SCIENCE AND ENGINEERING – Vol.I ©Encyclopedia of Life Support Systems (EOLSS)
6. “Materials Science and Engineering” (10 th edition). William D. Callister, David G. Rethwisch. Wiley, 2020 (<https://fac.ksu.edu.sa/sites/default/files/ch15.pdf>)
7. “Modeling and Simulations of Polymers: A Roadmap”. Thomas E. Gartner and Arthi Jayaraman. *Macromolecules* 52, 755–786, 2019. (<https://pubs.acs.org/doi/pdf/10.1021/acs.macromol.8b01836>)
8. “Mechanical Properties of Polymers”. Anil K. Bhowmick. MATERIALS SCIENCE AND ENGINEERING – Vol. I – Mechanical Properties of Polymers (<https://www.eolss.net/sample-chapters/c05/E6-36-01-03.pdf>)
9. “Plastics: Materials and Processing” (3 rd edition). A. Brent Young. Pearson, 2006.
10. “The Next 100 Years of Polymer Science”. Alaa S. Abd-El-Aziz et al. *Macromol. Chem. Phys.* 221, 2000216 (2020). (<https://onlinelibrary.wiley.com/doi/epdf/10.1002/macp.202000216>)
11. Wu, S., Kondo, Y., Kakimoto, Ma. et al. Machine-learning-assisted discovery of polymers with high thermal conductivity using a molecular design algorithm. *npj Comput Mater* 5, 66 (2019). (<https://doi.org/10.1038/s41524-019-0203-2>)
12. Dr. Marino Xanthos. Modification of Polymer Properties with Functional Fillers. 17 February 2010.<https://doi.org/10.1002/9783527629848.ch2>
13. Heng Li, Mingwang Fu Damage Evolution and Ductile Fracture. Deformation-Based Processing of Materials, 2019. <https://www.sciencedirect.com/topics/materials-science/ductile-fracture>
14. Khachaturian S.V. Complex system of evaluation of wear resistance of tribocouplings using thermodynamic approach: Abstract of doctoral thesis.-Tashkent: Tashkent State Technical University, 2008. - 44 p
15. Turaev M.U. Prediction of abrasive wear resistance of materials on the basis of strain-hardening coefficient: Abstract of Ph. D. in Technical Sciences. -Tashkent: Tashkent State Technical University, 2006. -24 c.
16. A. Hohenwarter, R. Pippan. Fracture and fracture toughness of nanopolycrystalline metals produced by severe plastic deformation. Published:28 March 2015 <https://doi.org/10.1098/rsta.2014.0366>
17. Kanji Ono. Acoustic emission arising from plastic deformation and fracture *J Acoust Soc Am* 64, S174–S175 (1978) AUGUST 11 2005. <https://doi.org/10.1121/1.2004028>.
18. A. A. Ugapev TECHNOLOGIES OF OIL CONNECTING MATERIALS PRODUCTION // Youth and Science: Proceedings of IX All-Russian Scientific and Technical Conference of Students, Postgraduate Students and Young Scientists with International Participation [Electronic resource]. - Krasnoyarsk: Siberian Federal University, 2013. - Access mode: <http://conf.sfukras.ru/sites/mn2013/section071.html>, free
19. I.O. Doslov, M.Sh. Kurbanov Oil Packages From Dark Oil Wastes - An Effective Binder For Non-Ferrous Metals Efficient Connectors For Colour Metallurgy/ *Uzbek Journal of Physics*. Vol.22(№1) 2020 PP.56-66
20. A. A. Ugapev TECHNOLOGIES OF OIL CONNECTING MATERIALS PRODUCTION // Youth and Science: Proceedings of IX All-Russian Scientific and Technical Conference of Students, Postgraduate Students and Young Scientists with International Participation [Electronic resource]. - Krasnoyarsk: Siberian Federal University, 2013. - Access mode: <http://conf.sfukras.ru/sites/mn2013/section071.htm>

Rezyume: *Ushbu maqolada geterokompozit polimer materiallarni hosil qilishda qo‘llaniladigan usullarning afzalliklari va kamchiliklarini chuqur tahlil qilgan holda, yangi materialni, ularni to‘ldiruvchi moddalarni mexanik-kimyoviy qayta ishlash usulini yaratish haqida*

soʻz boradi. Mexanokimyoviy faollashtirishning yangi usuli va hosil boʻlgan geterokompozit polimer materiallarining strukturaviy va tribologik xususiyatlariga faollashtirish jarayoni parametrlarining taʼsiri tahlil qilinadi. Koʻp sonli tajribalar mexanik faollashtirilgan toʻldiruvchilarning miqdori geterokompozit polimer materiallarining ishqalanishga bardoshli xususiyatlarini yaxshilash uchun muhim ekanligini isbotladi.

Резюме: В данном статье рассматривается создание нового материала, метод механохимического переработки их наполнителей, с углубленным анализом преимуществ и недостатков методов, применяемых при формировании гетерокomпозитных полимерных материалов. Проанализированы новый метод механохимической активации и влияние параметров процесса активации на структурно-трибологические свойства получаемых гетерокomпозитных полимерных материалов. Большое количество экспериментов доказало, что количество механоактивированных наполнителей имеет важное значение для улучшения износостойких свойств гетерокomпозитных полимерных материалов.

Kalit soʻzlar: Geterokompozit, mexanokimyoviy faollashtirish, tribozaryad, epoksi smolasi, PEPA, debutilftalat, kaolin, neft peki, shisha tola.

Ключевые слова: Гетерокomпозит, механохимическая активация, трибозаряд, эпоксидная смола, ПЭПА, дебутилфталат, каолин, нефтяной пек, стекловолокно.

CERAMIC COVERING TILES BASED ON SHOMISHKUL KAOLIN RAW MATERIALS

Kalbaev B.A¹., Eminov A.M²., Kadirova Z.R¹., Purxanatdinov A.P³., Janabaev O.O¹.

¹*Institute of General and Inorganic Chemistry of the Academy of Sciences of the Republic of Uzbekistan,*

²*Yangier branch of the Tashkent Institute of Chemical Technology,*

³*Karakalpak State University named after Berdakh*

Summary: The article discusses the results of research studies of kaolins from the Shomishkul deposit in Karakalpakstan using chemical-mineralogical and X-ray phase analyses. As a result of the tests, it was established that samples of clay minerals from the studied deposits can be used as the main raw material component for the production of ceramic materials, which helps to expand the raw material base for the production of ceramic materials for construction purposes.

Key words: kaolin, X-ray phase, mineral sample, X-ray analysis, tile, feldspar, melting point.

The search for high-quality kaolin raw materials with the necessary physical, chemical and technological properties is an urgent problem in the ceramic industry. In this regard, the search and study of new non-traditional, previously unused clay raw minerals in the production of ceramic products is an urgent task. On the territory of the Republic of Uzbekistan (Karakalpakstan) there are large reserves of kaolins, which can be used in various industries, in particular multi-purpose ceramic materials. Therefore, in the production of high-grade porcelain and earthenware (after enrichment), ceramic tiles, they strive to increase the kaolin content in the mass by reducing the amount of undesirable impurities [1,3].

According to the chemical and mineralogical composition of the studied kaolin rocks with admixtures of muscovite or potassium feldspar, eluvial kaolins can be divided into non-alkaline (normal) and alkaline types. Alkaline kaolins are distributed mainly in certain parts of the formation, normal kaolins contain 0.3-0.5% K₂O, while alkaline kaolins are distinguished by a high content of alkaline oxides (1.7-4.5%) in the form of Na₂O and K₂O [4, 5].

Experiment

To study the chemical and mineral composition of kaolin raw materials, the sintering process and the ceramic-technological properties of ceramic materials, X-ray phase analysis methods were used.

Chemical analysis of raw materials and prototypes was carried out according to standard silicate analytical methods, specified in accordance with GOST 9169-75 [8].

Determination of melting point. The experimental mixtures under study were prepared by careful fine grinding of mixtures of synthesized starting components. Test cones were then pressed into a metal mold to determine melting points. The experimental determination of melting temperatures was carried out in a laboratory tubular furnace with carborundum heaters at an average heating rate of 8-10 °C per minute. Temperature control was carried out by a TPR thermocouple with an accuracy of ±10 °C. The maximum temperature reached in the tube furnace was 1640°C ± 10 °C. The melting temperatures of experimental samples of ceramic masses were determined visually using the cone drop method in at least three experiments. [9, 10].

Phase changes in the studied raw materials and experimental masses were determined by the X-ray phase method. X-ray diffraction studies of crystalline phases were also carried out on a modern powder diffractometer LABX XRD-6100 (Shimadzu, Japan), controlled by a computer, in the range with a counter rotation speed of 2θ/min in the range of 10-80, using CuKα radiation (β-filter-Ni, wavelength 1.5418 Å, current mode and tube voltage 30 mA, 30 kW). Constant rotation speed of the detector is 2 θ/min in increments of 0.02 degrees. (ω/2θ-coupling), the scanning angle varied from 4 to 80 degrees. The shooting conditions for all samples were kept constant. In the

calculations and identification of phases, we used tables and reference books compiled by the authors of the works, as well as the international American card index [11].

Results and discussion

In order to use kaolins from the Shomishkul deposit as part of ceramic materials, chemical and mineralogical analyzes were carried out to determine their chemical composition [6, 7].

The results of the analysis of the chemical composition and determination of the physical and mechanical properties of kaolin samples from the Shomishkul (ShomK) deposit are presented in Table 1

Table 1 Chemical composition of the initial kaolin samples from the Shomishkul deposits

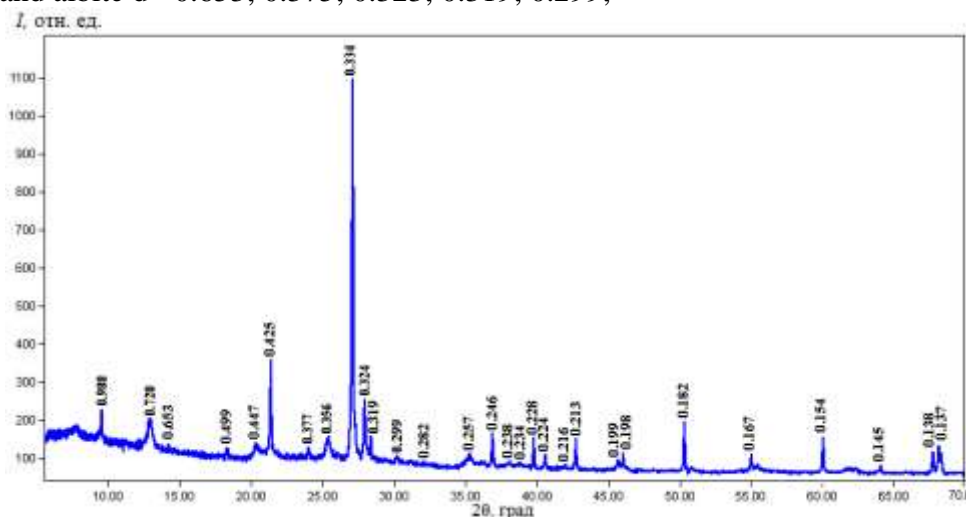
Sample name	Oxides content, wt. %										LOI, wt. %
	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	TiO ₂	P ₂ O ₅	CaO	MgO	SO ₃	Na ₂ O	K ₂ O	
ShomK -1	66,34	16,61	1,75	0,86	0,02	0,70	2,03	0,15	1,20	3,10	7,12
ShomK -2	67,20	14,04	1,69	0,67	0,01	0,65	1,97	0,17	1,14	2,98	9,08
ShomK -3	65,70	17,14	1,98	0,73	0,02	0,68	2,01	0,13	1,18	3,15	7,19
ShomKsred.	66,41	15,93	1,81	0,75	0,02	0,68	2,00	0,15	1,17	3,08	7,80

From Table 1 it can be seen that the chemical composition of kaolin samples from the Shomishkul deposit, depending on the aluminum oxide content in the initial state, corresponds to the group of semi-acidic clayey raw materials.

Important technological parameters for the production of building ceramics are the initial and final firing temperatures of raw materials. These values indirectly characterize the energy consumption for obtaining fired material.

The phase composition of the studied samples of kaolin samples from the Shomishkul deposits was established by X-ray phase analysis methods, the results of which are respectively shown in Fig.1

The results of X-ray phase analysis showed that the X-ray diffraction pattern of samples from the Shomishkul deposit mainly shows diffraction maxima related to kaolinite minerals $d=0.720$; 0.447 ; 0.356 ; 0.282 ; 0.246 ; 0.234 ; 0.199 ; 0.167 , lines corresponding to SiO₂ β -quartz with diffraction lines $d= 0.425$; 0.334 ; 0.246 ; 0.228 ; 0.224 ; 0.213 ; 0.198 ; 0.182 ; 0.154 ; 0.138 ; 0.137 , and albite $d= 0.653$; 0.375 ; 0.323 ; 0.319 ; 0.299 ;



Picture1. X-ray diffraction pattern of a sample of kaolins from the Shomishkul deposit

X-ray diffraction patterns of the studied kaolins show that the mineral composition consists mainly of the minerals kaolinite, quartz, potassium-sodium feldspar, in addition, a small amount of iron oxide and muscovite are present. The increased content of iron and titanium oxide requires enrichment of the studied kaolins before introducing them into the ceramic mass in the production of porcelain or earthenware; for building ceramics they can be used in their original state.

Conclusion

Thus, based on the experimental studies carried out using chemical-analytical and X-ray phase analysis methods, it was established:

- samples of kaolin from the Shomishkul deposit of Karakalpakstan, in terms of their chemical and mineralogical composition, meets the requirements for the production of ceramic materials for construction purposes as a plasticizing (clay) component in the composition of ceramic masses for economic and construction purposes
- the use of new kaolin deposits in Karakalpakstan makes it possible to expand the raw material base for the production of ceramic materials for various purposes.

References:

Эминов А.М., Калбаев Б.А., Ходжаметова Б.А. Перспективы применения каолинов Каракалпакстана в производстве керамики // Узбекский Научно-технический и производственный журнал Композиционные материалы №4/2022 ISSN 2091-5527 Ст.167-171 Ташкент – 2022

Эминов А.М., Кадырова З.Р., Курязов З.М., Бабаев З.К. Технология получения керамических стеновых материалов на основе нетрадиционных глинистых сырьевых ресурсов. Т.изд. «Fanziyosi», 2022, 86с.

Эминов А.М., Қодирова З.Р., Жуманов Ю.К. Олтинтоғ каолин қони намуналарини физик-кимёвий хусусиятларини ўрганиш. Proceedings of the international conference on integrated innovative development of Zarafshan region: achievements, challenges and prospects. 27-28 October, 2022. Navoi, Uzbekistan, Volume I, P.495-500.

Kadirova Z.R., Eminov A.M., Abdurahmanov A.K., Baijanov I.R. Der industrielle Einsatz des Usbekischen Primarkaoilins Angren. Keramische Zeitschrift. 2000.- v.52.- №11.- P.1098.

Эминов А.М., Кадырова З.Р., Бойжанов И.Р., Масленникова Г.Н. Каолины Султан-Увайского месторождения для производства керамики. Стекло и керамика. 2001.- № 9.- С.21-22.

Эминов А.М., Жуманов Ю.Қ., Байжанов И.Р., Боймуродова М.Т., Насиров М.У. Перспективы использования каолинов Узбекистана в составе алюмосиликатной керамики. Журн.Композиционные материалы, № 2, 2022, с.144-149.

Хожаметова Б.К., Кадырова З.Р., Эминов А.М. Перспективные глинистые сырьевые ресурсы Каракалпакстана для производства керамических стеновых материалов. Огнеупоры и техническая керамика, 2020, № 4-5, с.22-26.

ГОСТ 9169 -75 Сырье глинистое для керамической промышленности

Каолин. Методические рекомендации по применению классификации запасов месторождений и прогнозных ресурсов полезных ископаемых // Геоинформмарк. Москва.-2007.- Стр. 3-9.

Eminov A.M., Hujamberdiev M.I., Kadirova Z.R., Baijanov I.R. Prospects Kaolins of Uzbekistan. Journ/ Tile&Brick International. – Germany. – 2003. – Vol. 19. № 4. – p. 252-257

Куцевол М.Л. Рентгеновский метод диагностики и качественного фазового анализа минералов. Практическое руководство к лабораторным работам по дисциплине «Лабораторные методы изучения минералов». Днепрпетровск. 2012. С. 35с.

Rezyume: Maqolada Qoraqalpog‘istondagi Shomuishko‘l konidan olingan kaolinlarning kimyoviy-mineralogik varentgen fazali tahlillari yordamida olib borilgan tadqiqotishlari natijalari muhokama qilingan. Sinovlar natijasida o‘rganilayotgan konlardan olingan kaolin minerallari namunalaridan keramik materiallar ishlab chiqarish uchun asosiy xomashyo komponenti sifatida foydalanish mumkinligi aniqlandi, bu esa qurilish keramik materiallar ishlab chiqarish uchun xomashyo bazasini kengaytirishga yordam beradi.

Резюме: В статье рассматриваются итоги исследовательских изучений каолинов Шомишкульского месторождения Каракалпакстана способами химико-минералогического, рентгенофазового анализов. В результате проведенных испытаний установлено, что образцы глинистых минералов исследуемых месторождений могут быть применены в качестве основного сырьевого компонента для получения керамических материалов, что

способствует расширению сырьевой базы производства керамических материалов строительного назначения.

Kalit soʻzlar: *kaolin, rentgenfaza, mineral namuna, rentgentahlili, koshin, dalashpati, erishharorati.*

Ключевые слова: *каолин, рентгеновская фаза, образец минерала, рентген анализ, плитка, полевого шпат, температура плавления.*

INFLUENCE OF LOCAL LASER PROCESSING ON THE PARAMETERS OF Pt-GaAs SCHOTTKY BARRIERS

Allambergenov A.Zh., Bekbergenov S.E., Nurniyazov P.K.
Karakalpak State University named after Berdakh

Summary: This article examines laser irradiation of diode structures with a Schottky barrier on a GaAs wafer. It has been shown that by treating each diode separately, it is possible to obtain a higher percentage of output of diodes with the same parameters.

Key words: laser, diode structure, Schottky barrier.

In [1], the effect of laser treatments of diode structures with a Schottky barrier was studied, where the influence on changes in the parameters of barrier structures was shown, up to the evolution of the barrier contact into an ohmic one [1]. However, research on the formation of diode structures with Schottky barrier with similar or identical parameters on a wafer using laser action is practically unknown.

In this report, we carried out experimental studies of diode structures with a Pt-n-n+GaAs Schottky barrier. The Pt-n-n+GaAs diode structure was created by sputtering platinum ~80 nm thick through a mask with a diameter of ~1.3 mm onto a pre-chemically cleaned n-n+GaAs surface. The area of the diode structures in this case was $1.33 \cdot 10^{-2} \text{ cm}^2$.

The samples were irradiated individually (locally) with a single pulse of ~20 ns duration from a laser with $\lambda = 1.06 \text{ }\mu\text{m}$ at energy densities of 100-1000 W/cm². Before and after irradiation, the forward and reverse branches of the current-voltage characteristics of diode structures were measured at room temperature, from which the ideality factor n and the Schottky barrier height ϕ_b were determined.

The values of n and ϕ_b calculated from similar dependences for several tens of diodes on a plate are presented in Fig. 1 and 2. From Fig. 1 and 2 in the form of histograms it can be seen that in the original plate there is a significant spread in the parameters of forward-biased diodes with Schottky barrier.

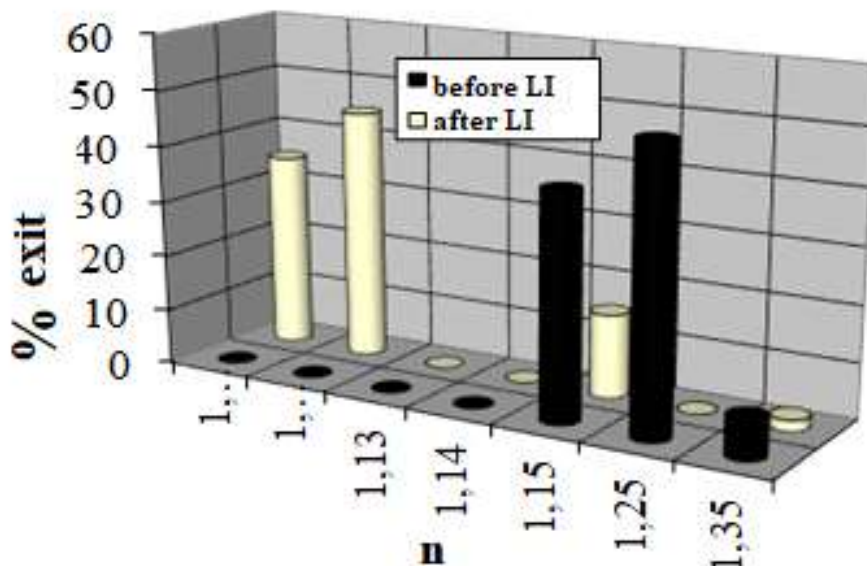


Fig. 1. Histograms of the distribution of the ideality factor of Pt-n-n+GaAs Schottky diodes before and after LI (power density 1000 W/cm², pulse duration 20 ns, wavelength 1.06 μm).

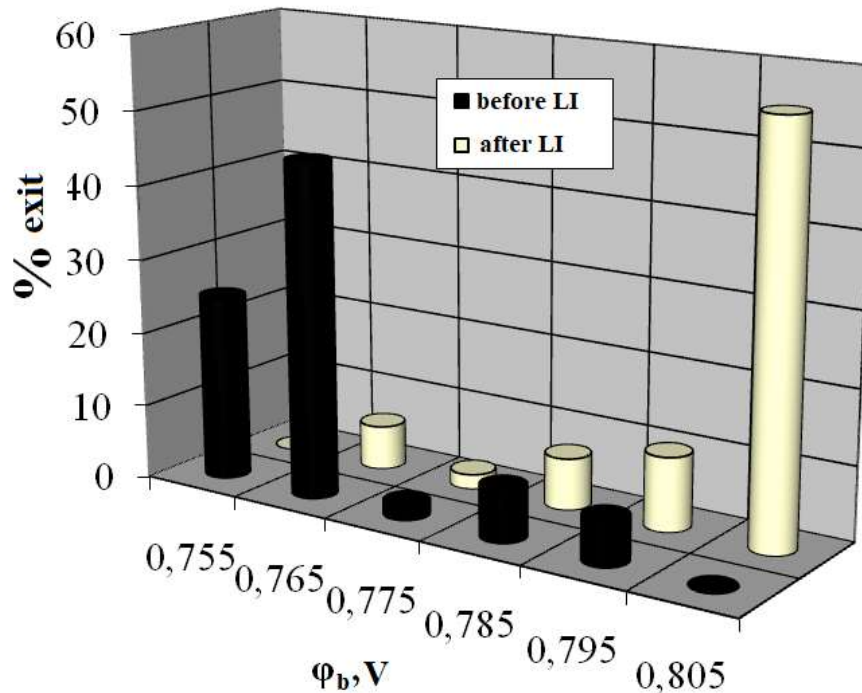


Fig. 2. Histograms of the Pt-n-n+GaAs Schottky barrier height distribution before and after LI (power density 1000 W/cm², pulse duration 20 ns, wavelength 1.06 μm).

As each diode was irradiated, a change in the parameters n and ϕ_b was observed. At the same time, individual laser processing of the diodes made it possible to adjust the values of n and ϕ_b in such a way as to ensure a minimum spread of these parameters. Figures 1 and 2 show histograms of the distribution of n and ϕ_b after individual Schottky barrier treatments corresponding to this condition. It can be seen that in 80% of the diodes the ideality factor decreased significantly, and in 75% the Schottky barriers height increased.

Measurements of the current-voltage characteristics carried out after a year of storing diode structures at room temperature showed that the parameters of the Schottky barrier on 100 diode cells formed on the n-n+ GaAs structure retained their parameters practically unchanged.

Thus, using laser irradiation of diode structures with Schottky barrier on a GaAs wafer, by individually processing each diode, it is possible to obtain a high percentage of output of diodes with identical Schottky barriers parameters.

References:

1. Dzhamanbalin K.K., Dmitriev A.G. Evolution of a GaAs-Ni barrier contact into an ohmic contact under the influence of laser radiation. //FTP. -1990. -vol.24. -N11. -P.2024-2028.
2. Zee S.M. Physics of semiconductor devices. In 2 volumes - M.: Mir, 1984. V.1. - 455 p.

Rezyume: Ushbu maqolada GaAs plastinasida Shottki to'sig'li diodli tuzilmalarning lazer nurlanishi tadqiqot etilgan. Har bir diodni qayta nurlash orqali bir xil parametrlarga ega bo'lgan yuqori foizli diodlarni olish mumkun ekanligi ko'rsatilgan.

Резюме: В данной статье исследовано лазерное облучение диодных структур с барьером Шоттки на пластине GaAs. Показано, что обрабатывая каждый диод отдельно, можно получить более высокий процент выхода диодов с теми же параметрами.

Kalit so'zlar: lazer, diodli struktura, Shottki to'sig'i.

Ключевые слова: лазер, диодная структура, барьер Шоттки.

TECHNOLOGY OF PROCESSING DISTILLER LIQUID INTO GYPSUM

Vafaev O.Sh., Kurbanova A.A.

¹*Karakalpak State University named after Berdakh*

²*Tashkent Scientific Research Institute of Chemical Technology LLC*

Summary: *The joint venture LLC Kungrad Soda Factory of the Republic of Uzbekistan is the only enterprise in Central Asia producing soda ash. The annual production capacity of soda ash in the enterprise is 200,000 tons. Distiller liquid after the distillation process in the ADKF workshop (Absorption Distillation Carbonation Filtration) I and II stages of soda ash production are discharged into a sludge storage tank for liquid waste. The volume of distiller liquid discharged is 9,08 - 10 m³ per 1 ton of finished products (since the volume of soda ash production per year in both stages of this plant is 200 thousand tons, the volume of distiller liquid discharged is more than 5,500 - 6,000 m³ per day, more than 2 million m³ per year).*

The proposed technology provides the processing of distiller liquid, a waste product of soda ash production, containing the main components CaCl₂ – 10,81%, NaCl – 4,16%, water – 83,65%.

Key words: *distillery liquid, gypsum, mirabilite, calcium chloride, sodium chloride.*

Calcium ions are chemically precipitated from the distiller liquid without energy consumption in the form of a commercial product - gypsum, and sodium chloride NaCl and process water are returned to the production of soda.

The technology of distiller liquid processing is waste-free and environmentally friendly due to the exclusion of stored solid waste and emissions into gas and liquid media.

This technology is low-energy due to the partial use of solar energy to concentrate the distiller liquid solution.

The technology of distiller liquid processing involves 2 alternative available sources of raw materials with low cost and located near the joint venture Kungrad Soda Plant LLC: according to option No. 1 – mirabilite Na₂SO₄*10 H₂O, according to option No. 2 – sulfuric acid H₂SO₄.

The products obtained, their quality

Gypsum CaSO₄*2H₂O (alabaster CaSO₄*0,5H₂O) is a commercial product widely used as a binder in construction and medicine. Gypsum and alabaster are also used in architecture to create decorative elements (bas-reliefs, cornices, etc.).

Sodium chloride is returned to the technological cycle of soda production as the main raw material.

Process water (condensate) is returned to the technological cycle of soda production.

The commercial product is hydrochloric acid HCl.

Raw materials sources

When using an alternative version of technology No. 1, the raw material is mirabilite Na₂SO₄*10H₂O, extracted in the Tumryuk mirabilite deposit of Uzbekistan (near Kungrad).

When using an alternative version of technology No. 2, the raw material is waste of sulfuric acid H₂SO₄, obtained, for example, in the form of waste during the capture of sulfur-containing gases at the ore firing stage at the mining and processing plant in the city of Navoi. The second source of sulfuric acid may be the production of sulfur gas at the Mubarek gas processing plant.

Consumption standards for raw materials, energy

When implementing the technology according to option No. 1 with the introduction of mirabilite, 2,9 tons of mirabilite will be required for processing 1t of 100% calcium chloride (in terms of 10% aqueous 100% mirabilite), and in terms of 90% technical mirabilite, 3,22 tons will be required. At the same time, 1,55 tons of gypsum CaSO₄*2H₂O or 1,306 tons of alabaster CaSO₄*0,5H₂O (in terms of 100% dry products).

When processing 1 ton of 100% calcium chloride with mirabilite, it is possible to simultaneously obtain sodium chloride in the amount of 1,054 tons (in terms of 100% product),

which will be used for the production of soda. When implementing the technology according to option No. 2 with the introduction of sulfuric acid, 0,882 tons of sulfuric acid (in terms of 100% acid) will be required to process 1 ton of 100% calcium chloride. At the same time, 1,55 tons of gypsum $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ or 1,306 tons of alabaster $\text{CaSO}_4 \cdot 0,5\text{H}_2\text{O}$ are formed (in terms of dry 100% products). When processing 1t of 100% calcium chloride with sulfuric acid, 2,053tons of hydrochloric acid with a concentration of 32% can be obtained simultaneously.

The main energy costs in the technology of distiller liquid processing will be at the evaporation stage. When evaporating 1t of the initial distiller liquid (containing 10,81% CaCl_2) by heating with heat from the combustion of natural gas (to a concentration of 30% CaCl_2), it is necessary to evaporate 0,264 tons of water, which will return to the production of soda. At the same time, 17 m³ of natural gas must be consumed. With partial use of solar energy for evaporation of distiller liquid, energy consumption can be significantly reduced.

Prospects for the use and advantages of the new technology

As a result of the use of distiller liquid processing technology, the volume of liquid emissions will be reduced and sludge accumulators will be released, the discharged calcium chloride will be processed into a commercial product – gypsum, and sodium chloride and water will return to soda production technology, which will reduce the cost of soda production and reduce water consumption.

The proposed 2 technology options are based on the use of local cheap raw materials, which reduces the cost of raw materials and contributes to the development of technology for the extraction of the mirabilite deposit (according to technology option No. 1) or the disposal of sulfuric acid waste (according to technology option No. 2).

The choice of an alternative technology option and the volume of distiller liquid processing depend on the needs of the Uzbek industry for distiller liquid processing products.

When using technology option No. 1, the commercial product gypsum and process water and sodium chloride solution returned to the soda technology will be obtained as commercial products. This technology option is advisable in the absence of hydrochloric acid consumers.

When using technology option No. 2, the commercial product gypsum and hydrochloric acid (30,5-32,0%), which are returned to the soda technology, will be obtained as commercial products. Hydrochloric acid is in demand in oil production, metallurgy, electroplating, chemical industry, technologies for the production of manganese, iron, flotation reagents and other substances.

References:

1. Zaitsev I.D., Tkach G.A., Stoev N.D. Soda production. – M.: Chemistry, 1986. – 210 p.
2. Soda production using low-waste technology: Monograph/Tkach G.A., Shaporev V.P., Titov V.M. – H.: KHSPU, 1998. – 429 p.
3. Fedotyev P.P. Collection of Research papers. – L.: 1936 - 86 p
4. Permanent technological regulations of the workshop of the ADKF LLC Joint venture "Kungrad soda plant".
5. Instructions for the control analysis of soda ash production approved on 04/07/2021.
6. GOST 125-2018 Gypsum binders.

Rezyume: maqolada kalciylantirilgan soda ishlab chiqarish chiqindisi – distiller suyuqligini mirabilit bilan qayta ishlash usullari muhokama qilinadi. Olingan tayyor mahsulotlarning tarkibi va foydalanish sohasi ham o'rganildi.

Резюме: в статье рассматриваются методы переработки отходов производства кальцинированной соды – дистиллерной жидкости с мирабилитом. Также был изучен состав и область применения полученной готовой продукции.

Kalit so'zlar: distillangan suyuqlik, gips, mirabilit, kaltsiy xlorid, natriy xlorid.

Ключевые слова: дистиллерная жидкость, гипс, мирабилит, хлорид кальция, хлорид натрия.

UDC 677.055.5

DEVELOPMENT OF AN EFFICIENT DESIGN OF THE STRAIGHTENER FOR STRETCHING THE KNITTED FABRIC ON PURL CIRCULAR MACHINES

Allamuratova T.K.

Karakalpak State University named after Berdakh

Summary: *On circular purl machines, because of the difference in the take-down tension affecting the loop formed on the needles of the upper and lower cylinders, the result is different lengths of thread in the loops, which has a negative effect on the quality of the knitwear. Because of the difference in the force of the stretching wales at the edge and in the center of the pulling rollers, it is not manageable to get a stable surface density of knitwear.*

The article presents a new efficient design and the principle of operation of the stretcher board for a uniformly stretching the knitted fabric on circular purl machines.

Key words: *knitted fabric, cylinder, tension, guide, ring, uniformity, take-down tension, angle.*

Introduction. The efficiency of using knitwear is constantly increasing due to the expansion of the range, improvement of quality, improvement of equipment, the use of optimization of knitting modes and rational types of raw materials.

In the field of knitting technology, a fundamental position has been adopted, which underlies the design of knitted products - the dimensions of fabrics and products in a conditionally equilibrium state with given threading parameters of the machine are completely determined by the length of the thread in the loop. It was also found that changing the length of the thread in the loop significantly affects the physical, mechanical and operational characteristics of knitted fabrics, shrinkage processes, and defects in the appearance of the fabrics. Thus, the length of the thread in the loop is reasonably accepted as the main quality criteria for knitted products [1].

One of them is that the knitting process is influenced by the properties of the raw material, the design of the mechanism, the thread feed, the tension of the fabric and the knitting mode parameters. Changing these factors makes the knitting process insufficiently stable, as a result of which the length of the thread in the loop is reproduced with deviations that exceed 15-20%, and the changes themselves are essentially implemented as a random process. Therefore, due to changes in the length of the thread in the loop, most types of knitted fabrics are structurally heterogeneous, and when knitted with simple and combined weaves they have a visible zebra pattern. The structural heterogeneity of the fabric reduces the grade of knitted products. In addition, due to changes in the length of the thread in the loop, the linear dimensions and surface density of the knitwear are unstable; At the same time, allowances for product sizes increase. When cutting fabric and product parts, additional waste occurs. Some products are cut out in smaller sizes, or they become low-grade products. The problem arises of assembling piece goods, selecting them in pairs (hosiery, gloves). This makes it difficult to automate the process and reduces labor productivity.

The effect of the draw force on the length of the thread in the loop is mainly determined by the change in the thread constriction. Qualitatively, this effect is characterized by the fact that with increasing fabric tension, the length of the thread in the loop increases. Thus, when the level of fabric tension changes during knitting, systematic errors (deviations) in the length of the thread in the loop arise.

Changes in the draw force have a double effect on the quality of the manufactured knitwear: firstly, they lead to deviations in the length of the thread in the loop, and secondly, with a constant length of the thread in the loop, they cause a change in the geometry (shape) of the loops, and therefore the size of the manufactured products. In the latter case, monitoring the linear dimensions and density indicators of the fabric horizontally P_h and vertically P_v carries incorrect information about the quality of the knitting process.

Thus, when controlling linear dimensions, it is necessary to ensure a constant level of guy wire and its control.

When knitting on one machine, deviations in the tension of the fabric are mainly determined by the method of tensioning the fabric, the design of the draw mechanism, and the shape and dimensions of the spreader. Deviations in the tension force of loops along the perimeter of the tubular web lead to changes in the structural characteristics of sections of the web: indicators of loop density and surface density. For example, on double-ribbed circular knitting machines, the deviations in the surface density of the fabric sections along its perimeter are 43 g/m², i.e. 20% [2].

A known straightener for pulling knitted fabric in double-circular knitting machines is made in the form of a cylindrical ring, which is rigidly mounted vertically in the cylinder and at an angle of 45° to the direction of the loops in the loop formation zone [3].

The main disadvantage of this design is the production of knitted fabric with an uneven loop structure due to the inequality of the tension forces of the loops from the disc needles and from the cylinder needles due to different tension forces. In addition, if it is necessary to ensure equality of tension of the blades at different values of friction with contacting surfaces, as well as vibrations of the blades, there is no possibility of changing the location of the ring-shaped spreader.

A straightener for pulling knitted fabric in double-circular knitting machines, made in the form of a ring, mounted rigidly inside the machine cylinder, is connected to three corners with the ability to adjust the installation in height, with the angles between them $j = 120^\circ$, and vertical grooves are made in the vertical bases [4]. The disadvantage of this design is the uneven distribution of the tension force along the circular perimeter of the resulting knitted fabric. This occurs due to different lengths of the loops around the perimeter of the section: within 730-750 mm along the edge of the canvas, and up to 680-700 mm in the center. This difference in the lengths of the generatrices leads to unevenness of the resulting web.

In addition, in [3, 5-12] it is noted that the unevenness of the draw force of various types of draw mechanisms ranges from 7 to 62%, therefore their use causes a significant fluctuation in the surface density of the knitwear.

Due to the unequal angles of coverage of the spreader with the canvas, the difference in the forces stretching the loop columns at the edge and in the center of the pull rollers is approximately 10%. As a result of the research, it can be noted that it is also not possible to obtain a stable surface density of knitwear. With high quality raw materials, the instability of the surface density of knitwear will depend on the technological and design parameters of knitting, the level of preparation of the yarn for knitting, packaging parameters, etc.

In the following known design, the spreader for pulling knitted fabric on circular machines is made in the form of a ring mounted rigidly in the cylinder of the machine, while the ring is rigidly connected to three corners fixed inside the cylinder with the ability to adjust the installation in height, with the angles between them $j=120^\circ$, and vertical grooves are made in the vertical bases. The ring is made of different diameters and is divided into four identical parts with a girth angle α from 75° to 80°, while the opposite sides of one pair of ring parts are made with a diameter d_2 larger by 30-35 mm relative to the diameter d_1 of the other opposite side of the ring parts [13-15]. The disadvantage of this design is the difficulty in manufacturing rings with different diameters.

In another known design, the spreader for pulling knitted fabric on circular machines is made in the form of a ring, rigidly installed in the machine cylinder, and rigidly connected to three corners fixed inside the cylinder with the ability to adjust the height, with the angles between them $j = 120^\circ$, and vertical grooves are made in the vertical bases. The ring is divided into four identical parts with an angle of coverage from 75° to 80°. One pair of opposite parts of the ring is located in the same plane at a distance of 30 mm to 35 mm higher than the plane of the second pair of opposite two parts of the ring [16, 17]. The disadvantage of this design is also the complexity of manufacturing the ring.

Experiment result found discussing. In order to ensure evenness along the entire perimeter of the knitted fabric with a loop structure produced on double-circuit machines, the design of the spreader has been improved [18, 19].

The objective of the invention is to provide a uniform structure along the entire perimeter of the knitted fabric.

The problem is solved by improving the design of the spreader by equalizing the tension forces of the pulled loops along the entire perimeter of the knitted fabric.

The essence of the design of the spreader for pulling knitted fabric on circular machines is that the spreader is made in the form of a funnel, mounted rigidly with three corners fixed inside the cylinder with the ability to adjust the installation in height. The funnel is made of two oppositely located parts of the cylinder, and between them two parts in the form of a truncated cone. In this case, all four parts of the funnel are covered by an angle α from 75° to 80° , while the diameters of the lower bases of the truncated cones are made with diameter d_c . In this case, the length of the generatrix of the truncated cone is chosen to be $30\div 35$ mm larger than the length of the generatrix of the funnel cylinder. All four parts of the funnel are interconnected by a smooth transition. Making a funnel from two oppositely located parts of the cylinder and between them installed from two parts of a truncated cone ensures uniform tension of the loops along the entire perimeter of the knitted fabric in a circular machine.

The invention is illustrated by a drawing, where Pic. 1 is a general diagram of the guide in the loop formation zone; in Pic. 2 – View A in Pic. 1; in Pic. 3 – View B in Pic. 1; in Pic. 4 – View C in Pic. 1; in Pic. 5 – section B-B in Pic. 4; in Pic. 6 – section D-D in Pic. 4.

The circular machine is made in the form of a circle, consisting of an upper cylinder 8 and a lower cylinder 2 (only some of the cylinders are shown in the picture). In Pic. 1, d_{tc} and d_{bc} are the diameters of the top and bottom cylinders, respectively, d_F is the upper diameter of funnel 1, and d_C is the diameter of the lower base of part of the truncated cone 13 of funnel 1.

The design consists of a funnel-shaped spreader 1, which is divided into four identical parts with a girth angle α from 750 to 800 (Pic. 4), while the opposite parts of the funnel 1 are in the same horizontal plane, and the plane of one of the pairs of opposite parts of the funnel 1 are made in the form of a part of a cylinder 12 (Pic. 5), the second pair of oppositely located other parts of the funnel 1 are made in the form of a part of a truncated cone 13 (see Pic. 6). In this case, all four parts of the funnel 1 are connected to each other by the corresponding four transition parts of the funnel 1 with girth angles β from 100 to 150 . The parts of the funnel 1 are connected by welding. Straightener 1 is rigidly connected to three corners 3 (the angle between them is $j=120^\circ$) (Pic. 3), in the vertical bases of which there are grooves 11 (Pic. 2 and 3). The corners 3 are connected to the lower cylinder 2 by means of screws 4 with washers 5. In the loop formation zone, the needles 6 of the lower cylinder 2 form loops 10, and the needles 7 of the upper cylinder 8 form loops 9 (Pic. 1).

The proposed design works as follows. The needles 6 of the lower cylinder 2, moving up and down vertically, form loops 10, and the needles 7 of the upper cylinder 8, moving back and forth vertically, form loops 9. Loops 9 and 10, clasping straightener 1 at certain angles, are then pulled down. Moreover, due to the vibrations of loops 9 and 10 and the different values of the friction forces of loops 9 and 10 with the surfaces of the upper cylinder 8 and lower cylinder 2, the tension of the loops will be different.

By adjusting the vertical installation of the corners 3 of the straightener 1 using screws 4 and washers 5, you can select the required position of the funnel 1, ensuring uneven tension of the loops 9 and 10. Moreover, taking into account that the pulling of the loops 9 and 10 passing through parts of the funnel 1 of truncated cones 13, the length of which will be greater than the length of the generatrix of the cylindrical parts 12 of the funnel 1, in this case:

$$l_C - h_F = 30\div 35 \text{ mm}$$

where h_F is the length of the cylindrical part 12 of funnel 1; l_C is the length of part 13 of the truncated cone of funnel 1. This allows for alignment of the flow of loops in all four parts of funnel 1 and ensures uniform tension.

Conclusion. Based on the analysis of the existing technology for pulling knitted fabric on double-circuit circular machines, due to the different lengths of the knitted fabric loops in the center

and along the edges, different pulling forces occur in the pulling zone, thereby reducing the quality of the resulting knitwear.

New effective designs of spreaders have been developed to ensure equalization of tension forces on knitted loops both in the center and along the edges of the tension zone, thereby producing high-quality knitwear.

References:

1. Tsitovich I.G. Technological support for the efficiency and quality of knitting processes for cross-knitted fabrics. – M.: Legprombytizdat, 1992. – 240 p.
2. Statute E.V., Shalov I.I. The influence of draw force on the heterogeneity of a bielastic fabric. // Textile industry. - 1978. - No. 6. – 58-60 p.
3. Sherman P.P. Study of the process of drawing the fabric without the participation of platins and its effect on the uniformity of the loop structure. Author's abstract. Ph.D. / LITLP named S.M.Kirova, 1968. – 16 p.
4. Usmonkulov Sh.K., Mukimov M.M., Allaniyazov G.Sh., Djuraev A.D. Guide for pulling knitted fabric on double-circular knitting machines. Patent No. FAP 01083. Bulletin. No. 4, 2016.
5. Maslennikov Yu.I. Functions of the fabric expander of a circular knitting machine. Message 1 // News of universities. Light industry technology. 1990. - No. 4. – 84-90 p.
6. Maslennikov Yu.I. Functions of the fabric expander of a circular knitting machine. Message 2 // News of universities. Light industry technology. 1990. No. 5. – 105-109 p.
7. Khomyak O.N., Pipa B.F. Improving the efficiency of knitting machines. – M.: Legprombytidat, 1990. – 208 p.
8. Truevtsev A.V. etc. The size of the spreader of a circular knitting machine as a controlled technological parameter. // Textile industry. – 1989. - No. 1. – 46-48 p.
9. Rovinskaya L.P. etc. Taking into account the loop modulus of cotton knitwear when choosing optimal conditions for goods distribution. // News of universities. Light industry technology. – 1993.- No. 4. – 74-78 p.
10. Truevtsev A.V. etc. Internal and external structural unevenness of round knitted fabric. // Textile industry. – 1993. - No. 10. – 32-35 p.
11. Truevtsev A.V. etc. Spring expander for coupon circular knitting machines. // Textile industry. – 1993. - No. 1. – 40-41 p.
12. Truevtsev A.V. On the influence of the deformation properties of the fabric on the size of the spreader of an elastic circular knitting machine. // News of universities. Light industry technology. – 1995.- No. 1. – 73-75 p.
13. Allamuratova T.K., Djuraev D.A., Mukimov M.M., Mansurova M.A. Guide for pulling knitted fabric on double-circuit machines. Patent IAP 06732. Bulletin. No.2, 2022.
14. Allamuratova T.K. Development of an effective design diagram of a guide in a double-circuit circular machine // Design Engineering. Scopus 2021. No.9. –10833-10838 p.
15. Allamuratova T.K., Mukimov M.M., Mansurova M.A. Development of the design and justification of the parameters of the guide for pulling the web on double-circuit circular machines // Problems of mechanics. – 2019. – No. 1. – 16-19 p.
16. Allamuratova T.K., Djuraev D.A., Mukimov M.M. Guide for pulling knitted fabric on double-circuit machines. Patent No. IAP 06902. Bulletin. No. 5, 2022.
17. Allamuratova T.K., Djuraev D.A., Mukimov M.M. Development of an effective design scheme and justification of parameters for pulling knitted fabric on double-circuit machines // IJARSET. Vol.5, No. 10, 2018. – 7178-7185 p.
18. Allamuratova T.K., Djuraev D.A., Mukimov M.M. Guide for pulling knitted fabric on double-circuit machines. Patent No. IAP 06902. Bulletin. No. 5, 2022.
19. Allamuratova T.K. Development of an effective design of a spreader for pulling knitted fabric on circular machines // News of universities. Light industry technology. – 2023.- No. 2. – 183-190 p.

Rezyume: *Aylana oborot mashinalarida yuqori va pastki silindr ignalaridagi halqalarga ta'sir qilayotgan tortish kuchining bir biridan farq qilishi, pastki va yuqori silindr ignalarida hosil qilinayotgan halqalar ipi uzunligining turlicha bo'lishiga olib keladi, bu esa trikotaj sifatiga salbiy ta'sir ko'rsatadi. Halqa ustunchalarining tortish valiklarining chekkasi va markazida har xil tortilishi, trikotaj to'qimasi yuza zichligining notekisligini keltirib chiqaradi.*

Maqolada aylana oborot mashinasida ishlab chiqarilayotgan trikotaj matosining bir tekis taran'likda tortilishini taminlab beruvchi yunalitiruvchining yangi natijali konstrukciyasi va ishlash tartibi keltirilgan.

Резюме: *На круглооборотных машинах из-за разницы силы оттяжки, влияющей на петлю, сформированной на иглах верхнего и нижнего цилиндров, длина нити в петлях верхнего*

и нижнего цилиндров получается разной, что оказывает негативное влияние на качество трикотажа. Из-за разницы усилий растягивающих петельные столбики у края и в центре оттяжных валиков, не удается получить стабильную поверхностную плотность трикотажа.

В статье проводится новая эффективная конструкция и принцип работы расправителя для равномерной по натяжению оттяжки трикотажного полотна на круглооборотных машинах.

Kalit so‘zlar: trikotaj matosi, cilindr, taranglik, yunaltiruvchi, aylana, bir tekis, tortish kuchi, burchak.

Ключевые слова: трикотажная полотно, цилиндр, натяжение, расправитель, кольцо, равномерность, силы оттягивания, угол.

UDK 677.025

TECHNOLOGY FOR PRODUCING DOUBLE-LAYER SINGLE-SIDED PLUSH WEAVE ON KNITTING MACHINES

Allamuratova T.K¹, Matirzaev Sh.Sh², Tolibaeva Sh.I¹.

¹Berdakh Karakalpak State University

²Amudarya Engineering Technical College

Summary: *the new structure of double-layer knitwear contains rows of ivy and purl stitch, connected by broaches. As a result, the ivy broaches are folded inside the fabric, which improves the performance requirements of the knitwear.*

Key words: *double-layer knitwear, purl stitch, ivy, knitting machine, loop-forming system, broaching.*

Introduction. When characterizing knitwear, they usually name the type of raw material from which it is made, and then give a structural characteristic, for example: a wool jacket with ribbed weave, cotton socks, nylon women's stockings with a low-fall weave, etc. Since raw materials are of paramount importance for the quality characteristics of knitwear, this is quite natural. Indicators characterizing the loop structure are also somewhat dependent on the type of raw material, or more precisely, on its properties. Thus, the properties of the threads that make up the loops of knitwear retain their importance for characterizing the loop structure of knitwear and significantly determine its properties [1].

The thread forming the loop is in forceful interaction with neighboring loops, due to which a certain shape and size of the loops, as well as the entire knitted product, is maintained.

The connection between adjacent loops threaded into each other, caused by the friction of the threads, is movable and allows the shape and size of the loops to change in height and width due to the constriction of the thread from loop arches and broaches into loop sticks or vice versa.

With the correct choice of heat treatment and fixing agents, high stability of knitwear can be achieved.

Thus, in the qualitative characteristics of knitwear or in its ability to retain the properties given to it for a long time, the most important role is played by: raw materials, structure and finishing of knitwear.

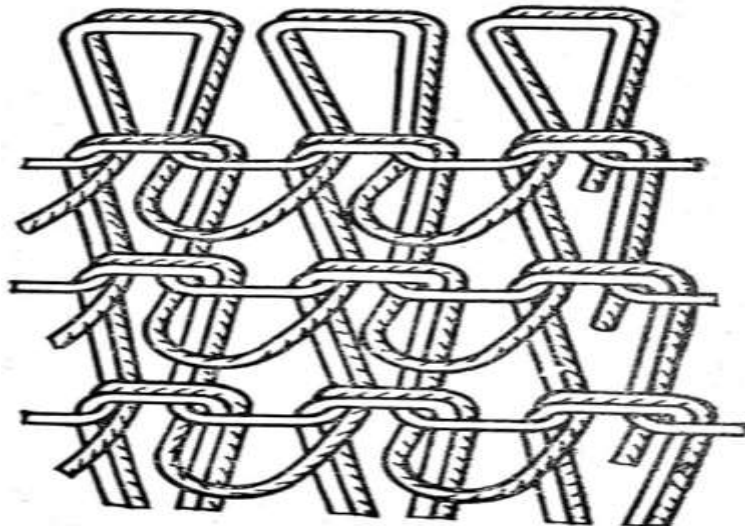
One of the important and pressing tasks facing the knitting industry is improving the quality and updating the range of products. At the same time, it is necessary to increase the production of knitted products with improved properties, while ensuring the rational use of raw materials.

One of the ways to expand the range and improve the quality of manufactured products is to develop new structures and methods for producing double-layer knitwear.

Our scientists and knitting industry specialists are creating new types of double-layer knitwear based on various weaves. The scope of application of double-layer fabrics is gradually expanding. Double-layer knitwear is already used not only for the manufacture of hosiery, underwear, jackets, children's suits, sports suits, but also as a lining material for the manufacture of toys, shoes, carpets, for various technical purposes, in medicine [2-8].

The issues of expanding the range and improving the quality of double-layer knitwear, creating new structures and developing effective methods of knitting knitwear with optimal parameters are currently being addressed by many researchers both in our country and abroad [9-12].

Knitwear produced from ground threads using any main, derivative or patterned weave with additional threads or bundles of staple fibers knitted into the ground, forming enlarged platinum arcs or pile broaches, is called knitted plush weave (Pic. 1).

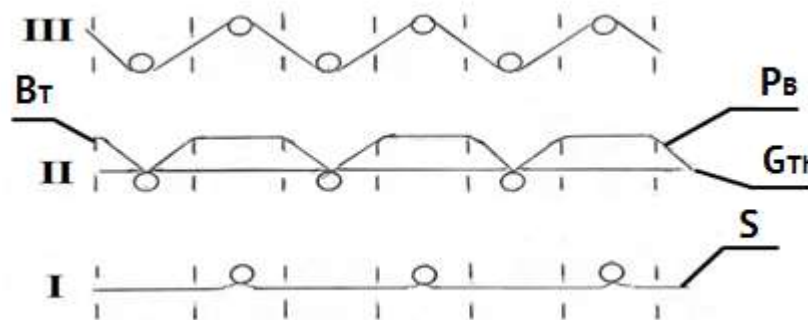


Pic.1. Plush knit structure

The most important feature of the structure of plush knitwear is the way the plush thread is secured in the ground of the knitwear. The quality of knitwear, its appearance, consumption of raw materials during production, etc. depend on this indicator.

Experiment result and discussion. In order to produce knitwear with increased shape stability and heat-shielding properties, a structure and technology for producing a new double-layer single-sided plush knitwear based on purl stitch have been developed, where the weave repeat contains a row of purl stitch and a row of plush weave, since a lycra connecting thread connects the looped rows of both weaves and gives the ability for plush broaches to be inside the canvas [13,14].

In Pic.2. shows a graphic recording of a two-layer single-sided plush knitwear inside the fabric on the base of the purl stitch; in Pic. 3. – the structure of a double-layer one-sided plush knitwear.

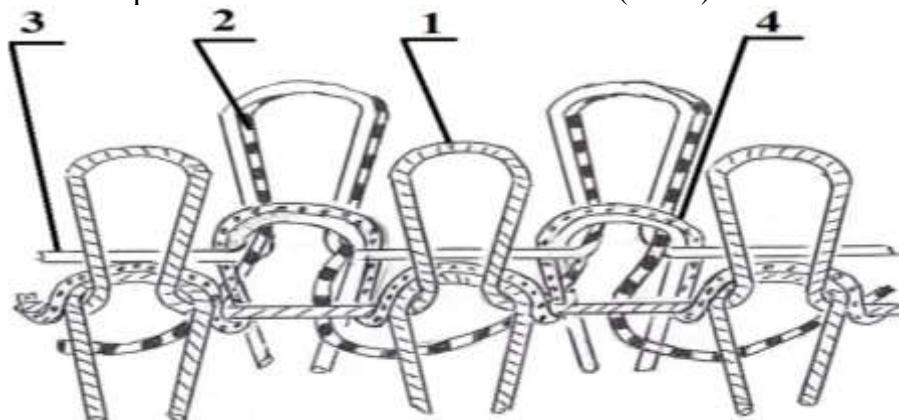


Pic. 2. Graphic recording of double-layer single-sided plush jersey

The graphic record shows that on the second needle bed of the cotton yarn machine, with the first loop-forming system (I system), a row of stockinette S is knitted, while the needles on both needle beds are arranged in a checkerboard pattern in elastic repeat. In the second input, the ground thread G_{Th} together with the plush thread is knitted on the first needle bed (II system), and the plush broaches P_B are formed on the breaker teeth B_T of the second needle bed, thus, the plush row is knitted on one side of the knitwear on the base of the purl stitch. Next, the plush broaches are discarded using a seven-wheeler. In the reverse entrance of the loop-forming system III, a connecting thread is laid on the needles of both needle beds from lycra thread, which connects both rows of weave, while the plush broaches are laid inside the fabric, forming a double-layer single-sided plush knitwear of a new structure.

Double-layer single-sided plush knitwear contains thread 1, from which the satin row is knitted, thread 2, from which the ground thread from the purl rows is knitted, and thread 3 - plush

thread forming the plush row. Connecting thread 4 made of lycra thread, connecting both rows, makes it possible for the plush brochures to be inside the fabric (Pic. 3).



Pic. 3. Structure of double-layer single-sided plush knitwear

Conclusion. Double-layer single-sided plush knitwear of a new structure based on the purl stitch, consisting of plush threads inside the fabric knitted with a ground thread on one side of the knitwear increases the volumetric surface, shape stability, increases heat-shielding properties, also in this weave the fastening of the plush threads increases, which improves the quality of the knitwear and its performance requirements.

Thus, on modern circular flat knitting machines, design changes are not required to produce double-layer single-sided plush knitwear.

The proposed method is easy to implement and does not reduce the performance of the machine.

References:

1. Dalidovich A.S. Basics of knitting theory. - M.: Light industry, 1970.
2. Dalidovich A.S., Mukimov M.M. Copyright certificate (11) 490881. Flat-speed machine. 05.11.75. Bulletin No. 41
3. Mukimov M.M. Development and substantiation of the technology of plush weave knitwear on double-font knitting machines. Dis.doc. tech. Sciences, T., 1993.
4. Gulyaeva G.Kh., Mukimov M.M. Technology for producing shape-resistant plush knitwear. // J. News of universities. Light industry technology. 2017. -No. 1.
5. US Patent No. US 2019/0078241. "POWERAIR" INSULATINGFABRIC. William Michael Rose, Gary S. Smith, Marina Kozera, William Patz, Gadalia Vainer. Patent holder MMI-IPCO LLC. Publ. 03/14/2019
6. Musaeva M.M., Khankhadzhaeva N.R., Mukimov M.M. A method for producing purl interlock knitwear on a circular machine. // Problems of textiles. – Tashkent.-2016.- No. 4.
7. UZ Patent No. FAP 01060. Class. 8 D 04 BXP7. Single-sided plush jersey. Gulyaeva G.Kh., Mukimov M.M. Application 06/20/2014 Publ. 01/29/2016 Bull. No. 1.
8. Dalidovich A.S. Basics of knitting theory. - M.: Light industry, 1970.
9. Gulyaeva G.Kh., Mukimov M.M. Method of improving hygienic properties of form stable knitted fabrics. / International III Forum of Innovative Ideas, Technologies and Projects-2017: collection of materials. -May 10-12, 2017 - Tashkent.
10. Gulyaeva G.Kh., Mukimov M.M. Shape-resistant plush jersey with a lightweight structure. / Innovative technologies in the textile and light industry: collection of materials from MNPk. -November 21-22, 2017. -Vitebsk. -Belarus.
11. Kholikov K.M. Double-sided plated plush knitwear based on press weave // Problems of textiles. - Tashkent. -2006. -No. 1.
12. Musaev N.M., Gulyaeva G.Kh., Mukimov M.M. Study of the properties of new knitwear structures. // "News of higher educational institutions. Light industry technology". Periodical scientific journal. St. Petersburg State University of Industrial Technologies.
13. Allamuratova T.K., Kholikov K.M., Mirsadikov M., Mukimov M.M., Muratbaeva K.I. Technology for producing double-layer single-sided plush weave on knitting machines. // International scientific and practical conference. KSU. 2023 356-357 p.

14. Allamuratova T.K., Kholikov K.M., Mirsadikov M., Mukimov M.M., Muratbaeva K. A method for producing double-layer double-sided plush knitwear with high heat-shielding properties. // International scientific and practical conference. KSU. 2023 354-357 p.

Rezyume: ikki qatlamli trikotajning yangi tuzilishi protyajka bilan bog'langan tukli va teskari glad qatorlardan tarkib topgan. Natijada, tuk protyajkalarining mato ichida joylashishi trikotajning chidamlilik xususiyatini yaxshilaydi.

Резюме: новая структура двухслойного трикотажа содержит ряды плюшевого и изнаночной глади, соединенные протяжками. В результате плюшевые протяжки складываются внутри полотна, что улучшает эксплуатационные требования трикотажа.

Kalit so'zlar: ikki qatlamli trikotaj, teskari glad, tuk, trikotaj mashinasi, halqa hosil qilish tizimi, protyajka.

Ключевые слова: двухслойный трикотаж, изнаночная гладь, плюш, трикотажная машина, петлеобразующая система, протяжка.

DEVELOPMENT OF TECHNOLOGY FOR PRODUCING LIQUID SYNTHETIC DETERGENTS

Erkaeva N.A.¹, Kaipbergenov A.T.², Erkaev A.U.¹, Reymov A.M.³.

¹*Tashkent Institute of Chemical Technology,*

²*Nukus mining institute,*

³*Karakalpak State University name after Berdakh*

Summary: *In our experiments, we investigated the effect of the ratio of reagents (surfactants, starch, sodium carboxymethyl cellulose:H₂O) on density and viscosity by compiling the dependence of the functional parameters of liquid synthetic detergents on the additions of sodium and potassium hydroxide, potassium carbonate and their mixtures.*

Key words: *synthetic detergents, component, sodium carboxymethyl cellulose, ratio, system, foam, sample, solution*

In addition to high cleaning power, synthetic detergents (SD) must have high biodegradability in water bodies, economical production, consumption, good presentation, consistency of quality parameters and lack of toxicity for people, animals and aquatic organisms [1, 2]. These SDs are multi-component compositions that are used in aqueous solutions to improve the elimination of contaminants from a variety of hard surfaces - fibers, fabrics, glass, metals and ceramics. In an approximate form, SD is usually understood as household detergents for washing clothes and washing dishes [2, 3].

Recently, the chemical industry has been progressing rapidly in the republic, which makes it possible to obtain a wide range of SDs and increase their production. Analysis of the consumption of technical detergents shows the possibility of widespread use for degreasing various surfaces aqueous solutions of surfactants, compositions with active additives.

In our country, the development of obtaining SD for technical purposes should follow the path of developing alkaline detergents, which will eliminate the use of flammable and toxic solvents. In our experiments, we investigated the effect of the ratio of reagents (surfactants, starch, sodium carboxymethyl cellulose:H₂O) on density and viscosity by compiling the dependence of the functional parameters of liquid synthetic detergents on the additions of sodium and potassium hydroxide, potassium carbonate and their mixtures. Based on the results of these studies, a technological scheme was developed and the material balance was calculated [4, 6].

The study of the rheological properties of a solution is very important, because if the viscosity of the solution is high, it becomes untransportable and it will be impossible to continue the technological process.

The rheological properties of mixture solutions at various mass ratios of the initial raw materials used for the synthesis of SD were measured in the temperature range of 20-60°C. The viscosity of the solution was determined by a VPZh-1 viscometer, and the density by the pycnometric method [7, 8].

For the purpose of conducting experiments, solutions containing Sodium Lauryl Ether Sulfate (SLES) were prepared at a SLES:H₂O ratio in the range of 10:90-30:70.

It was revealed that with an increase in the mass ratio of SLES:H₂O in the solution from 10:90 to 30:70, the density of the solution decreases from 1.093 to 0.945 g/cm³, respectively.

When containing 0.5% sodium chloride in the solution, it caused a slight increase in density to 0.948 g/cm³ at a temperature of 20°C. Increasing the amount of sodium chloride added to 4% causes a thick mass to be obtained.

The addition of urea to a solution containing SLES in an amount of 1.5 and 10% did not have a significant effect on the density of the solution and this parameter of the solutions varied from 0.941 to 0.949 g/cm³.

The densities of solutions of corn and potato starches and gelatin were also studied.

It was determined that increasing the concentration of corn starch solution in the mixture from 2 to 16% causes an increase in the density of these solutions at 20°C from 0.928 to 0.975 g/cm³, respectively.

A study of the density of different potato starch pulps showed that the densities of these solutions are almost the same as the density of corn starch pulps, and their values vary from 0.926 to 0.971 g/cm³.

In order to determine the rheological properties at temperatures from 20 to 40, 60°C, gelatin solutions with concentrations of 10, 15 and 20% were prepared. It was determined that an increase in the concentration of gelatin solution from 10 to 20% at a temperature of 20°C caused an increase in density from 0.945 to 1.057 g/cm³, respectively.

To establish the possibility of using sodium carboxymethyl cellulose as one of the reagents of gel-like SD, the influence of temperature and brand of sodium carboxymethyl cellulose on the density and viscosity of solutions of different concentrations of sodium carboxymethyl cellulose was studied.

The concentration of solutions varied from 1 to 2 and 4%. As the concentration of the sodium carboxymethyl cellulose solution increases, the density of the solution increases. For example, at a temperature of 20°C, a sodium carboxymethyl cellulose solution with a concentration of 1% shows a density of 0.924 g/cm³. An increase in the concentration of the sodium carboxymethyl cellulose solution to 4% contributed to an increase in this parameter to 0.949 g/cm³. A similar picture is observed when using sodium carboxymethyl cellulose 85/600.

To synthesize a gel-like synthetic detergent, mixtures consisting of surfactants, NaCl and sodium carboxymethyl cellulose were prepared. The density and viscosity of these mixtures were determined by changing the mass ratio of the initial components and temperature (Table 1).

It was revealed that at 20°C the density of the mixtures ranges from 0.900-0.928 g/cm³. A mixture containing 20% N₁ and 80% N₂ had a minimum density of 0.900 g/cm³. Increasing the mixture rate to 50% resulted in an increase in the density of the mixture to 0.901 g/cm³. Increasing the mixture rate to 90% had no effect on the density value. Among the mixtures studied, sample N₂, consisting of sodium carboxymethyl cellulose 1000/1300, had the maximum density.

Table 1

Influence of temperature and mass ratio of initial reagents on the rheological properties of mixtures

	Composition of the solution N ₁ :N ₂	Designation samples	Density, g/cm ³		
			Temperature, °C		
			20	40	60
	1:0	N ₁	0,915	0,902	0,900
	0:1	N ₂	0,920	0,910	0,900
	0,9:0,1	CM ₁	0,918	0,910	0,880
	0,5:0,5	CM ₂	0,910	0,910	0,890
	0,2:0,8	CM ₃	0,900	0,890	0,870

Note. N₁-(NaCl:SLES:H₂O)=4:20:76), N₂- sodium carboxymethyl cellulose 1000/1300H₂O=4:96)

The foaming ability of surfactant solutions and the effect of NaCl and sodium carboxymethyl cellulose on it were studied (Fig.1). It was determined that at the beginning of the process, a 1% solution prepared from 10 g of SLES has a foam height of 23.0 cm. With an increase in the concentration of the mixture to 5%, the foam height increases to 30.5 cm. The stability of the

foam of a 1% solution is low, after 180 sec, this parameter decreased to 15 cm, while the height of the foam of the 5% solution at the moment was 19.5 cm (Fig.1, curve 1).

When the time reaches 900 seconds, the foam height decreases significantly and reaches 1.5 and 3.5 cm for solutions of 0.5 and 1% concentration, respectively. After 900 seconds, the maximum height is observed for a solution of 5% concentration. After 172,800 seconds, a 5% solution prepared from a mixture of 10 g SLES and 90 g water has a height of 2.5 cm.

Experiments to study the effect of NaCl on foaming ability showed that NaCl has a positive effect on this parameter. Adding 0.5% NaCl to a SLES solution consisting of 20% SLES and 79.5% water significantly increased the foam height. A 2% solution was prepared from a mixture of SLES:H₂O=20:80, which at the beginning of the process showed a foam height of 28 cm, and a solution of a similar concentration containing 0.5% sodium chloride had a foam height of 30 cm. In these samples, foam stability also high (Fig. 1, curves 2.21). A 6% solution with and without NaCl has a foam height of 34 and 36 cm, respectively (Fig.1, curves 3.31).

The presence of NaCl in an amount of 2 and 4% in a mixture containing SLES and water in an amount of 20:78 and 20:76, respectively, causes an increase in the height of the foam (Fig.2). For example, a 10% solution prepared from a mixture of SLES:H₂O = 20:80 at the beginning of the process shows a foam height of 35.5 cm, and the addition of NaCl in an amount of 2 and 4 g to a 10% solution prepared from the same mixture, at the beginning of the process causes an increase in foam height to 38, 40 cm, respectively. From the data (Fig.2) it is clear that with an increase in the amount of NaCl additive from 0.5 to 4.0%, the height of the foam increases by 1.5-3.5 cm. This difference increases by 4-5 cm after 60 minutes.

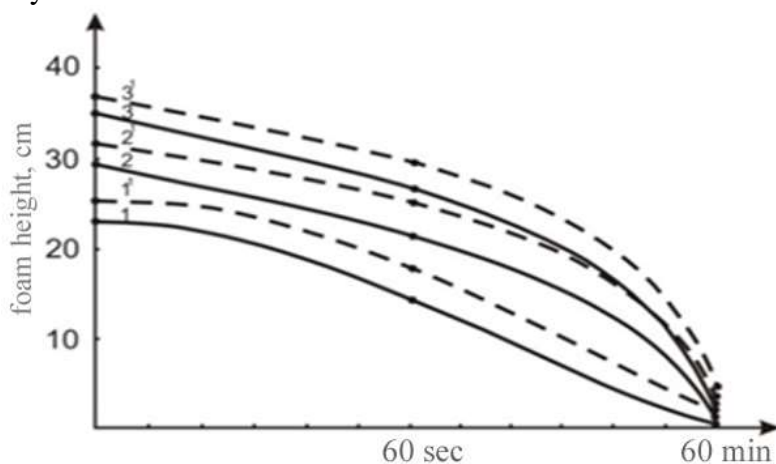


Figure 1. Kinetics of foam stability depending on the composition and concentration of SD, wt.%.: 1-0.1; 2-2; 3-6.

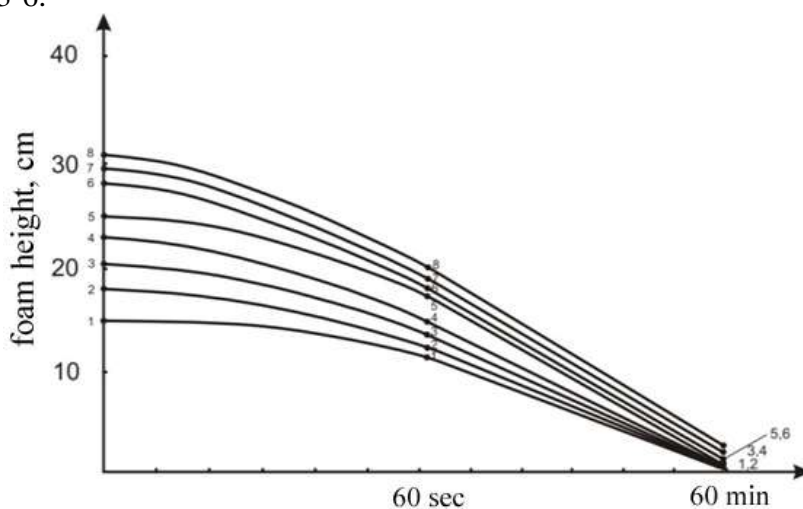


Figure 2. Kinetics of foam stability at SD concentration, wt.%.: 1-0.05; 2-0.1; 3-0.5; 4-1.0; 5-2.0; 6-3.0; 7-4.0; 8-5.0.

Experiments have shown that maximum foam stability is obtained in the first 900 seconds. Subsequently, this parameter decreases. A similar thing occurs in all samples and at all concentrations.

Experiments were also conducted to study the effect of sodium carboxymethyl cellulose on the foaming of synthetic detergents.

The use of sodium carboxymethyl cellulose 85/600 as an initial raw material showed a negative effect on the foaming of the solution, because in all samples of any solution concentration and time, a foam height of 1 cm was obtained.

Solutions of corn, potato starch and sodium carboxymethyl cellulose had very low foam in the range of 0.1-2.7 cm.

A study of the dependence of density on the rate of alkaline additives used to the solution showed that the addition of sodium hydroxide in an amount of 6.24% to CM₂ causes an increase in density to 0.9964 g/cm³ (Table 2). When adding the same amount of NaOH to CM₂ it does not have a significant effect on the density value. At a KOH rate in the range of 16.32-6.24% in CM₂, with its increase, the density value increased slightly, and with the addition of 16.32% KOH to CM₃, the density decreases by 0.0469 g/cm³.

In the case of the synthesis of gel-like products, the viscosity of the samples is important. In connection with this, the influence of various factors on the viscosity of mixtures was studied. The experimental results showed that at a temperature of 20°C this parameter changes in the range of 20.47-50.37 cPs. The addition of 2% sodium chloride caused an increase in the viscosity of the mixture to 205.25 cPs, and with the addition of 4% sodium chloride a thick mass was formed.

For mixtures containing SLES, the addition of urea had no significant effect.

Temperature also has a significant influence on this parameter. For example, increasing the temperature from 20 to 60°C in the N₅ mixture reduces the viscosity from 205.25 to 7.98 cPs (Table 1).

Low viscosity is shown by solutions of corn and potato starch from 2 to 8 and 16%; viscosity increases from 11.72 to 13.89 and 21.43 cPs, respectively. In the range of 12.95-17.9 cPs, the viscosity of the potato starch solution changes (Table 2).

Table 2

The influence of alkaline additives and mixture temperature on their rheological properties

	Type of additive	Amount of additive, group	Density, g/ml			Viscosity, cPs		
			Temperature, °C			Temperature, °C		
			20	40	60	20	40	60
When use CM ₂								
	NaOH	1,63	0,9932	0,9872	0,9764	60,850	28,988	12,697
		3,14	0,9952	0,9821	0,9801	100,610	61,600	27,417
		6,24	0,9964	0,9784	0,9821	159,221	83,222	50,887
	KOH	1,78	0,9604	0,9536	0,9465	134,020	76,164	76,589
		3,51	0,9788	0,9708	0,9678	167,064	92,963	44,896
		6,78	0,9888	0,9844	0,9796	268,897	184,945	113,288
When use CM ₃								
	NaOH	1,63	0,9463	0,9339	0,9276	60,666	30,662	15,047
		3,14	0,9756	0,9722	0,9644	93,701	56,741	23,045
		6,24	0,9951	0,9895	0,9732	151,765	81,439	30,496
0	KOH	1,78	0,9580	0,9345	0,9278	127,689	71,458	30,478
1		3,51	0,9592	0,9514	0,9435	161,467	91,288	44,693
		6,78	0,9720	0,9644	0,9610	167,477	152,988	95,687

2								
---	--	--	--	--	--	--	--	--

With increasing gelatin concentration, the viscosity of the solution increased sharply. For example, with a gelatin concentration of 10%, a viscosity of 7.83 cPs was obtained at 20°C, and with a solution concentration of 20%, the viscosity increases to 388.3 cPs. At a temperature of 20°C, a 4% solution of sodium carboxymethyl cellulose 1000/1300 had a maximum viscosity of 18566.67 cPs. An increase in temperature to 60°C causes a decrease in viscosity by 18.5 times to 1004.40 cPs.

The presence of potassium hydroxide in the mixture increases its viscosity. Table 2 show that a mixture containing 6.24% sodium hydroxide has a maximum density of 0.9964 g/cm³. This sample has a viscosity of 159.22 cPs at 20°C. However, with an increase in temperature to 60°C, the viscosity decreases to 50.88 cPs.

When the content of potassium hydroxide in CM₂ is 6.78%, the viscosity increases to 268.8 cPs, but the addition of the same amount of potassium hydroxide reduces the viscosity of the mixture to 167.477 cP (sample 12 of Table 5).

The results of studying the rheological properties of different samples in the temperature range of 20-60°C showed that solutions of sodium carboxymethyl cellulose potassium hydroxide increase the density and viscosity of mixtures, but with an increase in temperature to 60°C, the viscosity of mixtures and the sodium carboxymethyl cellulose content sharply decreases, which makes it possible to use it as an initial raw material for the synthesis of SD .

When determining the foaming ability, it is customary to determine the height of the column by the volume and stability of the foam. All surfactant solutions have the ability to create foam under certain conditions.

The presence of a certain concentration is characteristic of surfactants. This establishes optimal foaming ability.

It can be noted that a prerequisite for washing action is the surface activity of the compounds, mechanical strength and sufficient viscosity of the hydrated layers of the detergent, as well as the formation of strong hydrated adsorption layers around the contaminants, which prevents their secondary deposition on the fabric.

Surface activity alone is not enough for a substance to have cleaning ability. There are compounds that have surface activity, but do not have cleaning ability, because they do not form durable surface films (alcohols, fatty acids).

According to P.A. Rebinder, effective detergents are surfactants that form solutions with the greatest colloidal properties. To improve the wetting ability, it is also necessary to completely cover the surface with an adsorption layer of surfactant. During the washing process, a distinction is made between the separation of contamination from the fabric and its re-deposition onto the fabric. When used as a detergent, the surfactant must have the following properties:

1. Ability to wet contaminated surfaces.
2. The ability to effectively clean contaminants (for this, the detergent must overcome the adhesion forces between the contaminating oil and the substrate.
3. The ability to prevent re-sedimentation of contamination.

In order to identify the foaming ability of synthetic detergents, solutions of different concentrations were prepared, %: 0.5; 1; 5; 10; 20; thirty; 40; 50. Foam stability was determined for 3600 seconds.

Experimental data showed that at the beginning of the process (0 seconds) a 10% mixture solution (SLES:H₂O - 10:90) has the highest foam height of 40 cm. When the concentration increases to 50%, the foam height decreases to 19 cm and its stability is low. For example, the height of the foam at the beginning of the process is 40 cm, and after 3600 sec it decreases to 14 cm. The height of the foam of a 1% solution of the mixture (SLES:H₂O - 10:90) after 3600 sec is 13 cm.

Increasing the mass ratio of SLES:H₂O to 20:80 and 30:70 causes a decrease in the height of the foam, but here too, a 10% solution of the mixture at the beginning of the process forms a maximum height of 31 and 35 cm. After 3600 seconds it decreases to 5 and 6 cm .

For example, when adding 0.5, 2 and 4% NaCl to a mixture (SLES:H₂O - 20:80), the 10% solution formed foam with a height of 30, 31, 32 cm at the beginning of the process. However, in this case, the stability of the foam is low and after 3600 sec in this sample the foam height was 5, 6, 7 cm, respectively.

The use of different brands of starch and sodium carboxymethyl cellulose as initial raw materials did not affect the foaming ability of the solution. In this case, in all samples, regardless of the solution concentration and time, the foam height was no more than 0.1 and 1 cm, respectively.

In order to study the functional properties of SD samples for CM₂ and CM₃ sodium and potassium hydroxides were added in varying quantities. From the data in Table 3 it follows that at the beginning of the process in these samples, the foam height varied from 25 to 36 cm, and the stability of the foam varied between 60-170 minutes. When using NaOH, the height of the foam and its stability are 2-6 cm higher and 15-20 minutes longer, respectively, than when using KOH. This is especially noticeable when using CM₃.

Table 3

Influence of the amount of alkaline additives on the functional properties of samples

The names of the samples correspond to the sample numbers in Table 2	pH	Maximum foam height, cm	Foam stability, min
1.	11,57	30	80
2.	12,29	32	110
3.	12,50	34	140
4.	10,11	25	60
5.	11,09	28	90
6.	12,35	30	120
7.	11,96	32	110
8.	12,20	34	140
9.	12,36	36	170
10.	11,16	27	90
11.	11,20	29	120
12.	12,42	30	150

The presence of alkaline potassium hydroxide additives showed the low foaming ability of SD. In these samples, the foam height was 25-30 cm.

In the studied variation intervals, the content of the initial components in the washing compositions, the pH of the samples varied in the range of 10.11-12.36. At identical alkali rates, the pH is 0.1-1.4 higher than when using NaOH.

The washing action is characterized by the effectiveness of removing contaminants from the surface of fabrics and hard surfaces and is determined by the nature of the hard surfaces (metal, glass, plastic), the condition of the surface being cleaned, the nature and structure of the fabric, the nature and intensity of the contamination, the properties of detergents and their concentration, the degree of water hardness, temperature of the solution, force of mechanical action on the surface being cleaned, duration.

Cleaning ability was determined on a 10-point scale. Experiments have shown that a mixture containing SLES, sodium chloride and urea has a maximum cleaning power in the range of 4-8. For example, samples containing SLES, NaCl and water, at a ratio of 10:2:78 with a concentration of 1-5%, have a cleaning ability of 5-8 points. With an increase in the amount of SLES in the samples,

the washing ability slightly increases, and the presence of alkali metals in the composition increases this parameter by 1-2.5 points.

It was revealed that, regardless of the type of additive, mixtures containing corn and potato starches and gelatin have virtually no effect on the washing effect of the sample.

Based on the above studies, we can conclude that to obtain gel and liquid detergents, it is necessary to vary the content of the initial reagents, mass, % in the following ranges: surfactant-5-30, starch-0-2, sodium carboxymethyl cellulose -0.5-2, NaCl- 0.5-4, alkali-1-7.

References:

1. Основы химии и технология производства синтетических моющих средств\ Николаев П.В, Петрова Н.А
2. Производство синтетических моющих средств / Ковалев В.М 1990 234с
3. Ковалев В.М., Петренко Д.С. Технология производства синтетических моющих средств М.: Химия, 1992.-272 с.
4. Получения синтетических моющих средств технического назначения на основе калийной “супер-щелочи” и активных добавок/ Эркаева Н.А, Уринова З, Кучаров Б.Х, Тоиров З.К, Эркаев А.У./VI международная научно-техническая конференция «Современные техника и технологии горно-металлургической отрасли и пути их развития» 14-16 мая 2013 год, Навои, Узбекистан. С.395-396
5. Изучение влияния состава композиции жидких синтетических моющих средств (смс) на реологические и функциональные свойства/Х.Т. Шарипова, А.У. Эркаев, Т.И. Нурмуродов, А.Т.Каипбергенов, А.Ж. Алламуратова, Эркаева Н.А./ “Химическая технология. Контроль и управление”, 2020/2
6. Ланге, К. Р. Поверхностно-активные вещества / К. Р. Ланге. – М.: Химия, 2004. – 252 с. ISBN 5-93913 – 068 – 2.
7. Практикум по физической химии. / Воробьёв Н.К., Гольшмидт В.А., Карапетьянц М.Х., Киселёва В.А. – М.-Л.: Химия, 1964. –384с.
8. Практикум по физической химии. / Бурмистрова О.А., Карапетянц М.Х., Каретников Г.С. и др. Под. ред. Горбачева С.В. – М.: Высшая школа, 1974. – 496 с.

Rezume: Bizning tajribalarimiz suyuq sintetik yuvish vositalarining funktsional parametrlarining natriy va kaliy gidroksid, kaliy karbonat va ularning aralashmalariga bog'liqligini tashkil etuvchi reagentlar (PAV, kraxmal, NaKMC:H₂O) nisbatining zichlik va yopishqoqlikka ta'sirini o'rganib chiqdi.

Резюме: В наших экспериментах исследовано влияние соотношения реагентов (ПАВ, крахмал, NaKMC:H₂O) на плотность и вязкость, составив зависимость функциональных параметров жидких синтетических моющих средств от добавок гидроксида натрия и калия, карбоната калия и их смесей.

Kalit so'zlar: sintetik yuvish vositalari, komponent, natriy karboksimetilselluloza, nisbat, tizim, ko'pik, namuna, eritma.

Ключевые слова: синтетические моющие средства, компонент, с карбоксиметилцеллюлоза натрия, соотношение, система, пена, проба, раствор.

УДК 628.2

SOME PROBLEMS OF WATER RESPIRATORY SYSTEMS OF THE CITY OF NUKUS AND PROSPECTS FOR THEIR DEVELOPMENT

Abdiganieva G.¹, Turlibaev Z.¹, Tangatarova G.²

¹Karakalpak state university named after Berdakh, ²Scientific Research Institute of Irrigation and Water Problems

Summary: *The article presents and analyzes the state of wastewater systems in the city of Nukus in the Republic of Karakalpakstan, as well as problems with these systems and their solutions. Specific examples are given for modernizing the drainage system: i.e. separate sections of drainage networks were built and redirected in Nukus; the sewage pumping station was reconstructed; plans to improve systems. Various measures for the reconstruction of existing networks and structures are indicated.*

Key words: *state program, drainage system, pipes for pressure modes, pumping station, sewerage, treatment facilities, excess consumption of water and wastewater.*

INTRODUCTION

The territory of the Republic of Karakalpakstan has a sharply changing continental climate. The summer months are characterized by long periods of drought, and the winter months by cold winds from the north. The average air temperature ranges from 10.7-12⁰C. In summer, the average temperature is more than 20⁰C, the daily maximum temperature reaches 42-45⁰C, and the minimum temperature in winter drops to -25...30⁰C. The season is not cold throughout the year and lasts 200-300 days. Average precipitation ranges from 80 to 110 mm throughout the year, with larger amounts observed in spring and autumn. The winter months are cold and there is little snow. The coldest month is January. The snow layer is unstable, reaches 5-15 cm and lasts 20-30 days.

The main water source of the republic is the Amu-Darya, which emerged from the mountains as a result of many years of snow and glaciers, passing through the Tuyamuyun reservoir and the Takhiyatash hydroelectric station and reaching the Kyzyljar post of the central delta. Nukus is located in the rear part of the Republic of Karakalpakstan, on the border of the irrigated zone of the Amu Darya River, in the valley of the city with the Kyzylkum desert.

The city of Nukus is the administrative, cultural, scientific, political central capital of the Republic of Karakalpakstan and one of the largest cities in Karakalpakstan.

The sewer network of the city of Nukus has served its purpose for more than 40 years. In the early 1970s, the first sewer network and spillway station (SW) were put into operation. Currently, in the city of Nukus there are 5 joint ventures (SP-1A, SP-2, SP-4, SP-10A, SP-11A), 1 GNS (Main pumping station), 31 Sewage pumping station (sewage pumping station) and WWTP (sewage pumping station) wastewater treatment). The population of the city of Nukus, provided with sewerage, is 98.4 thousand people, or 31.1% of the total population. 38.9% of the entire sewer network requires clean replacement.

The underground soils of construction sites for mobile sewerage structures: treatment plants (WTP), main pumping station (MPS) and utility routes are composed of soils of varying density, granulometric composition and physical and mechanical properties, with an admixture of sand, carbon deposits, silt, and light layers of soil.

The city's sewer network is in disrepair, which creates an environmental disaster. The main cause of the accident was the aging of pipelines, mainly due to the aggressive effects of soil consisting of small particles. During the operation of the network, the upper part of the pipelines... was damaged and became unusable, causing water to flow into the collectors, and some areas of the city were flooded with sewage.

Various programs have been developed to improve the city's sewer systems. The main goal of the work is to review program documents on the development and modernization of water disposal and wastewater treatment facilities, improvement, reliability, design, drainage systems, and life support. The current state and problems of wastewater discharge systems, the main ways to solve problems are described, and examples of the reconstruction of wastewater discharge systems in the city of Nukus are given.

In 2022, a Decree of the President of the Republic of Uzbekistan was adopted on the development strategy of the new Uzbekistan for 2022 - 2026.

As part of the new development strategy of Uzbekistan for 2022-2026, including “Goal 34: Development of wastewater disposal systems, engineering, communication and social infrastructure, territories, as well as services”, the creation of technically and technologically modernized local and individual wastewater treatment facilities is especially important, which will ensure the reuse of treated water and reduce excess costs, including for the treatment of wastewater generated in areas that do not have a sewer system. [1,,11].

The current state of the sewer systems of the city of Nukus. Under the jurisdiction of the Nukus Vodokanala, there are 150.1 kilometers of water supply. Pipes, for gravity mode, 82.9 km and pressure mode, 67.2 km. (Figure 1,2).



Figure 1. Nukus sewerage system

When selecting the necessary wastewater treatment methods and facilities, the special sanitary and economic importance of local lands must be taken into account. Moreover, in the conditions of Uzbekistan, wastewater treatment is limited not to mechanical treatment, but to complete, biological treatment of wastewater.

The main treatment facility of the city of Nukus is a biological treatment of wastewater, followed by chlorination and discharge of treated wastewater to natural wetlands (filtration and evaporation fields 15 km from the city of Nukus).

1. Wastewater from the city territory (from the left bank of the Dustlik canals) enters directly into the reservoirs of the district's sewerage pumping stations through flow-through collector systems and flows sequentially in the direction of SP-1A. From here, water is supplied to the right bank of the canal by the SP-4 flow-through collector. This gravity collector receives wastewater from the KNS Olympic Reserve College, Vodokanal and the KNS Infectious Diseases Hospital, after which it is pumped to the treatment plant using SP-1A.

2. Wastewater from the city territory (from the right bank of the Dustlik canals) enters the reservoirs of the pumping station of the ponds corresponding to the flow-collector system, and is sequentially transferred to KNS-22, KNS-23, KNS-24, KNS-25, then the driver's pool SP-10A station itself enters the flow collector and pumping basin, after which it is transferred to fill the ponds.

3. Wastewater from KNS-Agostroy, KNS-ARZ-16 is transferred to the ponds of the SP-1A drive station through gravity collectors.

4. SPS array "Sarbinaz", wastewater is supplied to the SP-1A pool through a flow-through collector.

The main pumping stations SP-1A and SP-10A are the pumping stations to which all wastewater from the remaining 4 SPs and 14 SPS are collected. Wastewater from SP-1A and SP-10A is supplied to treatment facilities through a pressure manifold with a diameter of $D=1000$ mm.

The treatment plant consists of complete biological wastewater treatment and is located 22 km from the city of Tuslikkun in Nukus. The design capacity of the treatment facilities is 65,000 m³/day.

On the territory of the wastewater treatment plant there are mechanical structures and complex biological treatment plants, wastewater treatment plants, utility and auxiliary buildings and structures.

The treatment facilities have been in operation since 1992. The area of treatment facilities is 45 hectares. Treated wastewater is discharged through the Ozerny collector.

Currently, treatment facilities cannot provide adequate wastewater treatment. Due to the lack of appropriate costs, work on the reconstruction and repair of treatment facilities has not yet been completed. All equipment is broken, worn out, and not fully functional. Biological treatment facilities and mechanical treatment facilities are in operation. The treatment facilities of the city of Nukus are also in disrepair. Reconstruction of all structures and buildings is required.

The main, pumping, station, GNS, (main, pumping, stations), belonging to the Akaba Suu branch of the city of Nukus, is located 3.0 km from the city of Nukus and was put into operation in 1988 by the state design institute "Uzgiptomkommunizhproekt". Wastewater from the city of Nukus is supplied to the main pumping station, and through this pumping station through an iron pipe with a diameter of $D = 1000$ mm and a length of 15 km, it is pumped to the WWTP facility located in the Karauzyak region of the Republic of Karakalpakstan, where biological treatment takes place.

The sewerage system of the city of Nukus is arranged as follows:

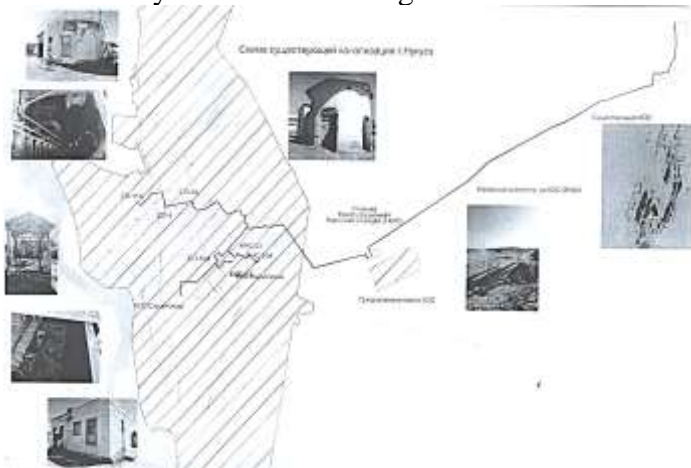


Figure 2. Sewerage scheme of the city of Nukus

The main current problems (reliability, quality, consumer convenience, environmental impact) of water disposal and wastewater treatment systems include: The wear and tear of sewer networks currently exceeds 50%, which leads to a significant level of accidents. Accidents in sewerage systems occur mainly for two reasons: clogging of gravity pipes with a diameter of up to 400 mm; soil and electrochemical corrosion in wastewater pressure pipes of sewage pumping stations.

The length of the central sewerage networks in the city of Nukus is 150.1 km, of which there are 67.2 km of high-pressure pipes (pressure) and 82.0 km of gravity pipes (self-flowing). Of these, 73.7 km of water supply networks are outdated and today they require replacement. According to

the statistical department, 326.1 thousand people live in Nukus, of which 101.417 settlements use sewerage services, which is 31.1 percent.

The site of the GNS facility is divided into two sections, in the first there is a technological facility, and in the second there are secondary technological facilities - tanks and a pumping station, which is in working condition, but requires reconstruction and replacement of equipment.

At the moment, the 15 km long pressure collector from the GNS to the WWTP is in disrepair due to high corrosion of wastewater.

Sewerage diagram. Domestic wastewater from the left bank of the city canals enters the reservoirs of the sewage pumping station through a flow-collector network and is supplied to SP-1A in sequence according to the designated areas. After this, wastewater from the territory of the right bank of the canal is pumped through the flow-through collector network by the SP-4 station, and the wastewater from the college, water utility, and KNS hospital enters the flow-through collector and is collected in SP-4. 1A and is pumped to treatment facilities. The diagram of the currently operating sewer networks of the city of Nukus is presented in Fig.2.

The main pumping stations are SP-1A and SP-10A. Wastewater collected in the joint venture and 14 pumping stations of the remaining 4 drive stations enters the gas pumping station through a pressure manifold with a diameter of $d = 1000$ mm, and then is transferred to treatment facilities.

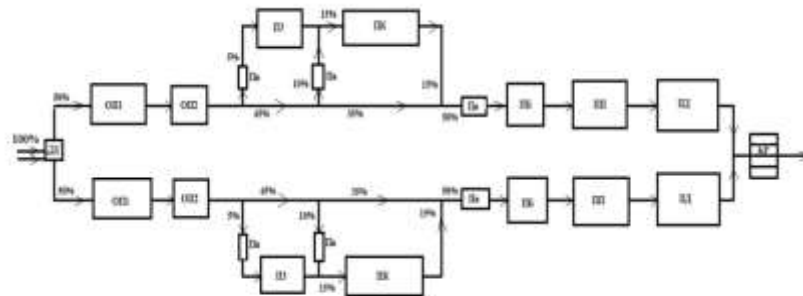


Figure 3. Block diagram of the treatment plant

Operating treatment plant. Evaporation conditions and filtration fields. The treatment plant is located 18 km from the city of Nukus, in the Kyzylkum desert in its eastern part. Its total area is 147 hectares. The project recommends the use of natural wetlands for wastewater treatment based on biological treatment plants (two-stage clarifiers, catchment clarifiers, cultivation clarifiers, fermentation clarifiers, aquatic plant clarifiers). The design of the treatment facilities indicates 65 thousand m^3/day .

On the territory of the treatment plant (45 hectares) there are mechanical structures and facilities for complete biological treatment of wastewater, utility auxiliary buildings and premises under the decontamination structure.

They are currently not fully functional. The treatment facilities have been in operation since 1992. The wastewater treatment plant is not capable of providing complete wastewater treatment; due to the lack of individual measures, work on the reconstruction and repair of treatment facilities was not carried out. Also, many equipment in the operating system of the city of Nukus are in disrepair. All their buildings and structures require reconstruction.

Includes reconstruction of wastewater treatment systems and installation of mechanical wastewater treatment devices.

The long-term target program considers the main directions for modernizing the wastewater systems of the city of Nukus. In order to improve the quality of public services and the efficiency of use of natural resources, it is necessary to ensure the implementation of investment projects to modernize engineering infrastructure and wastewater systems. The tasks under the program for the development of engineering infrastructure are:

- engineering and technical optimization of the engineering infrastructure of wastewater systems in the city of Nukus;
- Long-term planning for the development of the city of Nukus, drainage systems, engineering infrastructure;
- justification of measures for the comprehensive reconstruction and modernization of sewerage systems and engineering infrastructure of the city of Nukus;
- improve the reliability and quality of public utilities and wastewater systems;
- To increase the investment attractiveness of the city of Nukus, an engineering infrastructure for drainage systems is provided.

All of the above tasks can be solved and implemented only with the development of new technologies [5, 6].

CONCLUSION

Thus, the discharge of treated wastewater, so as not to harm the population, is considered crucial. In fact, in the specific conditions of the city of Nukus, treated wastewater is extracted and purified through connecting pits located in the desert lands of the field, the filtration of water into the sandy soil is artificially stopped, and the impact of wastewater on the environment is minimized. All this indicates that the performance of the Nukus city wastewater treatment plant is close to reconstruction.

In conclusion, I would like to say that program documents aimed at improving the wastewater systems of the city of Nukus make it possible to solve the problems that have arisen by implementing specific measures to solve them and improve the condition of the wastewater systems. In addition, examples of the implementation of programs to improve wastewater disposal systems are presented.

The implementation of activities and programs increases the efficiency of accident-free drainage systems; The rational use of water resources and the ecological condition of the territory of the city of Nukus will improve.

References:

1. Decree of the President of the Republic of Uzbekistan, dated January 28, 2022, No. UP-60. About the Strategy for the development of the new Uzbekistan for 2022 - 2026.
2. G.K.Abdiganieva, Z.T.Turlibaev. Sewerage and wastewater treatment., Tutorial. Nukus., Karakalpakstan. 2020.
3. K.I. Baymanov. , Z.T. Turlibaev. , Design of drainage networks. Textbook. Publishing house Methodist. ISBN 978-9910-03-008-6. Tashkent-2023.
4. KMK, 2.04.03-19, "Sewerage. , External networks and structures." Tashkent, 2019.
5. D. Zhumamuratov, G., Abdiganieva, S., Shalabaeva. , Management of development in water supply networks using a computer, taking into account the probabilistic nature of the water consumption process. Bulletin of Baishev University, Kazakhstan, No. 2 2019, pp. 108-112. www.vuzbaishev.kz.
6. Voronov Yu.V. , Water disposal and wastewater treatment. M.: Publishing house, Association, construction universities, 2009. 706 p.
7. U.T.Zokirov, E.S.Buriev "Basics of water supply and wastewater discharge and treatment" "Bilim" nashriyoti 2012 yil.
8. G. Abdiganieva, Z. T. Turlibaev. , Analyzing the operation of a domestic wastewater treatment plant. "In the integration of education, science and production, the use of innovation technologies is an important factor of the country's development", XV Scientific- practical conference and materials, IV-Part (2018, June 2-3) Samarkand-2018.
9. D.Jumamuratov, K. Aytbaev, Z.T. Turlibaev. , Problems of purifying wastewater from sparsely populated areas. Proceedings of the 15th scientific-practical conference of the Republic on the topic "Innovation, technology, application in the integration of education, science and production, an important factor of the country's development", IV quarter (June 2-3, 2018) Samarqand, 2018.
10. G.K. Abduganieva. U. Bakhramov. Determination of the reliability of the operation of pipeline engineering networks during their operation in various conditions. Karakalpak State University KSU named after Berdakh /journal.Vestnik/ 2 (30) 2017 ISSN 2010-9075 11-13 b.

11.L.V. Makotrina. The state of water disposal systems in the Irkutsk region and prospects for their development in accordance with state programs // News of universities. Investments. Construction. Real Estate Vol. 7, No. 1 2017.

Rezyume: Maqolada Qoraqalpog‘iston Respublikasi Nukus shahri oqova suv tizimlarining holati, ushbu tizimlar bilan bog‘liq muammolar va ularni hal etish yo‘llari ko‘rsatilgan va tahlil qilingan. Drenaj tizimini modernizatsiya qilishning aniq misollari keltirilgan: ya‘ni. drenaj tarmoqlarining alohida uchastkalari qurildi va Nukus shahriga yo‘naltirildi; kanalizatsiya nasos stansiyasi rekonstruksiya qilindi; tizimini takomillashtirishni rejalashtirmoqda. Mavjud tarmoqlar va inshootlarni rekonstruksiya qilish bo‘yicha turli chora-tadbirlar belgilangan.

Резюме: В статье представлено и проанализировано состояние систем водоотведения города Нукуса Республики Каракалпакстан, а также проблемы с этими системами и пути их решения. Приводятся конкретные примеры модернизации дренажной системы: т.е. отдельные участки дренажных сетей были построены и перенаправлены в Нукус; реконструирована канализационная насосная станция; планы по улучшению системы. Обозначены различные мероприятия по реконструкции существующих сетей и сооружений.

Kalit so‘zlar: davlat dasturi, drenaj tizimi, bosim rejimlari uchun quvurlar, nasos stansiyasi, kanalizatsiya, tozalash inshootlari, suv va oqava suvlarning ortiqcha iste‘moli.

Ключевые слова: государственная программа, дренажная система, трубы для напорных режимов, насосная станция, канализация, очистные сооружения, сверхнормативное потребление воды и сточных вод.

UDK 347.517.1

ATRIUM IN MULTI-STORY RESIDENTIAL BUILDINGS

Khayrova T.J¹., Mansurov Ya.M².

¹Tashkent Architecture and Construction Institute,

²National Institute Fine arts and Design after named Kamoliddin Behzod

Summary: In the article international experience in the formation of architectural and spatial solutions of the atrium in high-rise buildings are described. Scientific research and solutions for creating microclimatic conditions for the internal space of buildings are outlined.

Key words: high-rise housing, atrium, light aeration mine, energy efficiency, buffer zone, integrated space.

Currently, the construction of high-rise residential buildings remains the most common type of construction in large and very large cities of fully fledged countries. The design of such houses, providing high comfort of living in a cold climate, is associated with the development of its new structural elements: porches, vestibules, glazed loggias, etc. There are several interesting and conceptual solutions for interior space in such buildings: atrium courtyards, light wells, light-transmitting shelters.

An atrium is a courtyard or closed space with a collective content, as a rule, it is made in a longitudinal direction. A house with a courtyard is one of the oldest forms of buildings. But the construction and design experience of the past ten years and constructions in the extreme districts combined with the central large integrated space. The multi-story interior atrium with overhead lightning, obtained as a result of such a composite construction, is the result of the development and improvement of the main national composite method of the building [1].

It responds to increase scale-spatial solutions as an integrated multi-functional spatial living environment in cold climates. In cold climates, such spatial solutions perform a number of functions of human living and building use [2] (Table-1).

Table-1

Function	Types of integral widths				
	Light aerated mine	Courtyard with light	Patio	Covered patio	The city under the dome
Compensation for of the inconvenience of surrounding nature	--	•	•	•	•
Using the polyfunction of the field	--	O	•	•	--
Improving natural light	•	•	O	O	--
Improving air exchange	•	•	•	•	O
Climate buffer	O	•	•	•	•
Increasing the efficiency of heat	•	•	•	•	•
Solar heating	--	•	•	•	O
Increasing the density of building construction	•	•	•	O	-
Spreading the communication structure	--	--	•	•	--

Conditional signs: - the function is not implemented or is used to a limited extent; O - the function is being executed effectively.

In high-rise buildings, the atrium is a kind of closed courtyard. It is slightly larger in area than private residences and is separated from the environment by a translucent shell - it refers to the space between adjacent residences.

In such atriums, the functions of climatic buffer and semi-functional use of the area are implemented somewhat successfully. Creating a buffer space implies "moving" a number of functions of collective life from the street to the residential atrium. It is required to equip the atrium, increase the level of their improvement and directly affects the solutions of the first floors of multi-storey residential buildings. Their public subjugation by the atrium space orientation is preferable. Atriums can vary in size. The main limitation is that the minimum width should be 20 m with the aim of preventing window-to-window viewing [1].

The solution of the functional issues and issues related to the improvement of the internal microclimate directly affects the shape and dimensions of the atrium spaces, their location in the structure of the residential or complete residential complex. According to the description of the interrelationship of the atrium space based on the environment and these forms, the atriums are one-, two-, three- and four-walled, and the passages are linear atriums; according to the cut type - atriums with longitudinal walls and terraces; are classified as high-light and side-light atriums, their location can be in the middle or lower section of the building or complex [3].

In foreign countries with a cold climate, such as Sweden, Norway, and Denmark, long-walled and top-lighted atriums are used in high-rise residential rooms. In such situation, the kitchens are often not located near the outer walls, but in the depth, and are illuminated by the second light through the dining and common rooms. For the cold climatic conditions of our country, the projects that meet the regulatory requirements are distinguished by light-aeration shafts in the central part of the residences, which provide the opportunity to light and ventilate the stairs and kitchens, and in some projects, even poor rooms. In this design, rooms are divided into zones, and these rooms of the residence are provided with lighting. In the project of the kitchens located after the common rooms in the basement of the building, they are illuminated with natural light through the shaft and are possible only if there is equipment with second light ventilation [4].

A rather bright example of the modern practice of Russian construction, the atrium high-rise building is a residential project (architect A. Bavykin) in Moscow (Bruce Tor Street) in 2007. The atrium occupies a central place in the composition of the house. It is tall and narrow, like a well-shaped courtyard. The atrium is illuminated by a glass dome, which looks like a fish fin from the side. The principles of organization of the interior space of the house are reminiscent of a hotel. First of all, it was designed as a hotel, and the atrium was inherited from the hotel project. As a result, it is known that such a design solution is suitable for multi-apartment houses. Another house, built in Toronto, Canada (60 Raymond Street East Housing Cooperative), is economical and clean because it has a green atrium in the center. The design of this high-rise residence is a four-shifted rectangle, and the empty space inside it is developed and has a garden, a green wall of plants, and a restaurant below.

"Green" architectural projects actively use atriums and winter gardens, green shelters, and artificial landscapes in high-rise buildings (architect Ken Young). With their help, buildings work like ecosystems in nature [5].

Such approaches described above contribute to the creation of constructions based on ecological principles, passive energy-saving methods, providing a high level of comfort inside the building, increasing their wide functionality and social importance.

References:

1. Бурханов Ю.Г., Фоминых А.Я. Северный жилой дом с внутренним двором. / Ю.Г. Бурханов, А.Я. Фоминых// Известия вузов. Строительство. - 1994. - №1.
2. Полуй М.Б. Архитектура и градостроительство в суровом климате (экологические аспекты): Учеб пособие для вузов / М.Б. Полуй. - Я.: Стройиздат, 1989.-300 б.

3. Саксон Р. Атриумные здания / пер. с англ. А.Г. Раппапорта; под ред. В.Л. Хайта. - М.: Стройиздат, 1987. – 138 б.

4. Архитектурное проектирование жилых зданий/ М.В. Лисициан, В.Л. Пашковский, З.В. Петунина и др.; под ред. М.В. Лисициана, Е.С. Пронина. - М.: Архитектура-С, 2006. – 488 б.

5. Белоголовский В. «Зеленый стиль» Кена Янга. [Электронный ресурс] / В. Белоголовский // Зарубежная архитектура, www.archi.ru. SPEECH. - 2010.

Rezyume: *Maqolada etuk mamlakatlar tajribalari misolida sovuq iqlim sharoitida atriumli ko'p qavatli turar joylarni arxitekturaviy-fazoviy shakllarini turlari ko'rib chiqilgan. Binolarning ichki mikroiklimiy muhitni yaratuvchi ilmiy izlanishlar va echimlar natijalari yoritilgan.*

Резюме: *В статье рассмотрен международный опыт формирования архитектурно-пространственного решения атриума в многоэтажных домах. Изложены научные исследования и решения создания микроклиматических условий внутреннего пространства зданий.*

Kalit so'zlar: *ko'p qavatli turar joy, atrium, yorug'lik aeratsiyali shaxta, energotejamkorlik, buferli zona, integralli fazo.*

Ключевые слова: *многоэтажные жилые дома, атриум, аэрационные шахта, энергоэффективное, зона с буферами, интегрированное пространство.*

UDK 628.2

USE OF SOLDIERS IN WASTEWATER TREATMENT

Turlibaev Z.T.

Karakalpak State University name after Berdakh

Summary: *The article contains the calculation of sedimentation tanks. The principle of operation of horizontal, vertical and radial sedimentation tanks is considered*

Key words: *sump, horizontal, vertical, radial, dept.*

Protecting the environment from pollution and rational use of natural resources is one of the main problems of the present time. Discharge of insufficiently treated or untreated wastewater into water bodies leads to water resource pollution. Microorganisms that cause various diseases appear in water bodies due to the rapid decay of organic substances in wastewater. And the basin is a good environment for these microorganisms to live, it reduces the amount of oxygen in the water and has a bad effect on various animals and people.

Therefore, it is necessary to comply with sanitary requirements before discharging any wastewater into water bodies. In order to comply with sanitary requirements, it is necessary to collect any wastewater and treat it outside the city, reusing it whenever possible.

Types of clarifiers were adopted depending on the technology of wastewater treatment and processing of sediments, the productivity of facilities, geological conditions, the level of underground water, etc. A clarifier is a simple and widely used facility that separates large dispersed compounds from the composition of wastewater. In this method, both settling and floating substances in wastewater are separated, that is, substances with a specific gravity greater than one sink, and those less than one rise to the surface of the water. The clarifiers are primary and secondary in terms of technological form and function at treatment stations. Primary clarifiers are used for preliminary clarification of wastewater and are placed before biological, physico-chemical, chemical treatment facilities and are a facility of mechanical treatment method. Vertical softeners are used when the consumption of waste water exceeds 20000 m³/day, horizontal - 15000 m³/day, radial - 20000 m³/day. At the same time, horizontal clarifiers are not used in loose and sinking soils, and vertical clarifiers are not used in situations where groundwater is high.

Horizontal chillers can be designed as a separate type of object or as a device consisting of several sections working in parallel.

The width of the sections of the strainer:

$$b = \frac{9}{3.6 \cdot n \cdot h_1 \cdot v}$$

where: n is the number of working sections, at least two; h_1 - the height of the working section, 1.5 ... 4 m. v - speed of movement of water in the working section, 5 ... 10 m/s.

The total width of the spreader:

$$B = N \cdot b$$

where: N is the total number of sections in the cooler.

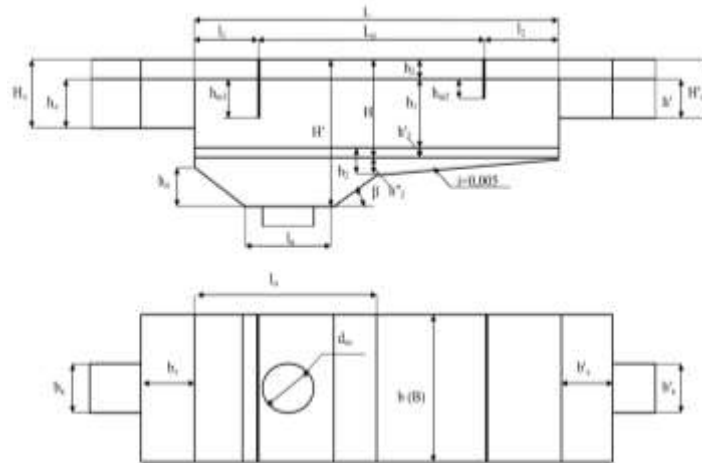


Figure 1. Horizontal strainer.

The total length of the working part of the grinder, m,

$$L_p = Xh_1 / K U_0$$

where: K is the coefficient of use of the volume of the softener, equal to 0.5; U_0 is the hydraulic size of suspended bodies.

The total length of the stretcher, m,

$$L = L_p + l_1 + l_2$$

where: l_1 is the distance from the place of entering the cooler to the place of water distribution, 0.5 ... 0.7 m. l_2 - the distance from the tray coming out of the cooler to the semi-submerged shit, 0.3 ... 0.5 m.

Submergence depth of semi-submerged clarifiers, m:

$$h_{sh1} = K_{sh1} * h_1,$$

$$h_{sh2} = K_{sh2} * h_1,$$

where: $K_{sh1} \dots 0.4$; $K_{sh2} = 0.1 \dots 0.2$.

The depth of the sunken body of the cooler, m.

$$h_2 = V_{oc} / \eta_{oc} LB$$

where: V_{oc1} - volume of sediment in one section m^3/day ; η_{oc} is the number of sediments received in one day, (in volume 2)

The full depth of the sink, m,

$$H = h_1 + h_2 + h_3$$

where: h_3 is the height of the stabilizer boards, 0.3 ... 0.5 m.

The total surface of the horizontal squeegees in the plan:

$$F_{go} = \alpha_{ob} * Q_{soat} * 3,6 * U_o , m^2$$

where: Q_{soat} - calculated water consumption coming to all sections, m^3/h

U_o is the rate of sedimentation in mm/s , α_{ob} is the coefficient of volumetric use of clarifiers, equal to 1.3.

The width of one squeegee:

$$B = Q_{soat} * 3,6 * v_{o'rt} / H N , m$$

where: H – the height of the sediment field is 2.5-3.5 m; $v_{o'rt}$ - the average horizontal speed of water in the cooler in mm/s , its value is as follows; water turbidity level 50 mg/l, 6 - 8 mm/s; up to 7 - 10 mm/s; 50-250 mg/l 9 - 12 - 250 mg/l, N - calculated number of softeners.

The drains are fenced with longitudinal fences, and the coating is divided into sections up to 6 m.

The length of the spacer:

$$L = F_{2.0} / B * N , m,$$

In this case, $L/H=10:25$ should be.

The horizontal clarifier must be equipped with a non-stop sediment removal device.

Perforated pipes are used for hydraulic cleaning of sediment. This set of pipes allows you to clean the sediments in 20-30 minutes. The distance between the axes of the drainage pipes should be up to 3 m, and the distance between the walls of the separator should not be greater than 1.5 m. The velocity of the sediment at the end of the pipe is assumed to be 1 m/s, the velocity in the slots is 1.5-2 m/s, the slot diameter is at least 25 mm, and the distance between the slots is 300-500 mm. Slots should be arranged in a checkerboard pattern.

The ratio of the total surface of the slits to the cross-sectional area of the pipe should be equal to 0.5-0.7.

Calculation of vertical silencers.

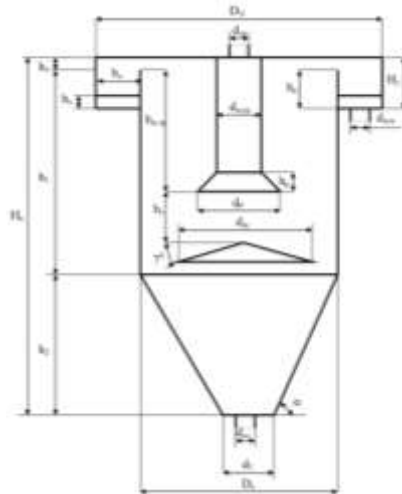


Figure 2. Vertical cooler

According to the proposed scheme, the diameter of the cooler, m,

$$D = 2 \sqrt{\frac{q}{3,6 \cdot \pi \cdot n \cdot K \cdot U_0 + d_{mkg}}}$$

where: q is the maximum consumption of waste water, m^3/day ; n - the number of working sprinklers, at least two; K is the coefficient of use of the clarifier volume, equal to 0.35; U_0 - hydraulic size of suspended bodies, mm/s; d_{mkg} – central pipe diameter, m.

Hydraulic size, mm/s

$$U_0 = 1000 * K * h_1 / \alpha t (K h_1/h) n_2 - \omega$$

here; h_1 - depth of the inner part of the cooler, m, 2.7 ... 3.8 m; α is the coefficient taking into account the effect of water temperature on its viscosity; n_2 - degree indicator; ω is the vertical component of the speed of wastewater in the clarifier, equal to 0.2 ... 0.5 mm/s.

The diameter of the central inlet pipe, m,

$$d_{mkg} = \sqrt{\frac{4q}{3,6 \cdot \pi \cdot n \cdot v_{m,q}}}$$

where: $v_{m,q}$ – velocity of wastewater in the inlet pipe mm/s, maximum equal to 30 mm/s.

The diameter of the central inlet pipe is 4 m, the height is m,

$$d_p = h_{p1} = 1,35 d_{MK}$$

Sinking depth of the inlet pipe, m,

$$h_{MK} = 0,9 h_1$$

Calculation of radial dampers.

Radial clarifiers can be either edge-flow or center-flow.

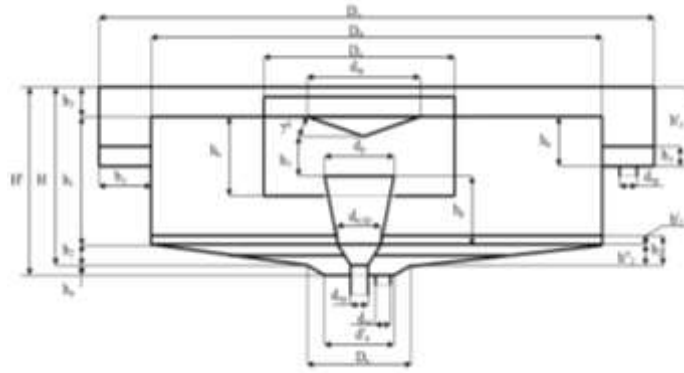


Figure 3. Radial quencher.

The method in which wastewater is transferred from the center is widely used.

Diameter of the working part of the cooler, m.

$$D = \sqrt{\frac{4q}{11,3 \cdot K_n \cdot U_0} + d_k^2}$$

K is the coefficient of utilization of the quencher volume, $K = 0,45$, n - the number of working sprinklers; U_0 is the hydraulic size of suspended bodies. d_k is the diameter of the semi-submerged casing, m

$$d_k = \sqrt{\frac{4q}{3,6 \cdot \pi \cdot v_c \cdot n} + d_p^2}$$

v_c is the speed of water in the receiving chamber, 30 mm/s,
 d_p is the diameter of the central pipe, m.

$$d_p = h_p = 1,35 d_{mk}$$

d_{mk} is the diameter of the Makrazy pipe, m

$$d_{mk} = \sqrt{\frac{4q}{3600 \cdot \pi \cdot v_{mk} \cdot n}}$$

where: $v_{m,q}$ is the speed of wastewater in the central pipe, 0.8 ... 1.0 m/s

References:

1. Н.В. Растрьгин. Охрана вод. Сооружения биологической очистки сточных вод. Методические указания к выполнению курсового проекта. Санкт – Петербург 2003.
2. А. Djalilova, А. Xamidov, М. Abduqodirova. Kanalizatsiya va oqova suvlarni tozalash. O'quv qo'llanma. Toshkent-2012.
3. А.А.Акрамов., А.М.Абдуразақов. Тиндиргичларни сув таминоти ва канализация тизимларида қўлланилиши. Mirzo ulug'bek nomidagi samarqand davlat arxitektura-qurilish instituti. Me'morchilik va qurilish muammolari 2021, №1 (2-қисм).

Rezyume: Maqolada tindirgichlarning hisobi keltirilgan. Gorizontal, vertikal va radial tindirgichlarning tuzilishi hamda ishlash printsiplari taxlil qilingan.

Резюме: В статье приведён расчёт отстойников. Рассмотрен принцип работы горизонтальных, вертикальных и радиальных отстойников.

Kalit so'zlar: tindirgich, gorizontal, vertikal radial, chuqurlik.

Ключевые слова: отстойник, горизонталь, вертикаль, радиаль, глубина

SOCIAL SCIENCES

PROPORTION BETWEEN PRODUCTION FACTORS AND ITS IMPACT ON ECONOMIC RESULTS

Kaypnazarova G.Kh.

Karakalpak State University named after Berdakh

***Summary:** The article reveals the features of forming the proportionality between factors of production in small businesses and shows their distinctive aspects. Suggestions for their effective use in the production process are given.*

***Key words:** production, factors of production, small businesses, production function, proportionality, full security, factor determining proportionality.*

Introduction. When thinking about the relationship between factors of production, in addition to approaches to the composition of factors of production, the following classification can be given. “Factors of production are economic resources involved in the production of goods and services.

There are five factors of production: labor, land, capital, entrepreneurship, information.

Labor as a factor of production is the mental or physical abilities of a person necessary in the production process.

Land as a factor of production is all types of natural resources used to produce economic goods. For example, land, forests, agricultural land, minerals.

Capital as a factor of production is man-made production resources: equipment, tools, industrial buildings, vehicles, raw materials.

Entrepreneurship as a factor of production (entrepreneurial skills) consists of knowledge and skills that allow optimal use of factors of production and maximum profit.

Information as a factor of production – information, knowledge that ensures successful economic activity.

Information has its own characteristics that distinguish it from other factors of production:

- the resource of use is not limited. For example, a blueprint used to assemble equipment can be used indefinitely, but other consumables will need to be replenished regularly;

- nowadays information is transmitted quickly thanks to the Internet and other means of communication;

- information can be easily reproduced, for example, new instructions can be instantly sent out to thousands of workers.

Several factors of production are needed to produce goods or services because they all complement and interact with each other. For example, producing a telephone or computer requires capital (tools and supplies), labor (engineers, workers, etc.), the entrepreneurial skills of the company owner, and information (the set of knowledge needed to produce that technology).

Some factors of production can substitute for others. For example, natural materials can be replaced with artificial ones, the labor of workers can be replaced with machinery.

Thus, the presence of production factors is a necessary condition for the functioning of both one enterprise and the state economy. Their various combinations make it possible to balance production, minimize costs and increase profits” [1].

Main part. In the previous place, the peculiarity of the complementarity of production factors was discussed. It should be noted that factors of production not only complement each other, but also replace or replace each other. That is, factors of production can participate in the production of a certain product in different proportions. As a result, the concept of proportionality between factors of production arises.

Proportion is a quantitative relationship between the components of a particular object, product or process, and the formation of this ratio normally ensures the completeness of the content of the object, product or process. One of the important manifestations of proportionality is that which exists in the economic sphere, that is, economic proportionality.

There are also different approaches to economic ratios. For example, Sh. Shodmonov and U. Gafurov “Economic proportionality is a certain quantitative and qualitative compatibility between various aspects and sectors of the economy. It doesn't have to be equality. They can be in suitable proportions (for example, 2:3, 5:3, 3:1)”[2]. They also summarized all forms of classification of economic proportionality presented in various literature and determined that they can be classified into the following groups:

- 1) proportions in general economic characteristics;
- 2) intersectoral relations;
- 3) proportions within the network;
- 4) territorial proportions;
- 5) interstate proportions [3].

It should be noted here that the above categorization is insufficient from the point of view of the subject of research of this dissertation. Since the correlation between factors of production shows the correlation at the micro level or at the enterprise scale in its content. That is, in our opinion, it is advisable to include the proportions of the enterprise (or its production process) in the above economic indicators.

As features of the ratio of production factors, the following can be noted:

- based on the general names of these factors, the validity of the description of compliance and belonging to a specific production process (for example, in the bread production process: labor - possession of baking knowledge and skills; capital - kneading dough equipment, baking ovens, etc.; raw materials and supplies – flour, oil, water, etc.; in the process of building construction: labor – possession of construction knowledge and skills; capital – construction tools, cranes, concrete mixing equipment, etc.; raw materials and materials – sand, cement, brick and etc.);
- the relative breadth of positions and types of substitute products in production factors (for example, the availability of substitute raw materials, types of equipment, etc).

In a modern economy, economic activity is carried out in the form of an enterprise. An enterprise is an independent economic entity created to produce products, perform work and provide services in order to meet social needs and make a profit [4].

In order for an enterprise to carry out its activities, that is, produce products, perform work and provide services, it is necessary to have appropriate factors of production, that is, economic resources involved in these processes. These include land, capital, labor and entrepreneurship as discussed earlier. It should be noted here that with the increasing development of science and technology, cases arise in which knowledge, information, and technology are identified as independent factors of production.

The efficiency of an enterprise depends on the complete and sufficient provision of production factors.

Full coverage is a qualitative indicator that means full coverage of types of factors determined based on the essence and characteristics of production.

Sufficient supply is, first of all, a quantitative indicator, meaning that each factor is quantitatively suitable for selling products and achieving the intended result. When the conditions of both aspects are met, the production process achieves high efficiency (Fig. 1).

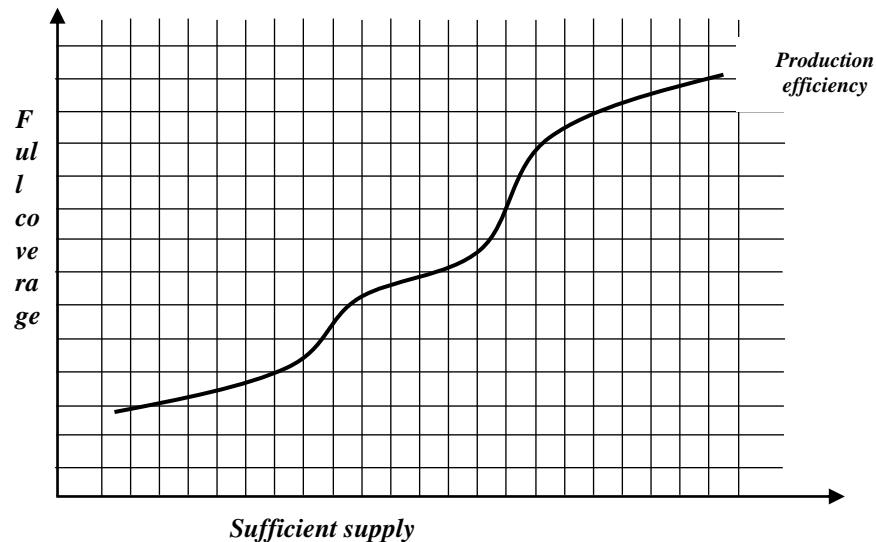


Figure 1. The dependence of the efficiency of the enterprise on the full and sufficient supply of production factors ¹.

Another important condition for the efficiency of an enterprise is the balance between production factors. Accordingly, A.A. Grigorev, L.I. Shkalaber define production as “a target process of activity in which a certain relationship between factors of production always operates”[5] and point to this relationship as an important condition for production.

It can be seen that when organizing production, special attention should be paid to the balance between its factors. In this regard, A.E. Ivankov states that “The organization of production ensures the coordinated action of all factors of production, their proportional relationship, interchange, etc.” [6]. At this point, the author addresses the process of organizing production in an effective and rational manner, and not just spontaneously. That is, any production organization cannot naturally or automatically ensure an inverse relationship between its factors.

The relationship between factors of production can be contained in a variety of options. This is due to the specific features of each production. This relationship is expressed in scientific sources through the production function. A production function (Production function) is the relationship between a set of factors of production and the largest amount of output that can be produced by that set of factors. The production function is always specific and designed for a specific technology. If a new technology is used, a new production function will appear.

Using the production function, the minimum amount of costs required to produce a certain volume of output is determined. Production functions, regardless of what type of production is manifested through them, have the following general characteristics:

- 1) the possibility of increasing production volume only by increasing the consumption of one type of resource is limited (for example, it is impossible to place an unlimited number of workers in one building, since there may not be enough space for everyone);
- 2) factors of production can be complementary (for example, workers and equipment) and interchangeable (for example, workers and production automation).

In relatively general terms, the production function can be expressed as follows:

$$Q = f(K, L, M, T, N)$$

there: Q – production volume; K – capital; L – labor force; M – raw materials, materials; T – technology; N – entrepreneurial abilities. [7].

In our opinion, the free variables in this production function - the factors of production - are officially considered indicators of equal strength or importance, but in practice the influence between them during economic processes differs in their level. Conventionally, these factors can be

¹ Based on the author's developments.

divided into the categories “determining proportionality” and “taking into account the requirement of proportionality”. For example, in industrial production equipped with large automatic lines, capital (K) is often considered a “proportionally determining” factor, and labor (L) and raw materials (M) are “proportionally determining”.

At the moment, the features of the formation of the ratio of production factors in small businesses can be seen in the table below (Table 1).

Table 1

Features of the formation of the proportionality between production factors in small businesses²

Features	Labor (L)	Capital (K)	Raw materials (M)
Using the criterion of the average number of employees in determining the quantitative limits of small business enterprises	MBBO	MTBO	MTBO
Predominant use of low-power, compact and autonomous devices and equipment	MBBO	MTBO	MTBO
Financial opportunities of small business enterprises are limited	MBBO	MBBO	MTBO

As can be seen from the table, three features of the formation of the ratio of production factors in small businesses can be identified:

1) the emergence of labor (L) as a “proportionally determining” factor through the use of the criterion of the average number of employees when determining the quantitative boundaries of small businesses;

2) the predominant use of low-power, compact and autonomously operating devices and equipment in small businesses turns capital (K) into a factor of “proportionality requirements”;

3) the limited financial capabilities of small businesses reduce the limits of the formation of material reserves, as a result of which raw materials (M) act as a factor, “subject to the requirement of proportionality” in relation to labor (L) and capital (C), etc. .

Conclusion. In a free market, a balance between factors of production is automatically ensured. Because the elements of the production function that form the basis of proportionality are formed under the influence of the market mechanism, that is, supply and demand, competition and the free price system. The entrepreneur tries to maintain in his business the composition and ratio of production factors that ensure the highest level of profit.

However, on the one hand, free market principles may not always work perfectly. On the other hand, there may be various factors that reduce the influence of free market principles in organizing the activities of small businesses. From the above, we can conclude that taking into account the peculiarities of forming a proportionality between production factors in small businesses when organizing production, and their correct use will ultimately improve production efficiency.

References:

1. Relationships and combinations of production factors / Kazantseva L. Main factors of production. - <https://skysmart.ru/articles/obshestvoznanie/factory-proizvodstva>
2. Sh. Shodmonov, U. Gafurov. – T.: “Fan va tehnologiyalar”, 2010, 385-b.
3. Shodmonov Sh., Gafurov U. Iqtisodiyot nazariyasi: oliy o’quv yurtlari talabalari uchun darslik. – T.: “Fan va tehnologiyalar”, 2010, 386-387-b.
4. Enterprise. https://economic-definition.com/Business/Predpriyatie_Company__eto.html

² Based on the author's developments.

5. Grigoriev A.A., Shkalaberda L.I. Theory of production and the realities of a market economy. - <https://www.rea.ru/ru/org/managements.pdf>
6. Ivankov A.E. Economic theory. 2008. - <http://www.tamognia.ru/faq/detail.php?ID=1600348>
7. Production function. - https://www.economicportal.ru/ponyatiya-all/production_function.html

Rezyume: *Maqolada kichik biznes korxonalaridagi ishlab chiqarish omillari o'rtasidagi mutanosiblikni shakllanishining o'ziga xos xususiyatlari ochib berilgan va bir-biridan ajralib turuvchi jihatlari ko'rsatilgan. Ishlab chiqarish jarayonida ulardan samarali foydalanish bo'yicha takliflar keltirilgan.*

Резюме: *В статье раскрыты особенности формирования пропорциональности между факторами производства на предприятиях малого бизнеса и показаны их отличительные аспекты. Даны предложения по их эффективному использованию в производственном процессе.*

Kalit so'zlar: *ishlab chiqarish, ishlab chiqarish omillari, kichik biznes korxonalari, ishlab chiqarish funktsiyasi, mutanosiblik, to'la ta'minlanganlik, mutanosiblikni belgilovchi omil.*

Ключевые слова: *производство, факторы производства, предприятия малого бизнеса, производственная функция, пропорциональность, полная обеспеченность, фактор определяющий пропорциональности.*

DIRECTING IN HISTORICAL DOCUMENTARY FILMS FINDINGS

Nazarova G.R.

State Institute of Art and Culture of Uzbekistan

Summary: *This article provides information based on scientific sources about the complex processes and features of creating historical-documentary films. Documentary films dedicated to historical figures and scholars analyze the use of montage art with high skill, the enrichment of each film with a strong emotional impact through the musical solution of the films, which imprints the past events into history.*

Keywords: *reportage, character, film-portrait, reconstruction and post-production, chronic shot, film dialogue*

Introduction: As an example of documentaries presented in recent years in our national cinematography, we can witness the quality of films created in a number of genres, such as film journalism, film-portrait, historical documentary, the professionalism of the creative team, and intensive research in the field.

"Uzbek documentary cinema also acquired its own national traditions by following a certain historical path, gained great creative experience, served to reflect human life based on the method of realism" [1.3]

The fact that the creators try to find the composition of each episode during their career, use the art of montage with high skill, enrich each scene with a strong emotional impact through the musical solution of the films, and often refer to current topics means that they are not only writing past events in history or "making a video report" , but it is necessary to mention that they are working to convey humanistic ideas to the masses, to express their strong civil position in relation to the changes taking place in society, and to fulfill the tasks of increasing the effectiveness of the social policy carried out by the state.

The importance of portrait films in Uzbek documentary cinema is increasing, but at the same time, it is felt that the audience is moving away from documentary cinema. Film critic N. Karimova writes about this: "In the 1990s, an important sector of documentary and animated cinema lost its audience, while there were creative achievements in these areas" [2.205].

Both in world cinema and in our national cinema, there are two main directions. One is author's cinema (we have films made on the basis of state orders), the other is mass (entertainment, commercial) cinema. The author's film does not provide for the return of the funds spent on it. This film is mainly presented to the people as spiritual food. It fulfills social functions such as high ethical ideals, patriotic ideas, feelings of belonging to the fate of the country, glorification of ancient values specific to the nation. Another aspect is that the best author's films are shown at international festivals and serve to raise the image of their country and nation. Some author's films can be understood only by intellectuals, representatives of a certain field.

Created in recent years, including "Kuch Adolatda" (directed by Jahangir Kasimov) presented by "Uzbekfilm" film studio in 2014; 2016 "Iroda: A Miracle Made of Love" (director E. Mamedov) presented by the "Film Studio of Popular and Documentary Films"; 2017 "Founder of Independent Uzbekistan" produced by UzEOAVMA; It should be noted that several films, such as "Golden Rust", produced by the "Scientific Popular and Documentary Film Studio" in 2018, have artistic integrity, perfectly created images, and have a strong emotional impact.

In many circles, when talking about cinematography, the audience asked the representatives of the film industry with a legitimate question: "Why are films on historical subjects rarely made?" In order to satisfy this spiritual need of the audience, the leadership of the National Agency "Uzbekkino" included the creation of documentaries on historical topics in the 2018 plan. As a result of these actions, films dedicated to the life and scientific creative activity of several historical figures, and the rich cultural heritage left by them, appeared on the screen[3].

Main part: The historical documentaries of Khojai Jahan Ghijduvani and Khoja Bakhuddin Naqshbandi, which widely used artistic elements, were made by the director Aleksandr Gamirov in the form of a film dialogue. It is logically and chronologically connected with the views on the healthy attitude towards faith and the philosophy of rejuvenation.

These two films are important because, first of all, through the artistic solution introduced by the director, the script was reworked and brought from the usual documentary project consisting of interviews and reports to the form of film journalism. The film reveals the image of a perfect human being using the personality and activities of Ghijduvani and Naqshbandi. To express this, the director included many artistic findings that do not contradict real historical facts. For example, Bahauddin Naqshbandi's film begins with the master putting flowers on the fabric. This shot is repeated several times throughout the film.

This is the historical fact that Naqshbandi was engaged in printing flowers; it is also an expression of the fact that a person is leaving a mark in history with his good deeds.

The plot of the film, based on the narrations of Bahauddin Naqshbandi and historical facts, shows the elderly main character rolling a large and heavy millstone. In the intervening dialogues, the passengers ask the main character of the Naqshbandi character why he is carrying such a heavy object, what is the benefit to him of carrying a new stone to a mill in a remote village. The main character says that he does this work without any personal interest, just to feed the people in the village. In the final part of the film, a stone is installed in the mill in the village and wheat is threshed and bread is made from it. The montage returns to today's environment, and several people, including interviewees about Naqshbandi's work, bite into a piece of bread. This plot has a metaphorical meaning, in which the millstone is the Naqshbandi sect, that is, the hero's effort to pass on the knowledge he received from his teachers to the generations; a journey is a journey of life, starting from a destination and moving towards a goal; bread is a product of the sect, its fruit, and it is used in the images of knowledge that serve for the spiritual "fullness" of people to this day.

In both Ghijduvani and Naqshbandi films, there is a scene where the caravan settles down under the starry sky and chats around the fire. At first glance, this seems like a repetition of the same expressive means, a pattern within a genre. However, here too, "journey" is used in the above-mentioned "path of life" meaning that Naqshbandi, who considers Ghijduvani as his "master Uwais", is following in his footsteps. Both films are logically connected through this figurative solution. The film's plot, figurative solutions and symbols are a director's invention, and the director, who reconstructed the ready-made script consisting of the creator's interviews and the behind-the-scenes text of the author, and offered to work on the basis of a new script that can affect the audience not only through information, but also emotionally, was able to put his position into practice.

In this matter, let's pay attention to the opinion of the screenwriter B. Dobrodeev; "The artistic means of documentary film are not limited, there is no "ban" for the filmmaker, the main task is to reveal the hero's character no matter how it is done. Regardless of the form of reconstruction of the event and creation of its expression on the screen, it should be able to convince and move the viewer" [4.143]

"Sword of Truth" is a historical, documentary film. In this historical documentary analysis, it should be noted that the topic was successfully covered by the young director Muzaffar Karabaev. Because very little information has reached us about Nasafi, and creating a full-length documentary film, logically connecting the available information, and filling the material with artistic means became the task of the creative team under the direction of the director. The director was able to fully fulfill this task, skillfully using his findings and editing. Cinematographer L. Djulay writes: "Scenario can be introduced to fulfill a certain task, but it should not become the main strategy, documentary must be above all." [5.75].

The first shot of the film shows the sun rising from behind the mausoleum of Abul Mu'in Nasafi, and using this special angle, the light rises over Nasafi's tomb. In the plot, Nasafi's grandfather finds solutions to various controversial situations with the help of the science of words, and a boy watches this through the door. When it is said that Nasafi is devoted to the science of

kalam, a close-up of a grandfather and a child pouring water from a jug is shown in a montage. This word figuratively means pure faith and purity of knowledge. When the child looks behind the pouring water, the camera focus is placed on the child's face, giving the impression that the water is shining out of focus. Such shots give the film a mystical atmosphere and increase the audience's interest.

Two quarreling people reconcile by drinking water from a cup. When they are shown in the general plan, they are sitting around the tablet, the book of the Holy Qur'an is standing on the tablet; from the water in the cup in their hands, light is seen shining on their faces. The author says that the science of the word is to reach the essence of religion through arguments and logical examples. The frame serves as a figurative expression of the topic as a symbolic expression of the information that the author is saying.

In this film, the journey also means the path taken in search of knowledge. It can be seen that the film also uses graphics and animation effectively. For example, at that time, various reactionary currents began to spread from the neighboring Khurasan, various conflicts and wars occurred over religious issues. The graphic map shows black smoke appearing over Khurasan and starting to spread around it using simple elements. Through this simple shot, the viewer understands that war, conflict and a turbulent time are beginning. In the next picture, Nasafi is writing his work "At-Tamhid li Qawaidi-t-Tavhid" in the dark by the light of a small lamp, the surroundings are dark and the light is radiating from the small lamp and the book.

This is a symbolic representation of the fact that Nasafi's works are a source of light of knowledge that can illuminate the darkness of bigotry and ignorance. It is important that the director can express not only the information in the author's text, but also the poetic concepts through the post-production, using minimal visual elements.

The plot shows the story of Nasafi being questioned by the potter. When the potter says, "... my life is spent in labor," the spinning potter's wheel and the clay forming on it are shown. Metaphorically, the wheel is a passing life, and the clay is a person. Nasafi talks about sustenance, halal and haraam sustenance, and when he talks about halal sustenance, the frame shows plates that have been processed and painted, and are decorated with various patterns. Another scene involving Nasafi shows him teaching on a board with a green table written on it.

Several times in the film, Nasafi's image is shown through his reflection in the water. At the end of the film, the character drinking water from the cistern is also depicted through the reflection of the water. In Islam, giving the meaning of water - light, the pictorial solution used at the beginning of the film was used several times and raised to the level of style. The film ends with an image of Nasafi, dressed in white and on a horse, riding towards the dawn. Such symbols may not be consciously understood by every viewer, but the metaphors in the documentary have a strong emotional impact on their understanding of the material.

When addressing the historical topic in the future, it is required to strengthen the dramatic conflicts in the plot, to reveal the personality of the hero with more realistic examples, while maintaining the creative attitude to the material today. Because any historical figure, whether he is a statesman, creator, thinker, scientist, general or head of state, has remained in history because he fought against existing injustices, ignorance, and injustice during his life.

In an interview with Abduhalil Mingnorov, the director of the historical, art-journalistic film "Isa al-Termizi" presented in 2019 regarding the topic of the dissertation, the director talked about their journeys, walking in the desert, writing a book by the light of a lamp, discussions with several mullahs when the lives of thinkers were brought to the cinema. He emphasized that such shots are often used especially in documentaries and become "templates" and that there is a danger that historical heroes can be portrayed as restrained, calm, and weighty and become the cause of image stereotypes.

In world cinematography, a documentary film script is considered a direct project document and is considered one of the forms of scientific research. Therefore, film associations (Seattle Documentary Association), scientific and educational societies (National Geographic Society, BBC

Science), the United Nations Organization for Science, Culture and Education, UNESCO must work on its script in order for a documentary film to be recognized as scientifically based. the minimum number of employees and specialists is set. This procedure assumes that the script of the documentary film will be written in several stages - in the cascade model.

Summary:Films dedicated to our great ancestors are opening new chapters of our history. “Of course, art cannot exist without history, without spiritual values, without the past that has become a memory, and this should be considered as an urgent issue of modern national cinema” wrote film critic N. Karimova[6.206]. Today, Uzbek documentary cinema is on the way to fulfill this task.

Certain life facts may be exaggerated and the rest may be ignored for the sake of the artistic-image solution of the film. Often, this image is “idealized” by creators in order to raise the protagonist to the level of a hero. However, the depiction of heroes with the same human qualities, the elimination of all their weaknesses and negative characters, causes the transfer of the same hero stereotype from film to film.

The image of a historical person created in cinematography causes the formation of an image in the minds of people not only of our ancestors, but also of a certain period in our past. The canonization of the image of a historical person to the period in which he lived, helps the nation to feel the deep roots of its own self-awareness, ethnographic characteristics, traditions and values. However, the character of historical figures is contrary to real life, and if their actions and the depicted environment are not connected with today's realities, then the contact between the viewer and the image is lost.

If the situation in cinematography is analyzed in a general way, it can be observed that in the creation of the image of historical figures, rather than the character, personality, individuality of the heroes, their image made according to stereotypes, meeting the moral standards demanded by modern society prevailed. As a result, the historical person is embodied in an extremely idealized and generalized image without any defects, and the lack of personal qualities leads to his distrustful acceptance by the modern audience, especially young people, or indifferent approach to the material.

This situation is especially alarming as thinkers, scientists, religious leaders are often seen in the images of our ancestors. Documentary primary projects are actually in the form of interviews, scientific articles, and it is up to the director to add artistic interpretation of images, chronicle shots, iconographic materials. In contrast to the film portrait, the image of the heroes of film journalism can be used in a figurative sense. However, even when the main character is interpreted from such a position, the audience should be able to see the personal qualities of people today in his image.

References:

- [1].Hasanov A. Mustaqillik davridagi hujjatli kino/O'zbekiston hujjatli kinosi:Mustaqillik davri . 1991-2007 yillar. Tuzuvchi S.Naymatova;-T., ART FLEX 2008.-116b
- [2].Добродеев Б. Документальное кино основа для создания кинобиографий.1969.// Кинодокументалистика:истоки и становления.Г.Герлингхауз. Изд. “Радуга”.-М.,1986.-358с.
- [3]. Каримова.Н. Игровой кинематограф Узбекистана. Издат.журнала “Санъат”, Т., 2016.-216 стр
- [4]. 2018-yilda taqdim qilingan hujjatli filmlarga taqriz, s.f.n., dotsent Feruza Fayzievaning “O'zbekkino” MA 2018-yil bo'yicha hisobot majlisidagi ma'ruzasidan. 24-fevral` 2019-yil
- [5].Джулай Л.Документальный иллюзион:Отечественный кинодокументализм – опыты социального творчества.2-е изд.-М., Материк,2005.-75с
- [6].Каримова.Н.Игровой кинематограф Узбекистана. Издат. Журнала “Санъат”,Т.,2016.-206 б

Rezyume: *Ushbu maqolada tarixiy-hujjatli filmlarni yaratishdagi murakkab, jarayonlar va uning xususiyatlari haqida ilmiy manbalarga asoslanib ma'lumotlar keltirilgan. Tarixiy shahslar va allomalarga bag'ishlangan hujjatli filmlarda montaj san'atini yuqori mahorat bilan qo'llashi,*

filmlarning musiqali yechimi orqali har bir lavhaning kuchli emotsional ta'sir bilan boyitishi o'tgan voqealarni tarixga muhrlashi tahlil etilgan.

Резюме: *В данной статье на основе научных источников представлена информация о сложных процессах и особенностях создания историко-документальных фильмов. Документальные фильмы, посвященные историческим деятелям и ученым, проанализированы на предмет высокого умелого использования монтажного искусства, обогащения каждого фильма сильным эмоциональным воздействием за счет музыкального решения фильмов, запечатленности событий прошлого в истории.*

Kalit so'zlar: *reportaj, xarakter, film-portret, rekonstruktsiya va postanovka, xronikal kadr, kinodialogiya*

Ключевые слова: *репортаж, персонаж, фильм-портрет, реконструкция и постпродакшн, кадр хроники, кинодиалог.*

UDC 331.5

PERSONNEL POTENTIAL OF THE REGION

Seytniyazov S.P.

Karakalpak state university named after Berdakh

Summary: The article notes that for the development of the state's economy, improving the quality of life of people, and their well-being, human resources play an important role, and it is also indicated that the state should direct its personnel policy to the development of a youth talent pool.

Key words: personnel, potential, labor resources, human resources, structure, knowledge, qualification.

INTRODUCTION

The development of the modern economy, its competitiveness, the scale of scientific and technological transformations, and the production of high-quality products are determined, first of all, by the country's labor resources. In modern human resource management practices, such concepts as "personnel" and "personnel potential" are also of great importance. The essence of human resources reflects the qualitative and partially quantitative characteristics of the labor potential of employees of the enterprise and the region. According to a number of authors, personnel potential is the total abilities of human resources workers of an enterprise and the region as a whole, which are necessary in order to select, carry out and coordinate actions that provide the enterprise and the region with strategic advantages in the markets of goods, services and knowledge [2, 12].

The term "potential" in its etymological meaning comes from the Latin word *potentia*, which means hidden potential, power and strength. A broad interpretation of the semantic content of the concept of "potential" consists of considering it as "a source of opportunities, means and reserves that can be put into action, used to solve a problem or achieve a certain goal; capabilities of an individual, society and state in a certain area."

Labor potential is a resource category; it must include sources, means and labor resources that can be used to solve any problem, achieve a certain goal, the capabilities of an individual, society, or state in a specific area. Thus, in relation to the enterprise labor potential is the maximum value of workers' possible participation in production, taking into account their psychophysiological characteristics, level of professional knowledge and accumulated experience [1, 20].

Personnel are qualified and specially trained workers for a particular activity when their appropriate use involves the maximum return on what a specialist can provide based on his education, personal qualities and acquired work experience. Therefore, the analysis of personnel potential should be carried out taking into account economic prerequisites, in close connection with scientific, technical, labor, and production potential, which have a direct impact on the quantitative and qualitative parameters of personnel potential, the patterns of its development and effective use. The concept of "personnel potential" reflects the resource aspect of socio-economic development. Personnel potential can be defined as the totality of the abilities of all people who are employed in a given organization and solve certain problems. Personnel potential, in the broad sense of the word, represents the skills and abilities of workers that can be used to increase their efficiency in various areas of production, in order to generate income (profit) or achieve a social effect. Personnel potential can also be considered in a narrower sense - as temporarily free or reserve jobs that can potentially be occupied by specialists as a result of their development and training. Human resources management should promote streamlining, maintaining quality specificity, improvement and development of personnel. When developing a management program, the need to highlight the

concept of “long-term personnel potential” should be taken into account. Long-term personnel potential includes workers who can solve production development problems. In this case, two main components of long-term personnel potential can be distinguished: current and target accumulative. Current personnel potential represents personnel that are initially considered by the administration solely to perform basic production operations. The targeted accumulative personnel potential is intended to solve problems of strategic development, expand production, and increase its competitiveness. This is a reserve that requires its own management system [3, 35].

The concept of personnel potential should be considered in the context of the concept of potential in general. Then personnel potential is the capabilities of a certain category of workers, specialists, and other groups of workers that can be brought into action in the process of work in accordance with job responsibilities and the goals set for society, a region, or a team at a certain stage of development. This approach to determining personnel potential makes it possible to comprehensively analyze any category of personnel based on objective economic laws in accordance with the selected object, the subject of the study, as well as its goals and objectives. These basic and general concepts are necessary for studying the personnel potential of the region. The personnel potential of a region is understood as the totality of the abilities and capabilities of the personnel of a given region, which are implemented to achieve current and future goals in the interests of the region and the state. For a complete and integral concept of the personnel potential of the region, we will give the concept of personnel potential of society. The personnel potential of a society is the totality of the abilities of all employees to achieve certain goals and requirements facing society.

So, considering the concepts of the region’s personnel potential and its components, we came to the conclusion that the evolution of the category reflects profound changes in the content of the entire system of economic concepts, at the center of which is the worker as the main productive force. The worker is not just a participant in production, but as an integral and driving principle of all stages of the reproduction process; as a “carrier” of social needs, performs the function of goal-setting, objectively generates and subjectively sets strategic and tactical goals for economic development. Consequently, it refers to the selection of the most adequate development goals and achieving them with the least expenditure of labor and resources. The primary axiomatic components of “personnel potential” are needs and labor, results and costs. Also, theory and practice include and receive an economic assessment in one form or another of specific qualitative characteristics of the region’s personnel potential. These are numbers, structure, knowledge, professional composition, qualifications, skills, accumulated production experience, personal qualities: health, education, professionalism, creativity, morality, diversified development and activity.

Personnel potential is formed under the influence of a number of factors, the systematization of which presents certain difficulties for researchers, which lie in the lack of a unified approach to the classification of factors. In some publications, the role of demographic, scientific, technical, educational and other factors in personnel formation is defined and discussed [1, 72].

More broadly, factors influencing the development of labor potential are determined by L. Shaulskaya; she includes such factors as: economic, social, demographic, environmental, legal and political [4, 108].

The presented model covers such groups of factors as: demographic, physiological, socio-economic, educational and professional, socio-psychological, technological, organizational and legal, which for convenience of analysis are distributed into four main areas (STEP factors). None of the groups of factors has a dominant impact on the cirque potential, when analyzing the factors, it is necessary to use an integrated and systematic approach.

The most important demographic factor in the region’s personnel potential is the change in the gender and age structure of the population. When analyzing demographic indicators, it is necessary to study in detail: the share of the working-age population in the total population, the average age of those employed in the regional economy, the mortality rate among the working-age

population, the size and structure of the economically active population and the demographic burden of the working-age population of the region. Physiological factors of personnel potential are associated with the state of health of the population and the prevalence of diseases. Health status directly affects the ability to obtain an education, a certain profession and work, as well as career opportunities during working life. The state of reproductive health affects the birth rate and quantitative parameters of labor and personnel potential.

In the group of socio-economic factors in the formation of personnel potential, an important role belongs to the healthcare system of a particular region, which is designed to provide support for a person's physiological abilities to work. The development of a system of medical institutions, the quality of medical care, working conditions and the state of safety at work, the state of the environment, as well as the lifestyle of the population - all this collectively shapes the health of workers.

Technological factors in the formation of personnel potential are associated with the influence of scientific and technological progress, improvement of means and objects of production, technologies used, systems for organizing the production process and, as a consequence, changes in the requirements for the professional and qualification characteristics of the workforce. The influence of technological factors on the formation of personnel potential is manifested in:

- dynamics and constant changes in labor processes and the functions of a particular employee;
- the need for regular updating of professional knowledge by employees, i.e. advanced training;
- growing requirements for a creative approach and its use in solving production problems.

Socio-economic factors in the formation of the region's personnel potential include the level of income of the population and the ability to satisfy basic needs, the level and quality of life, which determine the possibility of obtaining the necessary general and vocational education, cultural services, and medical care. Factors in this group directly influence the formation of human resources by ensuring: the economic foundations for the reproduction of the labor force; obtaining general and vocational education; maintaining health and physiological ability to work; formation of a common culture; promoting economic activity of the population. A particularly important factor in the formation of personnel potential is wages, which are the main source of income for the working population. Since wages are directly related to the level of qualifications of the employee, the qualitative parameters of his or her work activity, and the level of responsibility, it has a stimulating effect on the choice of profession.

CONCLUSION

Based on the study, the following conclusions can be drawn. The processes of formation and use of personnel potential are closely interconnected. The formation of personnel potential is the creation of a real potential of living labor, knowledge and skills, covering the entire society and each individual. The use of personnel potential is the implementation of labor and qualification abilities and skills of the employee, the workforce and society as a whole. In market conditions, the rational use of personnel potential consists in more fully identifying and realizing the abilities of each employee of the enterprise, imparting a creative character to work, increasing the professional and qualification level of employees by stimulating and assessing the contribution of each employee to the final result. The effective use of the region's personnel potential is facilitated by:

- establishment of scientifically based labor standards;
- timely revision of them depending on production conditions; carrying out certification and rationalization of workplaces;
- determination of the required number and reduction of unnecessary jobs;
- personnel training, - organizing the implementation of advanced techniques and methods of work;
- use of flexible work schedules.

Thus, the personnel potential of a region is a set of qualitative and quantitative characteristics of personnel employed to achieve certain goals of the region, which include the number, composition and structure, physical and psychological capabilities of workers, intellectual and creative abilities, their professional knowledge and qualifications, communication and cooperation ability, attitude to work and other qualitative characteristics. In the context of limited qualified human resources in the areas of state and municipal administration and services, the question of the efficiency of return and distribution of personnel potential is especially relevant.

The intensification of the economic sphere is conceived not through quantitative, but, first of all, through qualitative indicators, carried out on the basis of new technologies, organizational and managerial innovations, the development of management and personnel culture, and increasing the efficiency of management personnel resources. It should be noted that the effectiveness of the current economic stage of development should not be based on the achieved level of use of human resources, but based on its potential. Since personnel potential is an element of territorial socio-economic potential, it is advisable that it contains a reserve of capabilities for an active response in unforeseen emergency and crisis situations. The effectiveness of personnel potential is the other side of the human resource, reflecting the degree of its implementation. In turn, the qualitative level of personnel potential reflects the degree of economic development. However, it is necessary to take into account that any state investment in a specific person (in his or her professional development) must have a certain optimum. The question is to determine the strategic directions for personnel development and the optimal amount of resources that need to be invested in specific citizens in order to obtain personnel with certain qualities. This implies the need for a purely economic justification for investing in people.

If we consider a specific organization that manages professional development and invests resources in its employees, then a key point in the process of managing employee development is to identify the organization's needs in this area. Essentially, we are talking about identifying the discrepancy between the professional knowledge and skills (competencies) that an employee of a given organization must have to achieve its goals (today and in the future) and the knowledge and skills that he actually possesses. Determining the professional development needs of an individual employee requires the joint efforts of personnel services (human resources department), the employee himself or herself and his or her manager.

References:

1. Adamchuk V.V., Romashov O.V., Sorokina M.E. "Economics and sociology of labor": Textbook for universities. - M.: UNITY, 2000. - 407 p. .
2. Bavykin V.I. New management. (enterprise management at the level of the highest standards) / V.I. Bavykin. - M.: Economics, 1997.-368 p.
3. Glukhova Z.V. "Economics and sociology of labor": Textbook. – Omsk: Publishing house SibARTI, 2007. – 180 p .
4. Vasilchenko V.S., Grinenko A.M., Grishnova A.A. Labor potential management. / tutorial. - M.: KNEU, 2015. – 403 p.

Rezyume: *Maqolada qayd etilishicha, mamlakat iqtisodiyotini rivojlantirish, odamlarning turmush darajasi va farovonligini oshirish uchun kadrlar potentsiali muhim rol o'ynaydi, shuningdek, davlat kadrlar siyosatini yoshlar iqtidorini shakllantirishga yonaltirishi kerakligi qayd etilgan.*

Резюме: *В статье отмечено, что для развития экономики страны, улучшения качества жизни людей, и их благосостояния кадровый потенциал играет важную роль, а также указано, что государство должно направить свою кадровую политику на развитие молодежного кадрового резерва.*

Kalit so'zlar: *xodimlar, potentsial, mehnat resurslari, kadrlar, tuzilma, bilim, malaka.*

Ключевые слова: *кадр, потенциал, трудовые ресурсы, кадровый потенциал, структура, знание, квалификация.*

CARDIASPIRATOR EXPENDITURES ON THE CONDITIONS OF TRADITIONAL AND EXPERIMENTAL OPTIONS OF ANNUAL SPORTS TRAINING IN VOLLEYBALL PLAYERS AND SPEED LOADS

**Masharipov R.R.¹. Qurbanbaev A.D.¹. Tuxtapulatov Sh.N.², Barakayev B.O.²,
Nasimov U.O.².**

¹*Karakalpak State University named after Berdakh*

²*Uzbek - Finnish pedagogical institute*

Summary: *To study the possibilities of reducing cardiorespiratory costs of jumping and speed activity in volleyball players using traditional and experimental options of the annual cycle of sports training.*

Key words: *volleyball players, jump endurance, speed activity, pulse value, loads, experiment, preparation stages, CG, EG*

Introduction. One of the distinguishing features of modern volleyball is the performance of an extremely large volume of multidirectional speed-strength loads not only during one training session or competitive game, but also during the entire year-long period of sports training, and especially during competitive cycles. Specialists have established that such loads, which are saturated with a huge number of jumps, high-speed movements, turns, rotations and falls to receive the ball, lead to a limiting increase in heart rate and breathing rhythm, accompanied by motion sickness, loss of balance and movement discoordination [1,2,3,5]. Based on this, it can be assumed that for the effective development, for example, of jumping and speed-strength qualities in volleyball, it is necessary to know their functional value when applying the appropriate exercises at specific stages of the annual cycle of sports training.

Materials and methods of research conducted at various stages of the 11-month experiment were involved in the volleyball players of the Orient club team (Tashkent) as a control group (CG), which trained according to the program of the traditional version of the annual cycle of sports training, and the volleyball players of the SKUF team of the Uzbek State University of Physical Culture and Sports (Chirchik), who participated in the experiment as an experimental group (EG).

In the experimental group during the experiment, daily in the morning during “exercises”, during each pre-training and pre-game warm-up, as well as at the end of loads, the following were used: serial jumping exercises with imitation of diverse attacking blows from different zones and starting positions, jumps with imitation of blocking, power serving and passing the ball, jumping without and with weight; shuttle-running exercises with maximum speed with

imitations of receiving the ball from below with two hands, receiving the ball in the fall with a roll on the back and on the chest in the directions: 6-1-6-5-6-4-6-3-6-2- 6 and in the opposite direction three times; 6x6 m.; 9-3-6-3-9 m; "Yolochka-92 m."

The following methods were used in the research: determination of jumping endurance according to the data of the maximum number of jumps with two hands touching the marker-sensor installed at a height of 43 cm from outstretched arms using a sensor-computer measuring device (patent No. FAP 01422); determination of speed activity according to the shuttle running test “Yolochka – 92 m”. The determination of the cardiorespiratory cost of test jumping and speed loads was carried out according to the heart rate (HR), which was recorded using the M: Band 2 device (Foxconn, China) and by the respiratory rate (RR).

Note: the test “Yolochka- 92 m” is carried out as follows: on one half of the volleyball court along the side lines, 6 stuffed balls are installed every 3 meters and in the center of the front line there is another stuffed ball denoting “Start”; the subject, putting his hand on the ball, is preparing to start the movement; on a signal, the test begins: the subject starts running to each ball in turn with a return to the starting ball; time is fixed only if each ball is touched by the hand [1-2].

Results and its discussion. The results of the study made it possible to reveal a relatively even initial level (at the beginning of the experiment and before the start of the basic stage of training) of the manifestation of indicators of jumping activity and cardiorespiratory response, registered in both groups of subjects (CG, EG) [3]. So, for example, before the start of the basic stage of the annual training cycle or before the experiment, the maximum number of jumps, recorded by means of a computer measuring device and by which jump endurance was estimated, in the control group averaged 30.5 ± 3.09 times, and in the experimental group it was equal to 29.7 ± 3.02 times (Table 1).

Table 1. Indicators of jumping endurance and its cardiorespiratory value in volleyball players under experimental conditions - $\bar{X} \pm \sigma$

Tests Stages of experiment and preparation cycle	Before the test		The number of hops according to SKU (Network controllers of executive devices)	After the test		functional value	
	HR (Heart rate) Beats/min	RR (respiratory rate) Times / min.		HR (Heart rate) Beats/min	RR (respiratory rate) Times / min.	HR	RR
Before the experiment - before the start of the annual training cycle, July, 2017	$\frac{66.3 \pm 3.09}{67.7 \pm 3.12}$	$\frac{13.8 \pm 1.12}{14.4 \pm 1.19}$	$\frac{30.5 \pm 3.09}{29.7 \pm 3.02}$	$\frac{132.4 \pm 4.21}{135.7 \pm 4.28}$	$\frac{37.2 \pm 2.69}{36.8 \pm 2.55}$	$\frac{66.1}{68.0}$	$\frac{23.4}{34.4}$
4 months before the start of competitive cycles, October 2017	$\frac{71.5 \pm 4.07}{65.4 \pm 3.08}$	$\frac{15.2 \pm 1.21}{14.5 \pm 1.13}$	$\frac{32.9 \pm 3.34}{35.6 \pm 3.53}$	$\frac{138.8 \pm 4.31}{128.7 \pm 2.97}$	$\frac{39.4 \pm 2.83}{33.5 \pm 2.14}$	$\frac{67.3}{63.3}$	$\frac{24.2}{19.0}$
After the experiment - at the end of the competitive cycles, May, 2018.	$\frac{73.6 \pm 4.12}{67.2 \pm 3.01}$	$\frac{14.7 \pm 1.17}{12.6 \pm 1.03}$	$\frac{29.4 \pm 2.75}{36.9 \pm 3.15}$	$\frac{139.9 \pm 4.37}{126.7 \pm 2.48}$	$\frac{39.8 \pm 2.73}{31.6 \pm 2.05}$	$\frac{66.3}{59.5}$	$\frac{25.1}{19.0}$
Difference between source and results	$\frac{-7.3}{+0.5}$	$\frac{-0.9}{+1.8}$	$\frac{-1.1}{+7.2}$	$\frac{-7.5}{+9.0}$	$\frac{-2.6}{+5.2}$	-	-

Note: - in the numerator - indicators of CG

- in the denominator - EG indicators At the same time, before this hopping test load, the heart rate in the CG was 66.3 ± 3.09 bpm, and the respiratory rate was 13.8 ± 1.12 times/min. In the EG, these indicators were equal to 67.7 ± 3.12 beats/min, respectively. and 14.4 ± 1.19 times/min. It should be noted that immediately after the jump load, the heart rate in the CG increased to 132.4 ± 4.21 beats/min, and the respiratory rate increased to 37.2 ± 2.69 times/min. The pulse value of this load in this case was 66.1 beats/min., and the respiratory value (according to the respiratory rate) was equal to 23.4 times/min. For volleyball players from the EG, the above indicators increased on average: up to 135.7 ± 4.28 bpm by heart rate; up to 36.8 ± 2.55 times/min. by respiratory rate; the pulse value was 68.0 beats/min, and the respiratory value was 22.4 times/min.

It can be seen that despite the relatively short jumping load in terms of volume, their cardiorespiratory cost turned out to be quite significant, which indicates an insufficient level of development of the functional readiness of the examined volleyball players of both groups. It is important to emphasize that among volleyball players from the CG, who during the period of the experiment trained according to the traditional program, neither jumping endurance nor indicators of its cardiorespiratory value were characterized by a pronounced progression at the subsequent stages of the annual training cycle [4-5]. At the same time, in the EG, which was trained for 11 months according to the experimental program, jumping endurance consistently increased from stage to stage (29.7 ± 3.07 ; 35.6 ± 3.53 ; 36.9 ± 3.15 times

). And the indicators of its cardiorespiratory cost differed by a tendency to a pronounced decrease (68.0 ; 63.3 ; 59.5 beats / min. and 22.4 ; 19.0 ; 18.3 times / min. - respectively),

which, apparently, it is the result of the positive impact of the experimental exercises used in this group with the use of relaxation-breathing exercises in between their series on the restoration of working capacity.

It is known that in modern volleyball, jumps with the subsequent implementation of one or another technical and tactical technique are made after preliminary high-speed movements in the form of jerks, jumps, turns or rotations. The total volume of these actions, affecting the functional state of the body, can cause not only a sharp increase in heart rate and respiratory rate, but, as a rule, is accompanied by the occurrence of motion sickness, an increase in tremor of body parts, loss of balance and discoordination of precision-target motor acts. Such negative consequences can occur only when the athlete does not have enough functional fitness or this can occur if the concentration of signs of fatigue increases in the body. That is why, as a model, we studied the level and dynamics of the manifestation of the cardiorespiratory cost of speed-strength loads in the form of a test exercise "Yolochka - 92m" according to the determination of heart rate and respiratory rate at different stages of the annual training cycle with an 11-month pedagogical experiment, where we were involved above marked categories of the group (CG, EG) of the subjects.

As noted above, training sessions and competitive games in modern volleyball are characterized by extremely high intensity, where it is possible to maintain working capacity with high efficiency of technical and tactical actions for a long time only with an appropriate level of perfection of the functional preparedness of volleyball players. It is known that the effective implementation of any technical and tactical action in volleyball depends on the quality and timeliness of such actions as high-speed movements at the address, jerks, jumps, run for a jump, turns and rotations, which requires not only a high level of development of the relevant physical qualities, but and is associated with the readiness of the body to endure heavy loads. However, our studies carried out in this direction have established that traditional trainings carried out in the practice of training volleyball players of club teams in Uzbekistan do not differ in a property that reduces the limits of the functional cost of loads of different volume and intensity, which was confirmed when studying the cardiorespiratory cost of a model speed load, which was evaluated according to the test "Yolochka - 92 m". So,

for example, the results of the study made it possible to reveal that the initial indicators of speed ability in volleyball players of both groups according to the test exercise "Yolochka -92 m" (25.8±2.78 seconds in the CG and 26.3±2.87 seconds in EG), turned out to be noticeably lower (Table 2) than the standard values established for volleyball players of the highest ranks (24.2-23.4 seconds according to [4, p. 98]). It should be noted that the fulfillment of this test load HR in the CG averaged 64.3±3.54 bpm, and in the EG it was 66.5±3.60 bpm. The mean RR values were 14.2±0.36 times/min, respectively. and 13.6±0.32 times/min.

Table 2. Indicators of speed activity and its cardiorespiratory cost in volleyball players under experimental conditions - $\bar{X} \pm \sigma$

Tests	Before the test		The results of The test "Yolochka - 92 m" (seconds)	After the test		functional value	
	HR (Heart rate) Beats/min	RR (respiratory rate) times min.		HR (Heart rate) Beats/min	RR (respiratory rate) times min.	HR	RR
Before the experiment - before the start of the annual training cycle, July, 2017	<u>64,3±3,54</u>	<u>14,2±0,36</u>	<u>25,8±2,78</u>	<u>131,2±3,39</u>	<u>37,6±2,61</u>	<u>66,3</u>	<u>23,4</u>
	66,5±3,60	13,6±0,32	26,3±2,87	136,7±3,44	38,3±2,72	70,2	24,7
4 months before the start of competitive cycles, October 2017	<u>69,6±3,72</u>	<u>14,7±0,55</u>	<u>26,5±2,88</u>	<u>137,6±3,21</u>	<u>39,7±2,81</u>	<u>68,0</u>	<u>25,0</u>
	65,2±3,27	12,9±0,30	24,6±2,13	132,4±3,15	33,6±2,18	67,2	20,7

After the experiment - at the end of the competitive cycles, May, 2018.	$\frac{72,2 \pm 3,47}{67,8 \pm 3,07}$	$\frac{15,3 \pm 0,41}{13,0 \pm 0,29}$	$\frac{26,9 \pm 2,83}{23,8 \pm 2,07}$	$\frac{139,5 \pm 3,31}{130,8 \pm 2,92}$	$\frac{40,6 \pm 2,87}{34,9 \pm 2,47}$	$\frac{67,3}{63,0}$	$\frac{25,3}{21,9}$
Difference between source and results	$\frac{-7,9}{-1,3}$	$\frac{-1,1}{+0,6}$	$\frac{-1,1}{+2,5}$	$\frac{-8,3}{+5,9}$	$\frac{-3,0}{+3,4}$	-	-

Note: - in the numerator - indicators of CG
- in the denominator - EG indicators

It can be seen that the given cardiorespiratory indicators in terms of the level of manifestation are within the physiological norms established for a healthy person. At the same time, such background indicators of heart rate were characterized by an extremely sharp increase at the time of the aftereffect of the used test loads and reached, respectively, up to 131.2 ± 3.39 bpm. in CG and up to 136.7 ± 3.44 bpm. in EG. And these RRs also differed by a pronounced increase up to 37.6 ± 2.61 times/min. in CG and up to 38.3 ± 2.72 times/min. in EG. It is noteworthy that such a short high-speed test load (running "Yolochka – 92 m") had an acute effect on the functional state of the cardiorespiratory system of both the control and experimental groups. Such a consequence gives reason to believe that the degree of functional tolerance of speed loads in volleyball players of both groups is extremely insignificant and thus indicates the low efficiency of the traditional version of training sessions.

4 months after the start of the experiment, the studied indicators of speed ability in the CG tended to a contrast lengthening of the execution time of the "Yolochka – 92 m" test, and the degree of cardiorespiratory cost of this test load increased to significant limits (HR – 68.0 bpm; RR - 25.0 times / min.). A similar negative dynamics of speed quality indicators and its cardiorespiratory cost in this group was found after the completion of the experiment or by the end of the annual training cycle (HR - 67.3 beats/min; RR - 25.3 times/min.). And in the EG, which during the period of the experiment systematically performed in training the complexes of experimental exercises developed by us, the speed ability according to the test "Yolochka - 92 m" at the end of the experiment increased significantly, where the time of running the distance decreased from 26.3 ± 2.87 sec. up to 23.8 ± 2.07 sec., which is 2.5 sec. better than its original value. And the pulse value of this load decreased from 70.2 to 63.0 beats/min., respiratory - from 24.7 to 21.9 times/min. It can be seen that the data established in the EG testify to the high efficiency of the experimental exercises developed and used during the training of this group, between the series of which short-term relaxation-breathing exercises were used, aimed primarily at eliminating signs of fatigue localized in the tissues of the muscles of the lower extremities.

Conclusion. Comparative characteristics of the results of a study of the effectiveness of an 11-month pedagogical experiment involving volleyball players from the control and experimental groups allows us to state that the traditional year-round training conducted with volleyball players from club teams of Uzbekistan does not have the proper backbone property in terms of improving jumping and speed qualities with a focus on reducing the functional cost of the corresponding loads. At the same time, the results of the experiment established that the complexes of jumping and speed-strength exercises developed by us with the use of short-term relaxation-respiratory pauses of a restorative nature and used in the EG training are extremely effective both in the development of jumping and speed qualities, and in reducing their functional cost by all stages of the annual cycle of sports training. It should be emphasized that the increase in jumping endurance and speed activity, including the decrease in the functional value of these qualities in this group, occurred not only due to the effectiveness of the jumping and speed exercises themselves, but short-term relaxation-breathing exercises also play an important role in this.

References:

1. Беляев А.В., Булыкина Л.В., Волейбол: Теория и методика тренировки; ТВТ Дивизион – Москва, 2011. – 176 с.
2. Пулатов А.А. Явление укачивания при занятиях волейболом и его влияние на результативность подач // "Лучшая научная статья 2017 года". Сб.статей XI Международно научно-прак.конкурса. 30

августа 2017 года. Пенза, МЦНС “Наука и просвещение”, 2017 – с.215-218.

3. Pulatov F.A. / Possible cause of performing the standart actions incorrectly in game sports and hypothesis of increasing performance. European Journal of Research and Reflection in Educational Sciences Vol. 7 No. 3, 2019 ISSN,-p. 2056-5852.

4. Сергиенко Л.П., Абликowa А.В./ Спортивный отбор волейболистов: морфологические и педагогические критерии определения двигательной одаренности / Слобожанский научно-спортивный вестник, 2016-87-98с.

5. Фурманов А.Г. Подготовка волейболистов / А.Г.Фурманов.- Минск.: МЕТ, 2007.- 329 с.

6. Pulatov A.A. The ability of young volleyball players to improve speed and strength. Usubiy Allanma. - T., 2008.

7. Ayrapetyants L.R., Pulatov A.A. Volleyball Theory and Methodology // Textbook for Higher Education Institutions. –T .: “Science and technology”, 2012.

8. Boltayev.Z.B Volleyball // Textbook for higher education institutions.- SamSU Publishing House 2020.

Rezyume: *Sport mashg'ulotlarining yillik tsiklining an'anaviy va eksperimental variantlaridan foydalangan holda voleypolchilarda sakrash va tezlik harakatlarining kardiorespirator xarajatlarini kamaytirish imkoniyatlarini o'rganish.*

Резюме: *Изучить возможности снижения кардиореспираторных затрат прыжковой и скоростной деятельности у волейболистов при использовании традиционных и экспериментальных вариантов годового цикла спортивной подготовки.*

Kalit so'zlar: *voleypolchilar, sakrash chidamliligi, tezlik faolligi, yurak urish tezligi, yuklamalar, tajriba, tayyorgarlik bosqichlari, CG, EG.*

Ключевые слова: *волейболисты, прыжковая выносливость, скоростная активность, величина пульса, нагрузки, эксперимент, этапы подготовки, КГ, ЭГ.*

SOCIAL-PSYCHOLOGICAL MECHANISMS OF DECISION-MAKING UNDER CONDITIONS OF UNCERTAINTY

Rizakulova S.I.

Uzbek-Finnish Pedagogical Institute

***Summary:** The article presents a comprehensive analysis of how various social and psychological factors influence human decision-making in situations characterized by high levels of uncertainty. The study covers key aspects including emotional affect, social pressure, risk perception and levels of trust in information, illustrating how these elements interact and determine the choices made by individuals and groups.*

This article is of considerable interest to psychologists, sociologists, economists, and a general audience seeking to improve their understanding of the processes behind decision-making in today's world full of uncertainties and challenges.

***Keywords:** Decision making, uncertainty, social influence, psychology of decision making, emotional affect, intuitive thinking, rational thinking, social norms, risk perception, social pressure, cognitive distortions, prospect theory.*

Introduction

Introduction The modern world has brought a new wave of changes and challenges, among which it is worth highlighting uncertainty as a significant factor affecting everyday and strategic decisions at both individual and collective levels. This uncertainty has created an increasingly complex decision-making environment, making the study of the social-psychological mechanisms governing this process critical to understanding both human behavior and the functioning of society as a whole.

The importance of studying the social psychological mechanisms of decision making is particularly evident in situations of uncertainty, where the lack of clear data or foreseeability of outcomes necessitates a deeper understanding of how people arrive at decisions. This topic is more relevant than ever because of globalization, technological innovation, and changing social norms that constantly simulate a new reality full of uncertainties and complexities.

Decision making in such settings is a comprehensive process involving cognitive, emotional, and social aspects, which emphasizes the importance of a multilevel approach to research on this topic. For example, cognitive distortions can affect the evaluation of information and alternatives, emotional factors such as fear or hope can alter perceptions of risks and benefits, and social influences and pressures can shape or constrain the set of possible solutions.

In this context, it is important not only to identify what mechanisms influence decision making, but also to understand how these processes interact with each other and how they can be modified or managed to improve decision outcomes. Such an approach is essential for developing decision-making strategies that promote adaptation and success in a rapidly changing world.

The study of social psychological mechanisms of decision making under uncertainty is thus an interdisciplinary field that requires the integration of knowledge from psychology, sociology, cognitive science, and other fields. The results of such research can find application in various spheres, from business and education to politics and health care, emphasizing its relevance and significance for modern society.

Perception of uncertainty and decision-making under such conditions is an integral part of human existence and an important area of research in social psychology, cognitive science and economics. The diversity of approaches and research in this area emphasizes the complexity of the issue and the need to study it comprehensively.

Key theories and research

- Prospect theory (Kahneman and Tversky): Outlines ideas related to how people perceive gains and losses, especially in the context of risk. Research has shown that people do not always act in full accordance with the principles of rationality[1].

- Social Evidence Theory (Cialdini): An analysis of how people's decisions can be shaped by the behavior of others, which is especially relevant in situations of uncertainty[2].

- Work on cognitive distortions (e.g., attachment effects, overestimating the likelihood of events based on the availability of information): These studies illuminate how the human brain processes information and what errors can occur in this process.

Knowledge gaps and areas for future research

Despite significant progress in understanding the social psychological mechanisms of decision making, important knowledge gaps remain, especially concerning the interplay between the emotional and rational components of decision making. There is also little research on the influence of cultural differences on decision-making processes under uncertainty.

Main objective

The present article aims to analyze in depth the socio-psychological mechanisms that influence the decision-making process under uncertainty. The aim is to summarize existing theoretical approaches and empirical evidence to identify the main factors acting on the individual at the moment of decision-making, as well as to identify gaps in the current understanding of this phenomenon.

Specific objectives

1. Review of theoretical approaches: To systematize and analyze key theoretical approaches to understanding how people make decisions under uncertainty. This includes theories from the fields of psychology, social psychology, cognitive science, and behavioral economics.

2. Examine empirical evidence: Examine and synthesize scientific evidence from experimental studies related to decision making to identify common patterns, cognitive distortions, and social factors that play a key role.

3. Identify knowledge gaps: Identify under-researched areas and gaps in current understanding of decision-making under uncertainty to help guide future research.

4. Multi-system analysis: Analyze how different systems interact and influence decision making, including cognitive processes, emotional responses, social influences, and cultural aspects.

5. Practical recommendations: On the basis of complex analysis, offer recommendations for improving the effectiveness of decision-making under uncertainty. This may include strategies for reducing the impact of cognitive distortions and techniques for training individuals to be resilient to the pressure of social factors.

Based on the work performed, the following results are expected:

- A comprehensive review and systematization of existing approaches and research in the field of social-psychological mechanisms of decision-making.

- Identification of key factors influencing the decision-making process under uncertainty.

- Development of understanding of the interdisciplinary nature of the studied phenomenon, identification of directions for further research in this area.

- Proposal of practical recommendations aimed at improving the decision-making process at the individual and collective levels.

Taken together, these results contribute to a deeper understanding of how decision making under uncertainty occurs and can be used to develop tools and techniques to improve this process, which in turn improves the appropriateness and effectiveness of decision making in the life of society and the individual.

Basic Concepts

Social psychological mechanisms: These mechanisms describe the behavioral and cognitive processes through which social factors and interactions influence individuals' decision-making. They include perception, attention, memory, thinking, feelings and emotions, as well as social influences and norms that shape and guide people's priorities and choices.

Decision-making: It is the process by which a person chooses among many alternative courses of action based on an evaluation of their potential consequences. Decision making can be both informed and deliberate and intuitive, subject to cognitive distortions and emotional reactions.

Uncertainty: In the context of decision making, uncertainty refers to situations in which there is insufficient information about possible outcomes or their probabilities, making it impossible to accurately anticipate outcomes. Uncertainty may arise from incomplete knowledge, the complexity of the situation, the unpredictability of future events, or the variability of the environment and the behavior of others.

Key Theories

Prospect Theory (Daniel Kahneman and Amos Tversky): This theory explores how people evaluate potential gains and losses by considering the probabilities of outcomes. The theory emphasizes that people often behave irrationally, overestimating low probabilities and underestimating high probabilities, leading to systematic cognitive distortions in decision making.

Social Evidence Theory (Robert Cialdini): Emphasizes the influence of social norms and the behavior of others on individuals' decision making. People tend to look at the behavior and decisions of others in similar circumstances to determine their own actions, especially when they are uncertain about the correctness of their decisions.

Theory of bounded rationality (Herbert Simon): This theory states that although people strive to make rational decisions, their cognitive limitations make it impossible for them to fully and exhaustively consider all possible options and consequences. Under conditions of uncertainty, these limitations become even more significant.

Decision making is a multifactorial process involving cognitive, emotional and social elements. Various theoretical approaches attempt to explain how and why people make their choices, especially under conditions of uncertainty.

Rational Choice Theories. Rational choice theories assume that people act to maximize their benefit or satisfaction, and their decisions are based on a complete and accurate evaluation of all available alternatives. These theories emphasize a logical and consistent weighing of facts, where each choice is evaluated based on its potential outcomes and associated probabilities.

Emotional Influence Theories. Emotions play a central role in the decision-making process, influencing perceptions of risk, opinions about the likelihood of outcomes, and preferences about choices. Theories of emotional influence, such as affective heuristics, emphasize that emotions can serve as useful shortcuts (heuristics), allowing people to respond quickly to complex information or uncertainty, but also mislead them, leading to unintended cognitive distortions.

Theories of Cognitive Distortions. Cognitive distortions are systematic errors in judgment and perception that stem from limitations of the human cognitive apparatus. Examples include the attachment effect, confirmation bias, overconfidence effect, and many others. These distortions can seriously skew rational decision making, especially under conditions of uncertainty where individuals need to rely on limited or ambiguous information.

Theories of Social Influence. Social influence encompasses a wide range of processes through which others' opinions, behaviors, or norms influence individual decision making. Included are social proof, authority, consent, sympathy, and deficit. These processes can either positively or negatively influence decision making by helping individuals to facilitate choices in a complex or uncertain situation through imitation or conformity, or by misleading them through blind adherence to group opinion.

Conclusion

There are several theories attempting to explain how and why people make decisions under uncertainty, each emphasizing different aspects of the process: logical reasoning, emotional reactions, error proneness, and the influence of social context. The complexity of human behavior implies that successful decision making often requires consideration of all these aspects, making this research field particularly rich and multi-layered.

Decision making under uncertainty is a complex process involving many social psychological aspects, including emotions, social environment, and cognitive strategies. Understanding how these mechanisms work can help in developing tools and techniques to improve decision making in a variety of situations. To further illuminate this topic, comprehensive research combining different approaches and methodologies, including experimental designs, surveys, and in-depth interviews, is needed to comprehensively explore how humans adapt to uncertainty and what factors contribute to successful decision making.

References

1. Kahneman, D., & Tversky, A. (1979). "Prospect Theory: An Analysis of Decision under Risk." *Econometrica*, 47(2), 263-291.
2. Robert B. Cialdini Principles and Techniques of Social Influence
3. Simon, H. A. (1957). "Models of Man; Social and Rational." Wiley.
4. Л.Ф. Бурлачук "Психология принятия решений"
5. А. В. Петровский и А. Л. Журавлёв "Социально-психологические аспекты принятия решений в экстремальных условиях"

Rezyume. *Maqolada turli xil ijtimoiy va psixologik omillar yuqori darajadagi noaniqlik bilan tavsiflangan vaziyatlarda shaxsning qaror qabul qilish jarayoniga qanday ta'sir qilishini har tomonlama tahlil qiladi. Tadqiqot hissiy ta'sir, ijtimoiy bosim, xavfni idrok etish va ma'lumotlarga bo'lgan ishonch darajasini o'z ichiga olgan asosiy jihatlarni qamrab oladi, bu elementlarning o'zaro ta'sirini va shaxslar va guruhlar tomonidan amalga oshiriladigan tanlovni qanday belgilashini ko'rsatadi.*

Ushbu maqola psixologlar, sotsiologlar, iqtisodchilar va noaniqlik va qiyinchiliklarga to'la zamonaviy dunyoda qaror qabul qilish jarayonlari haqidagi tushunchalarini yaxshilashga intilayotgan keng auditoriya uchun katta qiziqish uyg'otadi.

Резюме. *Статья представляет комплексный анализ того, как различные социальные и психологические факторы влияют на процесс принятия решений человеком в ситуациях, характеризующихся высоким уровнем неопределенности. Исследование охватывает ключевые аспекты, включая эмоциональное влияние, социальное давление, восприятие риска и уровни доверия к информации, иллюстрируя, как эти элементы взаимодействуют и определяют выбор, совершаемый индивидами и группами.*

Эта статья представляет значительный интерес для психологов, социологов, экономистов, а также для широкой аудитории, стремящейся улучшить свое понимание процессов, стоящих за принятием решений в современном мире, полном неопределенностей и вызовов.

Kalit so'zlar. *Qaror qabul qilish, noaniqlik, ijtimoiy ta'sir, qaror qabul qilish psixologiyasi, hissiy ta'sir, intuitiv fikrlash, oqilona fikrlash, ijtimoiy normalar, xavfni idrok etish, ijtimoiy bosim, kognitiv buzilish, istiqbol nazariyasi*

Ключевые слова. *Принятие решений, неопределенность, социальное влияние, психология принятия решений, эмоциональное воздействие, интуитивное мышление, рациональное мышление, социальные нормы, восприятие риска, социальное давление, когнитивные искажения, теория перспектив.*

TENDENCY IN THE WORLD FOOD MARKET

Tleuov N.R.

Karakalpak State University named after Berdakh

Summary: *the article examines the main trends in the global food market and the principles of the formation of the food industry that determine the standard of living of the population.*

Key words: *food, food industry, agriculture, production, industry.*

The food industry is a complex global network of diverse businesses that supplies most of the food consumed by the world's population. Today the food industry has become highly diversified, with production ranging from small, traditional, labor-intensive family operations to large, capital-intensive, highly mechanized production processes. Many food industries depend almost entirely on local agriculture, livestock farms, production and fishery.[1]

It is difficult to find a comprehensive way to cover all aspects of food production and distribution. The UK Food Standards Agency describes it as "the entire food industry - from farming and food production, packaging and distribution to retail and catering".[2] The USDA Economic Research Service uses the term food system to describe the same thing, stating, "The U.S. food system is a complex network of farmers and the industries that connect with them. These references include manufacturers of agricultural equipment and chemicals, as well as firms that provide services to agribusinesses, such as transportation and financial services providers. The system also includes the food marketing industries that link farms to consumers and include food and fiber processors, wholesalers, retailers, and food service establishments."[3] The food industry includes: Agriculture: raising crops, livestock and seafood. Agricultural Economics.

Manufacturing: agrochemicals, agricultural construction, agricultural machinery and consumables, seeds, etc.

Food industry: preparation of fresh products for sale and production of prepared foods

Marketing: Promotion of generic products (eg milk board), new products, advertising, marketing campaigns, packaging, public relations, etc.

Wholesale trade and distribution of food products: logistics, transportation, warehousing

Public catering (including catering)

Grocery, farmers markets, public markets and other retail

Regulation: local, regional, national and international rules and regulations for the production and sale of food products, including food quality, food safety, food safety, marketing/advertising and industry lobbying activities

Education: academic, consulting, professional

Research and Development: Food Science, Food Microbiology, Food Technology, Food Chemistry and Food Engineering Financial Services: Credit, Insurance

Areas of research such as food grading, food preservation, food rheology, food storage are directly related to quality and quality maintenance, overlapping many of the above processes.

Only subsistence farmers, those who survive on what they grow, and hunter-gatherers can be considered outside the framework of the modern food industry.

Dominant companies in the food industry are sometimes referred to as Big Food, a term coined by writer Neil Hamilton.[4]

Food production

Main articles: Agriculture and Agronomy Soybean field in Argentina

Most of the food produced for the food processing industry is produced from cash crops using traditional farming methods.

It makes a significant contribution to the world's seafood supply and is an important source of protein for human consumption. Fisheries, on the other hand, rely on harvesting wild aquatic species from oceans, rivers and lakes, further diversifying food sources for communities and

supporting livelihoods in coastal communities around the world. Together, land-based agriculture, aquaculture and fisheries collectively provide a diverse and sufficient food supply to meet the dietary needs of people around the world.[3] Other food sources include aquaculture and fishing.[3]

Scientists, inventors, and other people who improve agricultural methods and tools are also said to be involved in agriculture. One in three people in the world is involved in agriculture,[5] but its contribution to global GDP is only 3%.[1] On average, agriculture accounts for 4% of national GDP in 2017.[4] Global agricultural production accounts for 14 to 28% of global greenhouse gas emissions, making it one of the largest contributors to global warming, largely due to traditional agricultural practices including nitrogen fertilizers and poor land management.[5]

Agronomy is the science and technology of producing and using plants for food, fuel, fiber, and land reclamation. Agronomy includes work in areas such as plant genetics, plant physiology, meteorology and soil science. Agronomy is the application of a combination of sciences. Agronomists today deal with many issues, including food production, preparing healthier foods, managing the environmental impact of agriculture, and extracting energy from plants.[1]

Food industry

Main article: Food industry

Food processing involves the methods and techniques used to transform raw ingredients into food for human consumption. The food industry takes clean, harvested or separated ingredients and uses them to produce commercial food products. There are several different ways to produce food.

One-off production: This method is used when customers place an order for something that will be made to their own specifications, such as a wedding cake. Single-use products can take several days to produce, depending on how complex the design is. Batch Production: This method is used when the market size for a product is unclear and when there is a specific variety in the product line. To make up a batch or series, a certain number of the same goods will be produced, for example, a bakery might bake a limited number of cupcakes. This method involves assessing consumer demand.

Mass production: This method is used when there is a mass market for a large number of identical products, such as candy bars, ready meals and canned goods. A product moves from one stage of production to another along a production line.

Just in time (JIT) (production): This production method is mainly used in restaurants. All components of the product are available at the enterprise, and the buyer himself chooses what he wants to see in the product. It is then prepared in the kitchen or in front of the customer, as in sandwich shops, pizzerias and sushi bars.

The food industry has a major influence on consumerism. Organizations such as the American Academy of Family Physicians (AAFP) have been criticized for accepting monetary donations from food companies such as Coca-Cola.[1] These donations have been criticized for creating conflicts of interest and promoting interests such as financial gain.[1-2]

Criticism

See also Fast Food Criticism

Media files

There are a number of books, films, television shows and web publications exposing and criticizing the food industry, including

Eat This, Not That (a series of popular science articles published in Men's Health magazine)

Fast Food Nation (2001 non-fiction book)

Chew This (adaptation of the 2005 book Fast Food Nation for young readers)

Fast Food Nation (2006 documentary)

Food, Inc. (2008 documentary)

Panic Nation (2006 non-fiction book)

I'm Plus Size (2004 documentary)

Forks Over Knives (2011 documentary)

The Jungle (Upton Sinclair's 1906 novel exposing health abuses and unsanitary practices in the early 20th century American meatpacking industry, based on his investigation for a socialist newspaper)

Corporate influence

The Bretton Woods institutions - the World Bank and the International Monetary Fund - play a large role in the functioning of the food industry today.[1-5] These global funds emerged after World War II to help rebuild Europe and prevent another Great Depression.

In general, their main goal was to stabilize the economy.[1-5] The IMF provided short-term loans, while the World Bank focused on larger projects that would restore power to cities, roads, and other "essential" needs.[1 -5] The mission and purpose of the World Bank, however, changed when its president Robert McNamara issued a system of loans known as structural adjustment. By accepting loans from the World Bank, countries - especially the Global South - became economically, politically and socially tied to the West.[1-5] Many countries struggled to repay their loans, starting a process of global debt, privatization and the collapse of local economies.[1 -5]

As a result of Western intervention, many small farmers were displaced as American corporations purchased land in other countries and continued to monopolize food production.[1-5] Today, several multinational corporations are introducing agricultural technologies to developing countries, including improved seeds, chemical fertilizers and pesticides, crop production.[1-5]

References:

1. Nelson, Scott Reynolds. Oceans of Grain: How American Wheat Remade the World (2022) excerpt
2. Vasconcellos, J.A. (2003). Quality Assurance for the Food Industry: A Practical Approach. CRC Press. ISBN 978-0-203-49810-1. 448 pages.
3. Kress-Rogers, E.; Brimelow, K.J. B. (2001). Devices and sensors for the food industry. Woodhead Publishing Series on Food Science, Technology and Nutrition. Woodhead. ISBN 978-1-85573-560-6. 836 pages.
4. Traill, B.; Pitts, E. (1998). Competitiveness in the food industry. Springer. ISBN 978-0-7514-0431-9. 301 pages.
5. "Global food industry on track for rapid habitat loss - study." The Guardian. December 21, 2020. Retrieved January 17, 2021

Rezyume: *maqolada jahon oziq-ovqat bozorining asosiy tendentsiyalari va aholi turmush darajasini belgilovchi oziq-ovqat sanoatini shakllantirish tamoyillari ko'rib chiqiladi.*

Резюме: *в статье рассматриваются основные тенденции мирового продовольственного рынка и принципы формирования пищевой промышленности, определяющие уровень жизни населения.*

Kalit so'zlar: *oziq-ovqat, oziq-ovqat sanoati, qishloq xo'jaligi, ishlab chiqarish, sanoat.*

Ключевые слова: *продукты питания, пищевая промышленность, сельское хозяйство, производство, промышленность.*

UDC 338.47

MODERN SERVICES IN RAILWAY TRANSPORT OF UZBEKISTAN, ON THE ANALYSIS OF STRATEGIC DIRECTIONS FOR INDUSTRY DEVELOPMENT

Utepbergenov A.O.

Karakalpak state university named after Berdakh

Summary: The article presents an overview of modern services in railway transport in Uzbekistan, based on an analysis of the strategic directions of development of the industry. Key initiatives to improve passenger and cargo transportation, modernize infrastructure, and improve controllability and safety are discussed. The article also discusses the achieved results and prospects for the further development of railway transport in Uzbekistan.

Key words: railways, railway transport, transport company, transport processes, infrastructure.

Introduction

Rail transport is the foundation of modern economy. In this meaning, it acts as an object of market relations, from whose effective activity depends on the functioning and development of all sectors of the economy, enterprises, their associations and complexes. Despite its significant contribution to the country's economy, railway transport is experiencing certain difficulties: up to of the present time, the problem of moral and physical wear and tear of its fixed assets. Railway transport is the foundation of modern economy. In this sense, it acts as an object of market relations, the efficient operation of which determines the functioning and development of all the economic sectors, enterprises, their associations and complexes served by it.

Increasing production efficiency is based on scientific and technical achievements, introduction of new methods of production organization, improvement of economic mechanisms for regulation of internal processes in the organization, and interaction with external entities. Improving economic management of process efficiency should affect all stages: planning and forecasting, accounting, analysis and control, regulation, motivation[1.1].

A decisive moment in the organization of the transport production process is the precise expression of the characteristics necessary for its input and output data. Input data for carrying out the transportation of goods can be the availability of fixed assets, i.e. locomotives, wagons, devices of road transport infrastructure in working condition. Wagons and containers must be suitable for the type of cargo and its quantity. To implement the production process, labor is required - workers with appropriate professions and qualifications.

In order to further improve the railway transport system, ensure a closer relationship between functional and territorial approaches to management, increase the level of decentralization of management approaches, as well as to build close horizontal connections between departments, in our opinion, a qualitatively different level of information support for management processes is necessary, which, in turn, can ensure the generation of reporting by segments of activity. At the same time, the main problem is the current lack of close horizontal connections between departments. This situation leads to the need for additional approvals when making management decisions and, consequently, increases the time for making and implementing decisions[6.108].

The first railway in Central Asia, known as the Central Asian Railway, was built in 1888. It stretched from the Caspian port of Krasnovodsk (Turkmenbashi) to Tashkent through Bukhara and Samarkand. In 1898, a railway line was added to Andijan, and in 1935 branches were added serving the Fergana Valley and Tajikistan. The headquarters of the Central Asian Railway was in Tashkent.³ The second major railway, built in 1906, was the Trans-Aral Railway from Tashkent to Orenburg (Russia) via Arys, Turkestan and Aktobe (all in Kazakhstan). When the former Soviet Union (FSU) collapsed in 1991, Uzbekistan Temir Yollari (UTY) was established in Uzbekistan to

manage, operate and maintain the country's railway network. The railway network coverage in Uzbekistan is denser than in most other CAREC countries. UTY also has a strong position in the market. These are predominantly freight railways, with ever-increasing freight volumes accompanied by increased containerization due to increased industrialization.

Transport production is the foundation of a market economy. In this sense, it acts as an object of market relations, from effective whose activities depend on the normal functioning and development of all sectors of the economy, enterprises, and their associations served by transport and complexes. Transport production acts as a subject regulated market relations, especially when creating demand for transportation and distribution between interacting modes of transport, when establishing mutually beneficial economic and legal relations between transport and cargo owners, transport and passengers[2.403].

Rail transport services are usually classified according to various criteria, such as the type of transport, the nature of the cargo or passengers, and the terms of service. Here are the main categories of railway transport services:

1. Freight transport:

- General Cargo: General cargo carried in wagons or containers.
- Specialized cargo: for example, dangerous, listed in the dangerous goods classification, oversized, transported in special wagons.
- Container transportation: transportation of goods in containers.
- Carriage transportation: transportation of goods in separate cars.

2. Passenger transportation:

- Passenger trains: regular trains with different classes of service.
- Fast and high-speed trains: trains that provide faster and more comfortable transportation.
- Intercity and international trains: trains providing transportation between cities and countries.
- Car transportation: special wagons for transporting cars.

3. Specialized services:

- Custom cargo transportation services: rental of wagons or containers for specific purposes.
- Logistics services: storage, loading/unloading of goods, customs clearance, etc.
- Express transportation: fast delivery of goods or passengers with minimal delays.

4. Passenger services:

- Food and service on trains.
- Ticket booking services and information support.
- Passenger transportation with additional amenities (e.g. Wi-Fi, entertainment systems).

5. Technical and transport services:

- Maintenance and repair of rolling stock.
- Development and maintenance of train routes and schedules.
- Management and control of train traffic and transportation safety.
- The classification of services may vary depending on the specific railway operator and regional characteristics.

The indicators of the transport production results include the volume indicators of the transport and the fulfillment of the quality indicators of the transport product, the level of consumer satisfaction or the level of unsatisfied demand and, ultimately, the size of the economic effect obtained as a result of the production. transport production process[3.22].

Currently, fundamental approaches to measuring the efficiency of transport production, such as systematic, complex, technological approaches, have been formed and are widely used. The systematic approach represents research and is based on the study of objects as complex systems consisting of individual elements with many internal and external relationships. A systematic approach to the analysis of the activity of economic units means understanding that each such unit is a complex system of elements connected with each other and with the external environment.

Improving the quality of transport is the most important component of the problem of increasing the efficiency of transport production. Economic and social aspects of the study of the quality problem in the economy, including in the field of transport, constitute a whole field of scientific research. The development of the transport network of this direction theoretically requires that it reflect both the general quality and the special quality unique to transport[4.292].

Table 1. Measures to increase the economic efficiency of production facilities, processes in railway transport

*materials compiled by the author. Production organization and enterprise management:

Events	Expected (positive) the result
1	2
Improvement of work and rest regimes, professional development employees, the use of scientific organization, the organization of the work of quality groups, increasing the level of motivation of employees, the results of work	Reducing human impact factor influencing course outcomes production processes; increase labor productivity
Improvement of technical and economic indicators, new products, current state of timely diagnostic technical means; use of modern diagnostic systems; progressive scientific developments, quality control of delivered components and spare parts from suppliers, improvement of technical (design) documents, compliance with deadlines for current and major overhaul of machines and equipment in accordance with quality parameters, rational operation of equipment	Technical tools to reduce the number of failures that lead to technological failures
Development and introduction of progressive technologies, increasing the technological level equipment, mechanization and automation production processes	Reduce operating costs organizations; the ability to absorb more volume works
Further improvement of the technical and economic characteristics of manufactured products, increasing the share of high-quality products in the total volume of production, reducing defects	Increase competitiveness companies; reduce ineffective losses eliminate the effects of marriage
Use of innovations, scientific achievements technical progress	Increase competitiveness companies, develop a new purpose segments

Textbook / Turovets O.G., Bukhalkov M.I., Rodinov V.B. and others; Ed. O.G. Turovets. 2nd edition. - M.: INFRA-M, 2009. - 544 p.

Transport products are the result of transport production. N.M. Sheremet offers the following concept of products: "In general In any case, any product should be understood as the result of the production process in material or information form, which has useful properties and is intended for use by consumers for the purpose of meeting their needs."

Transport products have their own characteristic features:

- transport products do not have a material form, but they are material, i.e. material change in the location of cargo or passengers;
- transport products cannot be stocked, stored, stored, which necessitates a quick response to the emerging situation when organizing the transportation process;
- the peculiarity of pricing for transport products is that the price of the transported cargo is not included in the cost of transport products;
- the next feature is the units of measurement of products transport and volume of work performed[5.372].

Conclusion

As of the end of the year, the operating UTY fleet consisted of 98 mainline electric locomotives, 82 mainline diesel locomotives, 21 high-speed electric trains (SEP) and 172 shunting

diesel locomotives. Many of the locomotives at their disposal are reaching the end of their service life. Two thirds of mainline diesel locomotives, 91% of shunting locomotives and 35% of electric locomotives are over 30 years old. They will require replacement in the coming years.

The result of transport production process is the completed transportation of goods or passengers and therefore the unit of measurement is the amount of goods transported or passengers, transport performance is expressed by a specific indicator -tonne -kilometers or passenger-kilometers, which can be indicator of the level of population satisfaction in transportation or in combination with other indicators to express the quality characteristics of the operational work.

References:

1. Decree of the President of the Republic of Uzbekistan No. PF-94 dated June 14, 2023 "On measures to effectively organize state management in the field of transport within the framework of administrative reforms"
2. UTEPBERGENOV A. O. (2023). EFFICIENCY OF RAILWAY TRANSPORT INFRASTRUCTURE DEPARTMENTS ECONOMIC EVALUATION, On the birthday of Academician Charjaw Abdirov 90 years have been dedicated to the treatment of wages "Nowadays, I'm still educated Internationalization in the term "Important Practices". scientific-practical conference, volume 2023, December 12, 403p.
3. REIMBAEVICH, I. A. (2023). Ensuring stable economic development of enterprises in modern conditions. International Journal of Formal Education, 2(7), 22–26. <http://journals.academiczone.net/index.php/ijfe/article/view/1088>
4. UTEPBERGENOV A. O. (2023). CREATION OF A MODEL OF DEVELOPMENT OF TALENTED YOUTH MANAGEMENT SYSTEM, New Uzbekistan Economy, Scientific and Practical Journal No. 7 (9) 2023, November 24, 2023, 292p.
5. UTEPBERGENOV A. O. (2023). Prospects for the rapid development of regional entrepreneurship, innovative technologies and industrial infrastructure in the context of digitalization of the economy: problems and solutions. Collection of the Republican scientific-practical conference, October 10, 2023, 372-375p.
6. Omirbayevich, Utepbergenov Allambergen. "PERSPECTIVE DIRECTIONS OF INCREASING EFFICIENCY IN THE TRANSPORT SECTOR." SO 'NGI ILMIY TADQIQOTLAR NAZARIYASI 7.1 (2024): 107-110.

Rezyume: *Maqolada tarmoqni rivojlantirishning strategik yo'nalishlari tahlili asosida O'zbekiston temir yo'l transportida zamonaviy xizmatlar ko'rsatish haqida umumiy ma'lumot berilgan. Yo'lovchi va yuk tashishni takomillashtirish, infratuzilmani modernizatsiya qilish, nazorat qilish va xavfsizlikni yaxshilash bo'yicha asosiy tashabbuslar muhokama qilinmoqda. Shuningdek, maqolada erishilgan natijalar va O'zbekiston temir yo'l transportini yanada rivojlantirish istiqbollari haqida so'z boradi.*

Резюме: *В статье представлен обзор современных услуг на железнодорожном транспорте Узбекистана, основанный на анализе стратегических направлений развития отрасли. Обсуждаются ключевые инициативы по совершенствованию пассажирских и грузовых перевозок, модернизации инфраструктуры, повышению управляемости и безопасности. В статье также рассматриваются достигнутые результаты и перспективы дальнейшего развития железнодорожного транспорта Узбекистана.*

Kalit so'zlar: *temir yo'llar, temir yo'l transporti, transport kompaniyasi, transport jarayonlari, infratuzilma*

Ключевые слова: *железные дороги, железнодорожный транспорт, транспортная компания, транспортные процессы, инфраструктура*

**SOURCES ON THE HISTORY OF SOCIAL AND POLITICAL DEVELOPMENT OF THE
REPUBLIC OF KARAKALPAKSTAN**

Ametov T.A.

Tashkent Economic and Pedagogical Institute

Summary: In this article, the data taken is presented from sources on the history of the socio-political development of the Republic of Karakalpakstan. The author of this article mentioned issues and problems at the end of the 20th and beginning of the 21st centuries. And also, in the field of research today it is comparable to the study of fundamental social and humanitarian problems, without understanding of which it is impossible to answer the apparently quite simple questions of the modern history of Karakalpakstan.

Key words: *independence, Constitution, politics, history, newspaper, monograph.*

With the acquisition of national independence, the prospects for the further development of the country set before scientists the task of radically breaking old established ideas and developing new theoretical principles for understanding spiritual and material values, searching for fundamentally new ways to update all spheres of society without exception. Historical science will have to play a decisive role in ensuring the tasks of national revival, because “self-awareness begins with knowledge of history”³.

At the end of the 90s of the 20th century, both in modern historiography and in political history, it remains a popular topic, which is undergoing a process of deepening the analysis and expanding the subject of research. The scope of research into the history of the socio-political development of the Republic of Karakalpakstan today is comparable to the study of fundamental social and humanitarian problems, without understanding which it is impossible to answer seemingly simple questions of modern history. The thematic field of research on contemporary history is still very narrow. There are almost no works of a serious conceptual and methodological nature; there are only a few studies devoted to the historiography of modern history, factors of social dynamics and inhibition, new social stratification of society, the influence of globalization on ethnic culture, social forecasting and many other relevant topics. There is a lack of interdisciplinary research on modern history - the most important feature of modern science.

The Constitution of the Republic of Uzbekistan also acts as the main historical source on the modern history of the Republic of Karakalpakstan.

The Constitution of the Republic of Uzbekistan is the highest normative legal act of the Republic of Uzbekistan. The constitution was adopted on December 8, 1992 and came into force on the same day, establishing a presidential republic. The first edition of the Constitution was published in issue 247 (438) of the newspaper “Народное слово” on December 15, 1992. Before this, since 1992, additions and changes were made to the constitution 15 times. This time, due to the scale of the changes, a new edition of the document was adopted. As a result of the update, the number of articles in the main dictionary increased from 128 to 155, and the norms in it increased from 275 to 434. In total, according to officials, the constitution was updated by 65 percent⁴.

It proclaims man to be the highest value and goal of society and the state. In this sense, the Constitution meets the interests of each individual citizen. But it is also true that the entire content of the Basic Law of the Republic of Uzbekistan expresses the interests of the people as a community and, based on them, determines the basic principles of the organization and activities of society and the state.

If the ideology of national independence is understood as a set of ideas, values, perceptions and goals in which the community of people forming a given state recognizes itself, expresses its

³ Каримов И. А. Свое будущее мы строим своими руками. В 24-х т. – Ташкент: Ўзбекистон, 1999. – Т. 7. –С.130.

⁴ Черабоев К. Янги конституция. 10 та асосий ўзгариш // <https://kun.uz>.

interests as a single whole, determines the principles of organizing its existence, formulates its goals and aspirations and justifies the ways to achieve them with the help exercise of state power, then the Constitution of the Republic of Uzbekistan is the document in which all these attributes of state ideology received the character of clear and specific provisions, protected and ensured by the power of state power. In this sense, the Constitution is the main source of the ideology of the state of Uzbekistan.

The very essence of the content and the logic of constructing this kind of document required the consolidation in it of an integral set of ideas, values and ideas that objectively reflect the experience of the historical life of our people, their real interests and aspirations, acceptable principles for organizing the political, economic and socio-humanitarian spheres of their life, and ways of their reproduction and development.

It can be said that the past 32 years since the adoption of the Constitution of the Republic of Uzbekistan has shown its vitality not only as a basic legal document of our state, but also as a set of fundamental postulates of the ideology of a modern state.

The state structure of Uzbekistan is characterized by certain elements of federalism;

a) the presence within Uzbekistan of the Republic of Karakalpakstan, the sovereignty of which is protected by the Republic of Uzbekistan;

b) the existence in the legislative system of a special normative act, the Constitution of Karakalpakstan, which, however, cannot contradict the Constitution of Uzbekistan;

c) the functioning, in addition to the national ones, in a certain way isolated and having a certain independence of state legal institutions of Karakalpakstan, parliament, higher judicial bodies, executive authorities, citizenship, etc.

d) inviolability of the territory and borders of the Republic of Karakalpakstan - they can be changed only with its consent;

e) the right of the Republic of Karakalpakstan to independently resolve issues of its administrative and territorial structure;

f) the right of the Republic of Karakalpakstan to secede from the Republic of Uzbekistan on the basis of a referendum;

g) regulation of relations between the Republic of Uzbekistan and the Republic of Karakalpakstan through treaties and agreements;

h) the Republic of Karakalpakstan has its own state symbols - flag, coat of arms and anthem, approved by law.

Therefore, we can consider that the Republic of Uzbekistan is a unitary state with some signs of federalism.

The large-scale reforms carried out over the years of independence laid a solid foundation for national statehood and sovereignty, ensuring security and law and order, the inviolability of state borders, the rule of law, human rights and freedoms, interethnic harmony and religious tolerance in society, created decent living conditions for the population and the realization of the creative potential of citizens⁵.

The large-scale work of the first President of the Republic of Uzbekistan I.A. Karimov “Узбекистан на пороге достижения независимости” (“Uzbekistan on the threshold of independence)⁶ embodies political-economic, ideological and historical-spiritual methods of analysis and thinking, recreates pages of the history of our people and thereby creates conditions for a comprehensive and objective study and understanding of the history of our independence by current and future generations⁷.

⁵ Указ Президента Республики Узбекистан «О стратегии действий по дальнейшему развитию Республики Узбекистан» // <https://lex.uz>

⁶ Каримов И. А. Узбекистан на пороге достижения независимости. – Ташкент: Узбекистан, 2011. – С. 383.

⁷ Каримов И. А. Узбекистан на пороге достижения независимости. – Ташкент: Узбекистан, 2011. – С. 3-15.

Speech at the inauguration ceremony of the President of the Republic of Uzbekistan at a joint meeting of the chambers of the Oliy Majlis of the Republic of Uzbekistan on December 14, 2016. President Shavkat Mirziyoyev very succinctly defined the place of history and historical memory, noting that a people who have forgotten their history loses their path of development, and no future for such a people and society⁸.

In modern historical science of Uzbekistan, in connection with the rejection of Soviet-party ideology, the following topics have entered the problem field of science:

- ◆ the importance of reforms taking place in social and political life;
- ◆ ways of forming and developing civil society;
- ◆ the course, nature, content of socio-economic reforms;
- ◆ Uzbekistan's place in the system of international relations;
- ◆ geopolitical situation in Central Asia;
- ◆ national security in historical retrospect;
- ◆ interethnic and interfaith relations, etc.

The enormous importance in the process of research on issues of modern history is not yet sufficiently defined, there is a lack of interdisciplinary research, while this is the most important feature of modern science. It is important to introduce into the study of modern history those new trends that are characteristic of all historical science, to provide modern history with a serious methodological basis.

Knowledge of the modern history of Uzbekistan should help young people identify key events in the national history of the late 20th - early 21st centuries. and the most important trends in the development of our state, to form an idea of the place of Uzbekistan in the modern world, of the strategic course developed by the country's leadership, of the priorities of domestic and foreign policy.

A systematic and comprehensive study of modern history requires representatives of the social sciences and humanities to develop modern methodological theories that help illuminate the most important aspects of the modern history of Uzbekistan and other countries in the context of global processes that can assess modern political, economic, social events, regional and international relations⁹.

We need a good professional story that occupies its rightful place in our lives, enjoying authority and influence. Based on the latest works of historians of Uzbekistan of a methodological nature, we will try to outline some principles that will permeate the content of this dissertation.

The modern history of Uzbekistan, on the one hand, is the history of gaining independence and development of the state - the Republic of Uzbekistan. Therefore, the starting point of the modern history of Uzbekistan is 1989, the period of the last decade of the Soviet totalitarian system, dangerous events for Uzbekistan, which were based on the bankrupt administrative-command system, the policy of ignoring the national, economic, social interests of the republic, the catastrophic deterioration of the socio-economic and environmental situation, people's living standards, primarily due to the cotton monoculture¹⁰. Such a difficult period in the history of Uzbekistan is characterized by the appearance on the political arena of a leader of a new generation, in the person of Islam Abduganievich Karimov, thanks to whose competent, balanced policy, the interests of the republic were protected, and it was possible to save the country from political and economic collapse, internal and external conflicts. The result was the declaration of Uzbekistan as an independent state in 1991.

In the development of historiography, modern history acts as a scientific discipline. The concept and features of modern history are developed: content, distinctive features and main approaches. New assessments and accents in the perception of the historical past, outlined by the

⁸ Мирзиёев Ш.М. Эркин ва фаровон, демократик Ўзбекистон давлатини биргаликда барпо этамиз. –Тошкент: Ўзбекистон, 2016. – 31 с.

⁹ Рахимов М., Турсунова Р. Новейшая история Узбекистана. – Ташкент: УМЭД, 2014. –С. 10-13.

¹⁰ Институт истории изучает новейшую историю Узбекистана // 21-05-2013 // www.uzdaily.uz.

first President of the Republic of Uzbekistan I.A. Karimov, are important. The above predetermines the role of modern history in the life of modern Uzbekistan and Karakalpakstan.

The modern history of Uzbekistan and Karakalpakstan is closely connected with other social science disciplines: political science, sociology, economics, ethnology, psychology, etc. However, the goal of modern history is a comprehensive analysis of socio-economic, political, spiritual processes in the modern period of Uzbekistan.

In the second half of the 80s of the twentieth century, the national policy of the Soviet state collapsed, and interethnic clashes occurred. The cotton monoculture in the economy of Uzbekistan had a negative impact on the social situation of the population of the republic. A new wave of the Center's repressive policy in Uzbekistan has begun. The negative impact of the "Cotton fact" ("Uzbek fact") on the socio-political situation of the republic led to the Fergana events of 1989.

One of these areas, actively developed in modern historical science, is modern history, which in many national schools of history is associated with the formation of an independent national state. The modern history of Uzbekistan, on the one hand, is the history of a new independent national state - the Republic of Uzbekistan. On the other hand, the modern history of Uzbekistan, as the history of a sovereign state, coincides with a new stage (modern history) in the development of mankind. The collapse of the USSR and the "eastern bloc", the emergence of new states on the world map, the end of the global Cold War and the division of the world into two camps, the globalization of terrorism and religious extremism and the fight of the international community against them - all these important events determine the face of modern history, when a new world order. The modern history of Uzbekistan and Karakalpakstan is an integral part of the modern history of mankind, and it is closely intertwined with global events of our time. The importance of studying recent history is determined by the fact that it is aimed at understanding events that directly influence modern life. In addition, since recent history is connected to the present, it has predictive potential that allows us to see trends related to the future.

On June 30, 2017, the Resolution of the President of the Republic of Uzbekistan "On organizing the activities of the public council on the modern history of Uzbekistan at the Academy of Sciences of the Republic of Uzbekistan" was adopted. This Resolution sets the task of broadly studying the international experience of scientific research in modern history and analyzing works devoted to various aspects of modern history. Also, special attention is paid to these problems due to the need to prepare educational, scientific and methodological literature and publish new generation publications in which the modern history of Uzbekistan would be considered in inextricable connection with global and regional processes, as well as the historical and cultural heritage of civilizations, peoples and states that have formed on the territory of modern Uzbekistan.

The country is undergoing an active process of studying the problems of modern history, new interdisciplinary approaches and methodologies are being mastered at the intersection of history, the theory of international relations, sociology, anthropology, ethnology, philosophy, economic theory, and political problems.

The nationwide need for an objective look at the history of Uzbekistan and Karakalpakstan during the period of independence is felt more and more urgently. At a turning point, history must fulfill its main function to the greatest extent - the role of social memory of society. This period is characterized by dramatic changes in their socio-political and government life.

During the period of independence, the development of historiography, modern history acts as a scientific discipline. The concept and features of modern history are developed: content, distinctive features and main approaches. New assessments and accents in the perception of the historical past, outlined by the first President of the Republic of Uzbekistan I.A. Karimov, are important. The above predetermines the role of modern history in the life of modern Uzbekistan and Karakalpakstan.

During the years of independence and sovereignty, as noted above, the first work of a generalizing nature by historians of Karakalpakstan was "Қарақарлпақстан жаңа тарийхы" ("New History of Karakalpakstan"). The team of authors regarded the writing of this work as "the

beginning of a great work to reconstruct the true history of the people, to reveal their role and place in world civilization.” Hence the desire of the authors to add novelty to the published material, as well as to identify and interpret previously hushed facts and documents. An important feature of this publication, due to the nature of the coming era, was that it embodied the diversity of ideological and ideological positions of the authors. Nevertheless, the work gives the impression of a solid publication, consistent with academic traditions. This is largely the merit of researchers who worked on covering various problems of the period of modern history in books. Thus, a definite result of the development of historical science in Karakalpakstan was summed up. The book illuminates many conceptual issues in the new history of Karakalpakstan. An in-depth historical analysis of the key problems of national history of the second half of the XIXth – early XXth centuries was carried out. This helped to verify the initial ideological and methodological positions, demonstrate mastery of historiographical concepts and factual material, and assess the quality and depth of understanding of national history at the stage of declaring the sovereignty of the republic.

On the other hand, there has been a deterioration in the environmental situation in Uzbekistan and the tragedy of the Aral Sea. Under these conditions, the process of the emergence of social movements, parties, and informal organizations began.

At the level of the countries of the Central Asian states, in order to unite efforts aimed at improving the environment in the Aral Sea region, the International Fund for Saving the Aral Sea (IFAS) was created, which is an interstate organization created for the purpose of developing and financing environmental and scientific-practical projects and programs aimed at on the environmental improvement of the situation in areas affected by the Aral disaster, as well as on solving general socio-economic problems of the region¹¹.

The former chairman of the Joqargi Kenges of the Republic of Karakalpakstan, Musa Erniyazov, spoke in an extremely open and emotional manner about the dire consequences of the drying up of the Aral Sea - the low quality of drinking water, the annual increase in various types of diseases, high rates of infant and maternal mortality¹².

In the modern history of Uzbekistan, the study of the phenomenon of Islam Karimov as a political leader of a new generation is important. Socio-economic and political processes on the eve of independence strengthened the measures taken by the leadership of Uzbekistan to overcome the crisis and contributed to the creation of the institution of the Presidency. I. A. Karimov's first reform steps as the first President of independent Uzbekistan received popular approval¹³.

At the initial stage of structural economic transformations, a multi-structure economy was formed. The processes of privatization and the formation of a competitive environment deepened, a full-fledged securities and real estate market was created; the layer of real owners has been expanded. Energy and grain independence was achieved.

The synthesis of national and universal values is important in creating a democratic society in Uzbekistan. Strengthening and developing the moral spirit of the people is the most important task of the state and society in Uzbekistan. The attitude towards great ancestors and historical figures during the years of independence has changed. The celebration of anniversaries of historical cities has begun on an international scale. The Modern history of Karakalpakstan is a tangle of complex problems, each of which requires its own theoretical and methodological understanding, and an adequate solution to a number of source study issues¹⁴.

¹¹ Хамидов К. Обзор проектов международных организаций в Каракалпакстане: исторический анализ // Вестник ККО АНРУз. – Нукус, 2011. -№2. – С. 53-55.

¹² CentralAsia (UZ). Под эгидой ООН создан многопартнерский трастовый фонд для региона Приаралья // 27 ноября 2017 г.// <https://centralasia.media/news:1483327>.

¹³ Узбекистан: обретение нового облика. В 2-х т. Под общ. Ред. Е.М.Кожокина. Рос. ин-т стратегич. исслед. – М., 1998. –С. 15.

¹⁴ Кошанов Б.А. Актуальные вопросы изучения новейшей истории Узбекистана и Каракалпакстана // Қорақалпоғистон энг янги тарихининг долзарб муоммалари: Республика илмий анжуман материаллари. – Нукус: ҚДУ, 2014. – Б. 5-6.

The problems of the historiography of Karakalpakstan during the period of independence are very pressing on the agenda. Most young historians, unfortunately, do not know the categories and methods of economic analysis, and do not know how to assess the quality of economic indicators contained in sources.

No less pressing are the problems of creating a truly scientific social history of Karakalpakstan during the period of independence. At the present stage, new groups with special status and interests are constantly emerging in society.

Writing new editions of the “New History of the Republic of Karakalpakstan” requires the use of a modern body of sources. The problem today is not that historians lack empirical material, although, of course, the academic community has welcomed, welcomes and will welcome the expansion of the source base. The question is more related to the analytical capabilities of historical science itself. History, in interaction with other social and human sciences, can provide an objective history of the socio-political development of the Republic of Karakalpakstan during the period of independence.

Thus, the modern history of Uzbekistan and Karakalpakstan is closely connected with other social science disciplines: political science, sociology, economics, ethnology, psychology, etc. However, the goal of modern history is a comprehensive analysis of socio-economic, political, spiritual processes in the modern period of Uzbekistan.

Currently, the population of the Republic of Karakalpakstan is watching with great hope the launch of the Trust Fund for the Aral Sea region. We sincerely believe that the Fund being created will truly improve the living conditions of the multi-million population living in this region of Uzbekistan.

The development of the modern history of the Republic of Karakalpakstan requires, in our opinion, the use of a modern approach, especially during the period of the country’s independence. The question is more related to the analytical capabilities of historical science itself. History, in interaction with other social and human sciences, is capable of providing an objective, recent history of the socio-political development of the Republic of Karakalpakstan during the years of independence. Therefore, the materials of the session of the Jokargy Kenes of the Republic of Karakalpakstan are among the first sources where the President of the Republic of Uzbekistan I. Karimov spoke.

In our opinion, a special work is needed on the recent political history of the Republic of Karakalpakstan, analyzing the origins of the formation of socio-political institutions in our Republic. Such work must be prepared in a historical and problematic aspect, based on documents from current archives, forums and conferences held from 1989 to 2020.

This means that it is the willingness and ability of the academic community to pose increasingly complex questions and search for answers that are adequate to the current level of historical science, which forms the basis of the process of knowing the past. Many of the questions that historians pay special attention to today fall into the category of eternal questions. The answer to them can only be a constantly deepening, eternal process of knowledge, but a special approach to the development of modern history during the years of independence in the Republic of Karakalpakstan.

References:

1. Каримов И. А. Свое будущее мы строим своими руками. В 24-х т. – Ташкент: Ўзбекистон, 1999. – Т. 7. –С.130.
2. **Чегабоев К.** Янги конституция. 10 та асосий ўзгариш // <https://kun.uz>.
3. Указ Президента Республики Узбекистан «О стратегии действий по дальнейшему развитию Республики Узбекистан» // <https://lex.uz>
4. Каримов И. А. Узбекистан на пороге достижения независимости. – Ташкент: Узбекистан, 2011. – С. 383.
5. Мирзиёев Ш.М. Эркин ва фаровон, демократик Ўзбекистон давлатини биргаликда барпо этамиз. –Тошкент: Ўзбекистон, 2016. – 31 с.
6. Рахимов М., Турсунова Р. Новейшая история Узбекистана. – Ташкент: УМЭД, 2014. –С. 10-13.

7. Институт истории изучает новейшую историю Узбекистана // 21-05-2013 // www.uzdaily.uz.
8. Хамидов К. Обзор проектов международных организаций в Каракалпакстане: исторический анализ // Вестник ККО АНРУз. – Нукус, 2011. -№2. – С. 53-55.
9. CentralAsia (UZ). Под эгидой ООН создан многопартнерский трастовый фонд для региона Приаралья // 27 ноября 2017 г.// <https://centralasia.media/news:1483327>.
10. Узбекистан: обретение нового облика. В 2-хт. Под общ. Ред. Е.М.Кожокина. Рос. ин-т стратегич. исслед. – М., 1998. –С. 15.
11. Кошанов Б.А. Актуальные вопросы изучения новейшей истории Узбекистана и Каракалпакстана // Қорақалпоғистон энг янги тарихининг долзарб муоммалари: Республика илмий анжуман материаллари. – Нукус: ҚДУ, 2014. – Б. 5-6.

Rezyume: *Ushbu maqolada Qoraqalpog‘iston Respublikasining ijtimoiy-siyosiy rivojlanish tarixiga oid manbalardan olingan ma’lumotlar keltirilgan. Ushbu maqola muallifi 20-asr oxiri va 21-asr boshlaridagi muammo va muammolarni tilga olgan. Shuningdek, bugungi kunda tadqiqot sohasida u fundamental ijtimoiy-gumanitar muammolarni o‘rganish bilan qiyoslanadi, ularni tushunmay turib, Qoraqalpog‘istonning zamonaviy tarixining juda oddiy ko‘ringan savollariga javob berib bo‘lmaydi.*

Резюме: *В данной статье взятые данные, излагаются из источниках по истории общественно-политического развития Республики Каракалпакстан. Автор данной статьи упомянул о вопросах и проблемах в конце XX го- начало XXI века. А также, в сфере исследовании сегодня сопоставима с изучением кардинальных социальных и гуманитарных проблем, без понимания которых нельзя дать ответ на внешне достаточно простые вопросы современной истории Каракалпакстан.*

Kalit so'zlar: *mustaqillik, Konstitutsiya, siyosat, tarix, gazeta, monografiya.*

Ключевые слово: *независимость, Конституция, политика, история, газета, монография.*

HISTORICAL ROOTS OF THE "PERFECT MAN" IDEA

Bauatdinov Sh.S.

Nukus State Pedagogical Institute named after Ajiniyaz

Summary: *The article interprets the essence of the education of the "Perfect person", its ancient roots, views on the education of the perfect man in the works of "Avesta", "Holy Quran", cultural heritage and the works of the great thinkers Abu Nasir Farabi, Yusuf Khos Hajib, Nasafi.*

Key words: *the idea of a perfect person, spiritual and moral education, Avesto, Qurani Karim, Hadis, great thinkers*

We all know that principles such as a perfect person, social cooperation, inter-ethnic solidarity, and inter-religious tolerance are an integral part of our national idea. Today's era requires educating young people as perfect human beings with high spiritual and moral qualities, relying on our rich cultural heritage, historical values, national customs and traditions. Of course, a person's striving for perfection is the basis for his spiritual and moral qualities. In this case, the historical experiences accumulated by our ancestors during their lives in the past are the main factor in creating perfection. The ultimate goal of today's development of New Uzbekistan is to educate a comprehensively developed, competitive, mature person

From this point of view, President Sh.M. Mirziyoev said, "Education of young people with high morale, modern knowledge and skills, and independent thinking in the spirit of national and universal human values are one of the most important issues for us. In this regard, we rely on our national traditions formed over the centuries, on the rich spiritual heritage of our ancestors" [1].

The idea of a perfect person and the aspirations to its realization constitute the essence of human civilization. If we look at history, the main indicator of perfection in any society is manifested in the attitude of a person to virtue, social happiness, humanistic ideas and practical activities based on them, that is, the criterion of perfection, which has a positive effect on the general development of society and human civilization, has been to make the society happy through the perfection of the individual. Perfection in a person is, first of all, in his understanding of the freedom of thought, thinking and practical activity. In this sense, the call of the great Greek philosopher Socrates: "Know yourself" is also a call to understand one's lineage, the meaning of life, one's responsibility and obligation to future generations. He does not separate the idea of a perfect person from the idea of national independence. In other words, the essence of a perfect person is manifested first of all in efforts to improve society. Two interrelated processes can be seen in the relationship between the perfect man and society. The first is that the perfect person has a positive influence on the development of society. The existence of the idea of a perfect person and the practice associated with it appear as a criterion that determines the level of development of society. After all, we evaluate any society based on the behavior of the people living in it. Secondly, the character of the society is manifested in its opportunities to educate the Perfect Man, in its attitude towards him. That is, freedom, independence creates appropriate conditions for the realization of the ideal of a perfect person. That is why the social, political, economic, spiritual and organizational tasks for raising a perfect person in Uzbekistan are defined as the most important and priority direction of the state policy. After all, a people, a nation, and a state that does not care about the future of the mature generation will not have a future [2].

In our opinion, the concept of a truly perfect person is related to the concept of a perfect person formed from a spiritual and moral point of view. Spiritual and moral perfection is the foundation for reaching the level of a perfect human being. A person achieves perfection throughout his life. A person strives to become a perfect person through sound thinking, high education, spiritual and moral perfection. A perfect person is a person who possesses worldly and religious knowledge and whose heart is full of virtues.

Avesto, which is considered the holy book of the ancient Zoroastrian religion, describes the issue of the perfect person at a high level. In it, qualities such as hard work, goodness, intelligence, humanity, loyalty, and tolerance are deeply expressed.

In the work "Avesto", great attention is paid to the fact that in order for a person to become perfect, his words, thoughts and deeds should be good and serve for the celebration of goodness. The idea of this moral trinity was the basis for the formation of the content of all educational works created in the later stages of the development of human society from the earliest times. After all, it expresses the specific requirements necessary for the spiritual and material development of a person as a human being, and became an important spiritual heritage not only of the East, but also of the West as a code of life. The fact that the issues expressed in the work cover all aspects of social life increased the theoretical and practical importance of Zoroastrian ideas, and made their value high even today [3].

The spiritual and moral essence of "Avesto" is that the idea of "good thought", "good word" and "good deed" should make people accustomed to live in harmony with each other, to refrain from selfishness, envy, greed, ambition, and unlawful deeds. He urges to go out, to be faithful to him, to practice honesty in trade, to pay debts on time, to be free from betrayal, to be faithful. A person of faith is a perfect person who can keep himself from stealing, robbing, looking at other people's property, getting angry, betraying his relatives, friends, people, and country.

"The holy book "Avesto" also teaches young people that "A person has a duty to preserve the Earth, Fire, Water and Air, in general, all the good things in the world, pure and whole throughout his life." The ideas of Zoroastrian teachings that if a person loves and respects the land (homeland) where he grew up, he should understand that it is his patriotic duty to keep the environment clean, is very relevant to our day. In particular, the importance of the idea that "every person considers the land where he grew up to be the best and most beautiful country" in the spirituality and patriotism of our youth, interpreted in the Avesto, is still very important today [4].

The works of "Qurani Karim" and "Hadis" also teach young people, including students, the noble ideas presented in sacred sources (glorification of peace, appreciation of man by man, the importance of faith, faith, knowledge, arrogance, not giving in to wealth, going to the difference between uncleanness and honesty, existing it makes it possible to get acquainted with the true nature of material goods, not to squander them, not to squander them, not to betray the rights of widows, orphans, etc) and to study their content. The pedagogical value of getting to know the true nature of the sources is that it helps them to believe in the propaganda of the supporters of the destructive idea, to think before listening to their instructions, and to have the ability to analyze their thoughts.

Concepts of the perfect person in the pedagogical views of the great Central Asian thinkers Abu Nasir Farabi, Yusuf Khos Khajib, Mahmud Koshgari, Abu Rayhan Beruni, Aziziddin Nasafi, At Termizi, Bakhouddin Naqshbandi, Najmiddin Kubro, Ahmad Yassavi, Ulugbek, Navoi, Babur, Ajiniyaz, Berdakh were reflected.

Al-Farabi in his works "City of Virtuous People", "Paths of Happiness", "Chain of Sciences" or "Encyclopedia of Sciences", "The Great Book of Music", etc. stops and shows the incomparable role of perfection in bringing it to happiness in the development of society. The idea of a perfect man can be seen in every comment of great thinker. Farabi thought widely about the education of a perfect person. By the term "perfect person", he refers to people who have high virtues, strive for science, fight for truth and justice, are enemies of lies, and stand up for themselves. Farabi believes that in order for a person to form perfection in himself, he must embody twelve different qualities. 1. Good health. 2. Sharp mind. 3. Strong memory. 4. Quick decision making. 5. Speaking beautifully. 6. Education, pursuit of knowledge. 7. Avoid harmful gambling. 8. To love truth and justice. 9. Being honorable. 10. Not being getter. 11. Be human. 12. Do not be obstinate in vain [5].

In his work "On the Attainment of Happiness", Farabi states that in order for a person to feel beauty, he must have intellectual maturity, and a person with intellectual maturity can understand all the secrets of the world. "A person becomes a perfect person with intelligence, knowledge brings happiness and wealth to a person, a person creates perfection in himself through reading and

learning," he explains. Farabi invites people to engage in science and art. He believes that the main task of education is to educate a "perfect" person who can meet the demands of society and serve this society.

The problem of a perfect person is also reflected in the work of the great thinker Yusuf Khos Khajib "Qutadgu Bilig". In Yusuf Khos Khajib's work, he perfectly describes the secrets of martial art, the spiritual and moral qualities of a person, such as friendship, solidarity, bravery, justice, heroism, loyalty, inherited from the ancient Turkic peoples. At the same time, he condemns evil, glorifies peace and harmony, learning and working hard to achieve happiness. According to him, if the prosperity and unity of the country is established by "Sword", then its fame, wealth, development of education will be realized through "Science". Yusuf Khos Khajib's pedagogy...In the process of analyzing the pedagogical views of Yusuf Khos Khajib, we see the need to apply the general wise principles of human perfection in the education of today's youth. Yusuf Khos Khajib focuses on four different issues in "Kutadgu Bilig". 1. Justice 2. Happiness 3. Reason 4. Contentment. This can be explained as follows. First, the king must be just to rule the country. Secondly, in order for the people to live prosperously and prosperously, the state treasury should be full (abundant) and knowledgeable people should use this wealth in their place. Thirdly, the state and the people must be governed by reason. Fourthly, it is emphasized that every person should be honest and satisfied.

Yusuf Khos Khajib dreams of the need for intelligent, knowledgeable, educated, conscientious people who love their people and country to lead the people and the state. That is, he said, "It is difficult for one person to carry the whole country on his head. He needs wise men to help him."

Allama Aziziddin Nasafi, a great thinker who lived in the 13th century, puts forward the following opinion about a perfect person in his work "A perfect person". "Know that a perfect person is a person who is mature in Sharia, Tariqat and truth, and if you do not understand this phrase, let me say it with another phrase: know that a perfect person is such a person, in whom the following four things have been perfected: good words, good deeds, good morals and education" [6]. A person who embodies such qualities will be free from bad qualities and will live a virtuous life and always be ready to work for the betterment of the people.

In conclusion, the historical roots of the idea of "Perfect Man", which embodies high qualities in a person, begin from ancient times. Of course, a perfect person is the most perfect, the most intelligent and the wisest of people. A perfect person is a dignified person who emerges from the human society. People achieve perfection in the process of moral and spiritual purification. The sign of perfection is to follow the right path and benefit the people. A person is perfect as much as he benefits people with his words, practical deeds, and intention, and guides the bad ones to the right path. From the demands put on the perfect man, it shows that only a person who has accumulated high qualities in himself can reach the level of a perfect man.

References:

1. Мирзиёев Ш.М. Миллий тараққиёт йулимизни катъият билан давом эттириб, янги босқичга кўтарамиз. -Т. «Ўзбекистан», 2018. -Б.89.
2. Фалсафа: қомусий луғат (Тузувчи ва масъул муҳаррир Қ. Назаров). — Т.: «Шарқ нашриёт-матбаа акциядорлик компанияси. Бош таҳририят. 2004. —Б. 200.
3. Jo'rayeva Z., Vaxtiyarova R. "Avesto"da ta'lim tarbiyaga oid fikrlar // Central asian academic journal of scientific research. volume 2 | issue 10 | 2022.
4. Бобоев Х., Хасанов С.. "Авесто" – маънавиятимиз сарчашмаси. - Т.: "Адолат", 2001 -160 б.
5. Әлеуов Ө. Қарақалпақстанда тәлим-тәрбиялық ойлардың қәлиплесиуи хәм раўажланыуы. Н.: «Билим», 1993. -504 б.
6. Комилов Н. Тасаввуф.(Биринчи китоб).Т.: Ёзувчи. 1996. –Б.145.

Rezyume: *Ushbu maqolada 'Kamil inson' tarbiyaning mazmun-mohiyati, uning qadimiy ildizlari, "Avesto", "Quroni karim" asarlarida, madaniy meroslarida va buyuk mutafakkirlar*

Абу Носир Форобий, Юсуф Хос Хожиб, Насафий asarlarida komil inson tarbiyasiga oid qarashlar talqin etilgan.

Резюме: В данной статье рассматриваются содержание и суть воспитания «совершенного человека», его исторические корни, а также взгляды на воспитание совершенного человека в произведениях «Авесто», «Коран Карим», в культурном наследии и трудах великих мыслителей Абу Насира Фараби, Юсуфа Хос Хаджиба, Насафи.

Kalit so'zlar: *Komil inson g'oyasi, ma'naviy-axloqiy tarbiya, Avesto, Qur'oni Karim, Hadis, buyuk mutafakkirlar.*

Ключевые слова: *Идея совершенного человека, духовно-нравственное воспитание, Авеста, Курони карим, «Хадис», великие мыслители*

FORMATION OF PROFESSIONAL COMPETENCE OF STUDENTS IN PERSONNEL TRAINING

Yeshmuratova A.A.

Nukus Mining Institute at Navoi State Mining and Technologies University

Summary: In this article, the formation of professional competence of students in the training of personnel in the field of mining, the analysis of the term "Competence", the organization of an educational process based on competence, ways of applying the technology of development of professional competence in determining the qualifications of a future specialist in higher educational institutions justified.

Keywords: *education, knowledge, skill, competence, professional competence.*

In the decree of the President of the Republic of Uzbekistan dated January 28, 2022 "On the development strategy of New Uzbekistan for 2022-2026" No. PF-60 the formation of professional knowledge, qualifications and skills of future specialists in the training of highly qualified personnel in the implementation of the specified tasks, and the formation of professional competences in the development of abilities is of great importance [1].

Today, concepts such as "competency" and "competence" are widely used in all educational systems.

In solving problems related to the study and use of the concepts of "competency" and "competence" - from CIS and foreign research scientists: T. Olsson, J. Raven, A.V. Khutorsky, I.A. Zimnyaya, E.F. Zeer, V.D. Shadrikov, as well as Among scientists from Uzbekistan: B.S. Abdullaeva, Sh.A. Abdullaeva, A.J. Abilova, N.A. Muslimov and others contributed greatly.

I.A. Zimnyaya defines competence as a potential, hidden psychological type that appears as an ability in the manifestation of a person's activity [2].

A.V. Khutorskoy competence is a set of interrelated personal qualities (knowledge, abilities, skills, methods of activity) formed within any objects (processes) and necessary for high-quality production activities. Competence is defined as a person having appropriate competence, including his personal attitude to him and the subject of activity [3].

J. Raven defines competence as the specific ability necessary to effectively perform a certain action in a certain subject area and includes highly specialized knowledge, a special type of subject abilities, ways of thinking, as well as taking responsibility for one's actions [Ошибка! Источник ссылки не найден.,26].**Ошибка! Источник ссылки не найден.**

T. Olsson: Determining the qualifications of a future specialist in higher education institutions is a crucial issue. The role of the specialist in the educational process is directly related to the skills which are indispensable in the future [5,212]. 5

Changes in the modern education system of Uzbekistan focus on the need for professional skills of personnel. The main goal of modern education is the interrelationship between the current and future needs of the individual, society and the country, training of personnel capable of social adaptation, employment, and self-development in society. Currently, in the rapidly changing modern world, the need for qualified, creative, competitive personnel has increased dramatically.

Competency-based education is - the education which is given from the point of view of the learner's ability to apply the knowledge, skills and qualifications acquired in the educational process in his personal, professional and social activities [6].

Competence is a Latin word that means "suitable", "acceptable" or "flexible" in Uzbek. It can be understood as a person who is able to solve simple and complex problems using his knowledge, skills and practical experience. In many cases, the term "professional competence" is used. This word can be understood as the ability to successfully apply one's practical experience, knowledge and skills in the performance of one's professional duties [6].

N.A Muslimov and others defined competence as follows: "...effective use of theoretical knowledge in activity, ability to demonstrate high-level professional competence, skill and talent" [8].

Sh.A. Abdullayeva considers that, in the competence approach, it is necessary to analyze the traditional three elements (triad) of education - "Knowledge - Skill - Qualification" in the form of six units - "Knowledge - Skill - Qualification - Practical experience - Competency - Competence" [8].

A competent approach to education requires the orientation of teaching technologies to independent research, the development of creative qualities in students, which, in turn, requires an innovative methodological restructuring of the assessment of the quality of acquired knowledge, skills and abilities. [10].

In our opinion, competence is an educational resource expressed in the professional training of a student. Competence, a form of harmonization of knowledge and skills in the actual acquisition of methods and means of activity, allows students to set and achieving goals for the future.

The concept of competence in the training of personnel in the field of mining has become especially relevant due to the constant change and development of modern technologies.

Together with technical knowledge and skills, competencies include aspects such as problem solving, creativity, communication and collaboration that reflect the modern requirements for technical professionals [11].

In the analysis of the term "competency", we conducted scientific research on the formation of professional competences of students based on the training of "Information technologies in technical systems" in the training of personnel in the field of mining, depending on knowledge, skills, and quality of teaching.

Competencies in the training of qualified specialists in the higher education system are defined in the framework of scientific and professional activities and social relations. A person's competitiveness in the modern labor market depends on how he acquires and develops skills, abilities and qualifications that can be used in practical activities. In modern conditions, the level of education is determined not by the amount of knowledge, but by the ability to solve problems of various complexity based on existing knowledge. Accordingly, attention to education in the pedagogical environment is focused on a competency-based approach, the final result of which is the preparation of a specialist, that is, a specialist with mature skills in various fields of activity.

As can be seen from the above definitions, professional competency is a broad concept. In our opinion, professional competence consists of knowledge, certain personal qualities, etc., in addition to the specific professional skills necessary for the activity. Thus, the readiness of a graduate of an educational institution for professional competence can be considered as the acquisition of professional competency.

A review of scientific literature shows that core competencies are very diverse, multifaceted, multidisciplinary and can be used in various areas of professional activity: educational, scientific and future professional activities. That is, the main competencies are formed in the process of implementation of the competency-based approach, the essence of which is that the student should be able to react adequately in different situations, use the acquired knowledge, skills and abilities. A specialist should have not only certain professional qualities, but also certain personal qualities.

So, a qualified specialist is a specialist who has a set of competencies aimed at achieving high results in professional activity. The main qualities of a qualified specialist are the willingness and ability to independently solve professional problems, pay attention to personal development and self-realization, and the ability to independently search for information.

The professional qualification of future experts in the mining industry is determined by his personal qualities, including professional competences. The presence of professional skills of specialists helps in effective and sufficient activity in various areas of production. Today, the scientific analysis of the training of specialists, the forecasting of the results of educational activities

and the selection of the most effective methods, meet the requirements of the training of qualified personnel.

Competency-based educational process in training personnel in the field of mining plays the role of the main means of purposeful preparation of students for self-education and development. As a result, the student learns to design independently and goes on to realize his life and professional tasks. Therefore, the modern high-quality result of education is a pre-selected composition of certain competencies reflected in the educational model based on competence, corresponding to the consumer order, social order. Accordingly, the model of specialization in personnel training in the mining sector is not only the main indicator of the quality and result of education, but also the main factor for determining the quality characteristics of the composition of the competence-based education system. Thus, a certain set of knowledge, abilities and skills, called competencies, should be specifically defined in programs and curricula as expected results to be mastered by the student.

In conclusion, it should be asserted that highly qualified specialists are being trained in Uzbekistan today, with special attention being paid to issues of professional competence. In the training of future personnel in the higher education of Uzbekistan, is taken into account not only the world experience in modernization of content, teaching and educational methods, but also the way for their solution is carried out.

References:

1. Decree of the President of the Republic of Uzbekistan, Decree No. PF-60 dated 28.01.2022 "On the Development Strategy of New Uzbekistan for 2022-2026". <https://lex.uz/ru/docs/-5841063>
2. Zimnyaya IA "Klyucheviye kompetentnosti kak rezultativo-tselevaya osnova kompetentnostnogo pokhoda v obrazovani". Author's version. - M.: Issledovatel'skiy tsentr problem kachestva podgotovki spetsialistov, 2004. - 42 p.
3. Khutorskiy AV Klyucheviye kompetentsii kak component lichnostno orientirovannogo obrazovanie // Narodnoe obrazovanie. 2003. No. 2. P. 58-64.
4. Raven J. Competence in modern society: identification, development and implementation. Moscow, Kogito-Center, 2002. 396 p.
5. Olsson Thomas; Martensson Katarina and Roja Torgny. Pedagogical competence. Swedish, Division for Development of Teaching and Learning, Uppsala University, 2010. p. 212
6. Abdullaeva B.S. Razvitiye matematicheskoy kompetentnosti u budushchix uchiteley // Vestnik Samarskogo Gosudarstvennogo Tekhnicheskogo Universiteta. Series "Psychologo-pedagogical science". 2022. T. 19. No. 4. P. 149-158. DOI: <https://doi.org/10.17673/vsgtu-pps.2022.4.12>
7. Akhmedova M.T. Pedagogical competence (methodical guide): 5110900 – Pedagogy and psychology / -T.: TDPU named after Nizomiy, 2018. - 80 p.
8. Muslimov N.A. Usmonboeva M.H, Sayfurov D.M, Turaev A.B. Fundamentals of pedagogical competence and creativity. Tashkent, 2015- 94 p.
9. Abdullayeva Sh. A. General pedagogy textbook. T.2019 -360 pages.
10. Abilova G.J. "Organization of informational competence of students of musical training and training of special disciplines with application of informational and communication technologies" International journal of discourse on innovation, integration and education. electronic collection #1, Samarkand, August 2020, p. 146-151.
11. Abilova G.J, Yeshmuratova A.A. Interactive methods of education as a means of developing students' professional competencies. INNOVATIVE SOLUTION TO URGENT PROBLEMS OF THE CHEMICAL AND MINING INDUSTRY, 1st International Scientific Conference, November 20, 2023, Nukus, Uzbekistan, p.56

Rezyume: *Ushbu maqolada kadrlar tayyorlashda talabalarining kasbiy kompetensiyasini shakllantirish, "Kompetensiya" atamasini tahlil qilish, konchilik sohasida kompetensiyaga asoslangan o'quv jarayoni tashkil etish, Oliy ta'lim muassasalarida bo'lajak mutaxassisning malakasini aniqlashda kasbiy kompetensiyani rivojlantirish texnologiyasini qo'llash yo'llari asoslab berilgan.*

Резюме: *В данной статье рассматривается формирование профессиональной компетентности студентов при подготовке кадров, анализ термина «Компетенция», организация образовательного процесса в сфере горного дела на основе компетентности,*

обосновано способы применения технологии развития профессиональной компетентности при определении квалификации будущего специалиста в высших учебных заведениях.

Kalit so‘zlar: *ta’lim, bilim, ko‘nikma, kompetensiya, kasbiy kompetensiya.*

Ключевые слова: *образование, знания, умение, компетенция, профессиональная компетентность.*

DEVELOPMENT AND REFORM OF AGRICULTURE IN UZBEKISTAN

Mirzaev B.J.

Karakalpakstan Agricultural and Agrotechnological Institute

Summary: *The article provides an overview of ongoing agrarian reforms in Uzbekistan. The issues of liberalization of the agricultural sector, the creation of a cluster system, the formation of diversified farms, as well as measures taken to support exporters of fruits and vegetables were considered.*

Key words: *agriculture, reforms, liberalization, clusters, diversified farms, exports, fruits and vegetables.*

Agriculture is an important sector of the economy of Uzbekistan and has a significant impact on increasing incomes of the population, creating jobs and ensuring food security in the country. As of January 1, 2023, 49 percent of the country's population or 17.7 million people live in rural areas. During the period 2017-2022, the economy of Uzbekistan experienced a gradual decline in the share of the agricultural sector (from 32 percent to 25 percent), but sustainable growth rates in production were achieved. Over the past 6 years, the volume of agricultural production increased by 16% (average annual growth - 2.5%) and reached 365 trillion soums, and investments in this area amounted to 8.5 billion US dollars.

The development prospects, economic and financial condition of many industries of the republic, such as cotton ginning, textile, light, food, chemical industries and others, and this is about half of the total industrial potential, directly depend on agriculture. Many researchers emphasize the importance of the development of this sector and its impact on socio-economic growth as a whole. For example, FAO researchers came to the conclusion that growth in agriculture, more than in any other sector of the economy, helps reduce poverty by playing the role of a multiplier. This report found that every percentage point of economic growth in agriculture is equivalent to a 1.5% reduction in overall poverty levels.

In 2022, the sector accounted for 25% of gross domestic product, 7% of investment, 6% of export earnings and 25% of the employed population, with agricultural exports reaching US\$1.1 billion. 62% of agricultural products were produced by farmers and household plots, 32% by farms and 6% by agricultural enterprises.

According to available data, about 4.2 million people are employed in agriculture and the food industry, that is, 32% of the total number of people employed in the country's economy. Sales of agricultural products to foreign markets bring Uzbekistan up to 20-25% of its total export earnings.

The introduction of a cluster system for agricultural production in the country has created the basis for significant positive changes in this area in a short period of time. In 2017, 2 agricultural clusters operated in Uzbekistan, and in 2022 their number reached 633. Today, the country has 134 cotton-textile, 200 grain, 249 fruit and vegetable, 42 rice, 8 pharmaceutical clusters.

Over the past six years, the value added per agricultural worker (labor productivity) increased by 23% and reached 60.8 million soums. In 2017-2022, the yield per 1 hectare of grain crops increased from 43 to 50 centners, raw cotton from 23 to 34 tons, grapes from 124 to 132 tons, potatoes from 330 tons to 349 tons, and an increase in productivity indicators for multi-colored crops from 345 to 359 units.

Uzbekistan is a country with favorable natural and climatic conditions for the production of a wide variety of agricultural products. In 2017-2022, as a result of the intensive development of agriculture in the republic and the introduction of market mechanisms, a stable increase in production volumes was achieved for all types of agricultural activities and dynamic growth rates of production indicators for all types of agricultural products were ensured.

In the field of crop production, in 2022, 8 million tons of grain crops were grown (an increase of 10% compared to 2017), 11.2 million tons of vegetables (9%), 3.4 million tons of potatoes (23%), 3.0 million tons of fruits and berries (14%), 1.8 million tons of grapes (8%), 2.4 million tons of rice crops (19%) and 3.5 million tons of raw cotton (29%).

In the field of livestock farming, in 2022, 2.7 million tons of meat were produced (growth by 2017 - 19%), 11.6 million tons of milk (16%), 8.1 billion eggs (28%), 14.7 thousand tons honey (25%). At the same time, in 2022, the number of cattle amounted to 13.9 million heads (an increase compared to 2017 - 11%), cows - 5.0 million heads (15%), sheep and goats - 23.6 million heads (14%), poultry - 97.3 million heads (30%).

The agricultural production indicators achieved in recent years make it possible to ensure food security for the population, supply a sufficient amount of raw materials for local industry and increase the volume of agricultural exports, expanding its geography.

It is important to emphasize that over the years of independence, our country has consistently implemented a deeply thought-out strategy for the development of the agro-industrial sector, aimed, first of all, at ensuring its food security, as well as expanding export opportunities.

In this vein, the last 5 years can be called a period of unprecedented comprehensive reforms in the agricultural sector, including the introduction of market mechanisms, advanced technologies and the transition to a cluster production system in agriculture. Its main goal is to form a single chain that unites all processes of production of finished products - from growing raw materials to processing and manufacturing the final product.

Currently, textile, grain, fruit and vegetable, meat and dairy, and seed clusters are developing in the republic. Of course, this system is at the stage of its formation, there are many problems of an organizational and legal nature. However, its further development will make it possible to effectively use the production potential of Uzbekistan's agriculture.

Along with this, starting in 2018, the process of transforming industrial farms into multi-industry farms began to actively take place, which, along with production, are engaged in processing, storage, sales, industrial production of agricultural products, as well as the provision of agricultural services.

In 2019, Uzbekistan initiated farm restructuring aimed at improving the optimization of agricultural land use by increasing farm size and redistributing land to more efficient farmers and clusters.

In the same year, the Presidential Decree approved the "Agricultural Development Strategy of the Republic of Uzbekistan for 2020-2030", which covered such strategic priorities as creating a favorable agribusiness climate and value chains, reducing the role of the state in managing the sector and increasing investment attractiveness, ensuring the rational use of natural resources, the development of modern public administration systems, the development of science, education, systems of information and consulting services in agriculture, etc.

These innovations in the agricultural sector have become an important tool for ensuring a stable economic situation in rural areas, saturating markets with necessary consumer products, as well as increasing the volume of exports of local agricultural products.

This is confirmed by the words of the Head of our state that, thanks to the correct policy in the field of land relations, 100 thousand hectares of sown areas were transferred to 400 thousand rural residents for the development of agriculture. As a result, an additional 1.5 million tons of food products were grown and more than 1 million 200 thousand villagers were provided with a permanent income.

In his speech, the President of the Republic of Uzbekistan voiced his strong intention to continue the ongoing reforms in agriculture. In particular, he particularly highlighted the issue of transforming dekhkan farms into business entities. It was emphasized that in 2023, the population will be allocated another 100 thousand hectares of irrigated crop area. Due to this, about 350 thousand new dehkan farms were created. As a result of this, 750 thousand new dehkan farms

turned into business entities and land owners. \$1 billion will be allocated for projects to create a high added value chain in the agricultural sector.

In general, sustainable development and modernization of agriculture is a key priority of the country's macroeconomic strategy aimed at economic growth and improving the well-being of the population. Moreover, the demand for this policy at the present stage is due to the growing relevance of the problem of ensuring food security in recent years. In these conditions, an effective agricultural policy implemented by the leadership of our republic contributes to the solution of many social problems.

Thus, in recent years, grandiose reforms have been carried out in the agriculture of Uzbekistan, the results of which have already made it possible to ensure sustainable growth of the industry and increase resource efficiency. In the future, they will serve to fully utilize the existing potential of the republic in agricultural development and bring Uzbekistan among the world leaders in the production and export of agri-food products.

References:

1. Сауханов Ж.К. Фермер хўжаликларининг трансакция харажатларини пасайтириш муаммолари. // Агроиктисодиёт журнали. -Т., 2018, №9. 49-52 б. (08.00.00 №25).
2. Калмуратов Б.С Стратегия развития инновационного управления промышленного комплекса Республики Каракалпакстан// International Scientific Journal Theoretical & Applied Science Philadelphia, USA Issue 01, volume 91 published January 31, 2021. 379-387 стр
3. Калмуратов Б.С Формирование инновационной стратегии развития в конкурентной среде строительной индустрий// International Scientific Journal Theoretical & Applied Science Philadelphia, USA issue 02, volume 82 published February 29, 2020 pp. 455-463
4. Развитие сельского хозяйства в Узбекистане в 2017–2022 годах (инфографика)// <https://e-cis.info/news/567/110149/>

Rezyume: *Maqolada O‘zbekistonda amalga oshirilayotgan agrar islohotlar haqida umumiy ma’lumot berilgan. Qishloq xo‘jaligini liberallashtirish, klaster tizimini yaratish, ko‘p tarmoqli fermer xo‘jaliklarini shakllantirish, shuningdek, meva-sabzavot mahsulotlarini eksport qiluvchilarni qo‘llab-quvvatlash bo‘yicha ko‘rilayotgan chora-tadbirlar ko‘rib chiqildi.*

Резюме: *В статье приведен обзор проводимых аграрных реформ в Узбекистане. Рассмотрены вопросы либерализации аграрного сектора, создания кластерной системы, формирования многопрофильных фермерских хозяйств, а также принятые меры по поддержке экспортеров плодоовощной продукции.*

Kalit so‘zlar: *qishloq xo‘jaligi, islohotlar, liberallashtirish, klasterlar, ko‘p tarmoqli fermer xo‘jaliklari, eksport, meva-sabzavot.*

Ключевые слова: *сельское хозяйство, реформы, либерализация, кластеры, многопрофильные фермерские хозяйства, экспорт, плодоовощная продукция.*

**THE ROLE OF "ISHAN-KALA" IN THE SPIRITUAL CULTURE OF AMU DARYA
DEPARTMENT OF THE FIRST QUARTER OF THE XX CENTURY**

Usenov S.Kh.

Karakalpak State University named after Berdakh

Summary: The article, based on the materials studied, analyzes the spiritual culture of the peoples of the lower reaches of the Amu Darya, the political activity of the Jadids, that despite the difficult economic life, the Karakalpak people created their own rich original fine art, original folklore, high examples of Karakalpak folk applied art, which were manifested in the decoration of the yurt, the decoration of women's clothing, household utensils, horse harness and tools. The Karakalpak people brought forward such wonderful folk poets from their ranks as Zhiyen-zhrau, Berdakh, Ajiniyaz, Utesh and others, who were active fighters for the development of truly folk culture. Among the educational institutions there were mektebs and madrassas. Mektebs are primary confessional schools, madrassas are advanced Muslim religious schools.

Key words: spiritual culture, Jadids, fine arts, original folklore, applied arts, folk poets, mektebs, madrassas.

The spiritual culture of the peoples of the lower reaches of the Amu Darya was closely connected with political events. The revolt of 1916 was a spontaneous struggle of the peoples of the Khorezm oasis for their freedom, for elementary political and human rights. One of the characteristic features of the revolt was the active participation of women in it. The main reason for the 1916 uprising in the Khiva Khanate was socio-economic, political and national oppression. The direct cause of the uprising was the systematic taking of girls to the khan's harem [8].

The leading representatives of literature and art of the peoples of the Khorezm oasis Ovez Utarov, Ayapbergen Musaev, Durdy Klych and others in their works in 1916-1917 openly showed the discontent of the masses with the khan's despotism and oppression[5].

The political activity of the Jadids manifested itself in the organization of the young Khiva residents' party, which originated in 1905-1907, during the first Russian Revolution. Its activity was revitalized in 1910-1911 under the influence of the Iranian and Turkish revolutions and, finally, in 1914-1917 under the influence of the First World War and the February Revolution in Russia[7].

On May 22, 1917, the population of Khiva raised a "hunger riot" and began to smash shops, warehouses, barns of merchants, took away flour, rice and other food, distributed it among the starving residents of the capital. Even the organ of the Turkestan organization of "Shuro-Islamists", Tashkent newspaper "Ulug Turkestan" reported: "At present, a terrible famine is rampant in Khiva. In the cities of the country there are formidable riots of hungry people"[4].

The hard economic life of the Karakalpaks has left its imprint on their life and culture. The Karakalpak people created their own rich original fine arts, original folklore, nominated from their ranks such remarkable folk poets as Zhiyen-zhrau, Berdakh, Azhiniyaz, Utesh and others, who were active fighters for the development of truly folk culture.

The Karakalpak yurt made of a special kind of wood (uy tal or togay tal) included three parts: kerege, uyk, and shangarak. The basis of the yurt was a lattice frame - kerege, made of several parts - lattices (rope). The size of the yurt depended on the number of ropes. A rich man's yurt was of considerable size and had six ropes, while a poor man's yurt had only four. The ropes were arranged in a circle and fastened with special ropes, forming the base of the yurt (kerege). The roof of the yurt was made of uyks (straight sticks) bent only at one end for the convenience of attaching to the kerege, therefore the roof of the Karakalpak "kibitka" has the form of a cone, while the same sticks of the Kazakhs are bent in an arc-shaped manner along the whole length, which makes the roof spherical. The number of uyks depended on the number of kerege ropes. They were attached to the upper edge of the kerege, forming a cone-shaped roof of the yurt, on which a wooden circle (shangarak) rested. The upper ends of the uyks were attached to the shangarak, which

crowned the top of the yurt. The cylindrical base of the yurt (kerege) was covered outside with reed mats (shiy), and the roof was covered with felt. The shangarak was closed with felt or mat (tunglik) completely only at night, when sleeping, and the rest of the time remained half-open, replacing the chimney and the window for lighting the yurt. For access to the yurt there were two-leaf doors (yergenek), which were covered with a special mat (esik) from the outside. Karakalpaks lived in yurts not only in summer, but also in winter [9].

The Karakalpaks gathered in winter, led by their clan chiefs, in special fortifications (kala) for defense against frequent raids. The "kalas" of that time were large rectangular spaces, walled or enclosed by an earthen rampart and surrounded by a moat. Large settlements of Karakalpaks - Chimbay, Nukus, Kungrad - were just such fortifications. I.N.Karazin wrote: "Karakalpaks, migrating in summer near their fields in kibitkas, for winter move to Chimbay and in this fence gather all together in a tight bunch, reaching a number of up to forty thousand kibitkas"[11]. In the Amu-Darya delta there were many similar fortifications built in the 50-60s of the XIX century - Molla Prim-Kala in the area of Boz-atau, Ernazar-Kala on the bank of the Aral Sea and others.

The Karakalpaks used homemade fabrics for making clothes: cotton, kendyr, woolen, in addition to homemade, they widely used silk and semi-silk artisanal fabrics of Uzbek and Tajik manufacture, imported from Khiva and Bukhara. Finally, since the middle of the 19th century, English and then Russian cloths, chintzes and other factory fabrics were widely used.

The upper garment of Karakalpaks consisted of a long chapan and a shekpen. The chapan was made of cotton or silk cloth of striped color (dark brown or dark purple) of artisanal production, shekpen - of thin artisanal fabric of camel's wool (shekpen shal). Sometimes a quilted beshpent (camisole) made of black paper maternity cloth was worn under the robe. Chapan, shekpen, beshpent were girded from above with a girdle (belbeu) made of colored cloth. Young men were often girded with a shawl (sharshy) folded diagonally, and on holidays - with a silk girdle (madeli). Lower clothing consisted of a spacious long shirt (koylek) and wide pants (dambal, shtan, dizkiyim) sewn from white cotton fabric (boz)[16].

Footwear was boots (etik) made of yawl leather (teletin), which was bought from Khiva residents. But they were made mainly of sherim, a poor grade of local artisanal cowhide. The boots had high heels, with sharp, slightly curved toes. Old rich men and Muslim clergy wore masi - soft boots made of mutton skin on soft soles without heels, with leather galoshes on a low sole (keush). Headdresses were tahiya and shogirme (kurash). Tahiya is a small round skullcap made of soft cloth, over it was worn shogirme - a large sheepskin hat of black color sewed with sheepskin outside. Older people wore brown shogirme and clergy in most cases wore brown shogirme with a white turban tied on top (salle).

In winter cold Karakalpaks wore a spacious tulup (ton postyn) made of tanned sheepskin or clothes made of cotton fabric with quilted on camel's hair or absorbent cotton lining (gupi). In winter under boots or masi people still put on baypak - felted stockings made of soft felt[3].

Women's costume consisted of an ankle-length dress (koylek) and long, tapered down trousers (dambal, ishkiim, dizkiyim). The dress was made of paper or silk fabric of dark red and dark blue color. The trousers were made of striped colored cloth, most often of dyed boz. A camisole of black or colored striped cloth, sometimes of colored velvet (makbal) was worn over the dress. The chest and cuffs of the camisole were decorated with embroidery. In winter they wore the same camisole, but quilted on cotton or made of dressed calf skin. Women wore high-heeled boots made of locally made leather (sherim) or purchased leather (teletin). The overwhelming majority of women wore leather galoshes (keush) and soft boots (masi). The headdress of the Karakalpak woman differed sharply from the headdresses of women of the surrounding peoples. In contrast to the white turban (zhaulyk) of a Kazakh woman, the Karakalpak woman tied her head with a headscarf made of colored cloth (bas uramal). The shawl is rolled up in a bundle and wrapped around the head in the form of a turban, but with a prominent forward thickening on one side. On top of the shawl tied in this way is wound another, also colored shawl (aydylli), one end (alaka) of which remains free, lowered on the back[1].

The highest examples of Karakalpak folk applied art were manifested in the decoration of yurts, women's clothing, household utensils, horse harness and tools. Embroidery, carpet making, patterned weaving, jewelry, wood carving combined with inlaying with bone and red cloth, and later, in the late XIX and early XX centuries, with painting, with embossing on leather and ornamentation of leather with copper wire and fabric applique were greatly developed. The production of koshmas was poorly developed.

The products of folk artisans were only partially traded or exchanged. Professional craftsmen were jewelers. Wood carving, inlaying and painting, and sometimes leather embossing were done by carpenters.

According to the established tradition, embroidery, carpet making and patterned weaving were performed by girls, each of whom was obliged to learn all these kinds of applied arts before marriage. Mother or a more experienced craftswoman started training girls from the age of 7-8. Most women after marriage did not have the opportunity to practice arts and crafts, as they had to devote themselves entirely to family concerns.

Karakalpak woven and patterned woven products were characterized by a variety of techniques. They are divided into three main groups: patterned plain-woven, numbering several types, pile and combined, where pile relief pattern stands out on a smooth background and often alternates with plain-woven.

Each of the long patterned woven strips, each mat occupied a certain place in the decoration of the yurt and had a peculiar traditional ornamental solution. The ornamentation of woven products was diverse. In all cases it was decorative, easy to read; the color did not break its unity and always harmoniously combined with the accepted composition. The performers selected colors for each product similar to the way an artist selects colors in a painting. This explains why almost every piece has an independent, unique color solution, while remaining within the framework of Karakalpak folk color traditions. Some are based on delicate pink, gray-green, lilac and light ochre halftones, while others, on the contrary, are based on dense, rich combinations of red, blue, brown or black colors. In the late XIX and early XX century, due to the spread of aniline dyes, bright red and yellow colors are combined with brown, green, dark blue and blue [11].

The art of women in embroidery is quite perfect, too. Without using canvas and pre-drawing, the girls kept amazing accuracy in the outlining of repetitive elements of the pattern. According to its technique, embroidery is divided into two main groups: made by cross and various tambours (smooth embroidery, ancient embroidery *teriskayu*, etc.). A certain type of embroidery strictly corresponded to the fabrics, clothes and household items. Cross embroidery was performed on homespun cotton fabric - *boz*. (later they began to use also factory cotton fabric). This method was used to embroider white clothes for elderly women (*ak-zhegde*, *ak-kiymeshek*), white cinches and eyecups for horses, long and short armbands (*zhengse*), tea bags (*chai kalta*), as well as dresses for girls and young women (*kok koylek*) embroidered on blue *boz*. The plaid *boz* was embroidered in the *teriskayu* method. Other types of embroidery were performed on red cloth and black woolen cloth, from the combination of which were made headdresses for young women (*kyzyl kiy bag*), the collar of cape robes (*zhypek zhygde*), armbands for women's coats (*ton*, *zhengse*) and wide borders for clothes or their parts cross embroidered [1].

Wood carving complemented the interior decoration of the yurt, covering doors, cupboards (*sandyks* and *sabayaks*), small utensils and tools. The Karakalpaks did not have masters engaged exclusively in carving, but this art form reached a high level of development; there is a great variety of ornamental motifs. The best masters had their own manner of carving, as if a peculiar handwriting that distinguished their work. Of great interest is the combination of carving with inlaid bone and red cloth, as well as with painting.

Karakalpak jewelers were engaged in the manufacture of jewelry for women's clothing, for horse harness, plaques for men's belts, and all kinds of amulets (*tumars*). Karakalpak jewelry is characterized by decorativeness and solemn monumentality of forms, they are characterized by restraint of color. The material is usually silver (sometimes gilded), decorated with carnelian,

turquoise and sometimes coral. Especially beautiful women's festive headdresses (saukele and tobelik), where on shaped silver plaques gilded ornament combined with green turquoise and coral [7].

Women's jewelry was numerous. They perfectly combined with richly embroidered clothes and clearly stood out against this background. Masters always avoided cheap mishurriness. Very thoughtfully they used the main metals from which the jewelry was made - gold and silver. Gold in jewelry contrasted beautifully with silver.

Of all the Karakalpak applied arts, jewelry had the most specialized production, as wood carving was done on an ad hoc basis, and embroidery and patterned fabrics, as a rule, were not produced much for sale. In this regard, some jewelry, despite all the variety of forms and decorations, is sometimes characterized by features of a market stamp. Masters-jewelers belonged to a kind of schools, which were characterized by certain methods of ornamentation and techniques of execution.

Embossing on leather was mainly practiced by wood carpenters, who made the necessary stamps for embossing. This technique was used for ornamentation of products made of rectangular pieces of thick leather, such as tebing placed under stirrups. They represent relief ornamental compositions standing out on a buried background. Leather cases for bowls and teapots were decorated with a kind of "embroidery" made with copper wire. This type of decoration perfectly combined with the surface of leather goods. Sacks for food or small household items (shanash) were decorated with applique [12].

The institution of ishans became widespread among the Karakalpaks after their conquest by the Khiva Khanate. Ishans popularized among the population with the religious book "Sufi-alliyar". This book in the old Uzbek language represented abstract religious-philosophical Sufi discourses.

The celebration of Kurban-ayt was accompanied by a sacrifice to the god (kurban - sacrifice, ayt - celebration). On this holiday everyone slaughtered cattle. Each household was obliged to sacrifice one ram, sometimes seven households united and slaughtered one cow.

The believers fasted (uraza) during the month. They were allowed to eat only after sunset until sunrise. The majority of Karakalpaks blindly believed the Muslim clergy: Islam had a great influence on their worldview. Thus, no phrase began without the addition of "kuda kalese" (if God wills). To assure the interlocutor of the truthfulness of his message, they referred to God: "Bir kuda bargoi" (God is one), these words removed doubts about the truthfulness of the speaker [13].

Among the Karakalpaks were also widespread vestiges of some beliefs of pre-Muslim origin, for example, shamanism, belief in spells, in supernatural powers of some animals, etc.

Father was the head of the family; the father's authority was preserved until his death; all his instructions were law for family members, children had no right to oppose him. There is a Karakalpak saying: "Atanyn kargyysyn algan bala onbaydy" (A son who is cursed by his father will not become a good man). When the family increased after the marriage of several sons, they organized a partition.

The woman was in a particularly difficult position in the family. Even in her father's family she was brought up in the spirit of slavish submission, not only having no right to object to her father, but also to look him in the eye. The girl had no right to speak in the presence of the guest. She did not control her own destiny and dared not dream of a beloved man. She was given in marriage, or rather sold for kalym without her consent, regardless of the age difference with the groom. A girl was considered an adult at the age of 13-14. Rich men married their sons at the age of 15. In contrast, the poor married late, at the age of 30-40, because of difficulties in paying the kalym. Sometimes fathers who knew each other matched young children in order to receive kalym in advance for their daughter. At the age of 13-14 she was given in marriage. When a woman moved to her husband's house, her situation deteriorated sharply. In her husband's house she observed the ancient custom of "avoidance": she had no right to call him husband, calling him "uidin aghasy" (master of the house). She called her husband's father "ata", his mother - "yene", her husband's older brothers "kainaga", younger ones "kishkene", older sisters "apa", and younger ones

"biikesh". A woman could not call by name all her husband's relatives as well. If she accidentally addressed by name, she was almost beaten to death for violating the established custom [14].

Due to harsh living conditions, various diseases (trachoma, malaria, gastrointestinal diseases, scabies, syphilis, leprosy, etc.) were extremely widespread among Karakalpaks. Local herbalists, the so-called tabibs, treated them. They could barely cope with such operations as tooth extraction, removal of some tumors, correction of dislocations, application of fixed bandages. Syphilis, leprosy, malaria were considered incurable by Karakalpaks. Women suffering from infertility, as we mentioned above, visited mazars for "healing".

A great place in the treatment of diseases was occupied by various spells, charms and other magical actions, which were based on the belief that any disease was connected with the intervention or even with the implantation of an evil spirit in the patient. Various amulets given by mullahs and ishans "protected" against evil spirits. In addition, there were "specialists" in expelling evil spirits from the patient's body - the aforementioned porkhans. The session of treatment (zikir) for expulsion of evil spirits consisted in the fact that the porkhan beat a tambourine and shouted various prayers and incantations, accompanying his words with sharp movements. The session lasted several nights in a row [15].

Only mektebs and madrasahs existed among educational institutions. Mektebs were elementary confessional schools maintained at the expense of funds collected from parishioners. A child entered mekteb at the age of 5-6 years. Classes were conducted separately with each pupil. The program of education in mektebs included reading several books written in Arabic or Persian, so their study presented insurmountable difficulties for small children. The course of mekteb began with the study of "Haftiyak" (excerpts from the Koran) written in Arabic. Teaching consisted in rote learning of separate provisions of the Koran and continued until a pupil memorized the whole "Haftiyak", which took at least two-three years. Memorization of completely incomprehensible words in Arabic was so difficult for Karakalpak children that many of them left school without having finished the whole book. After studying "Haftiyak" a pupil moved to the next traditional book - "Sufi-altiyar", which was already mentioned above. It also took two or three years to memorize this work, after which they started studying the book "Char kitab"[17].

The next level of education was the madrasah, a Muslim spiritual school of a higher type. Karakalpak madrasahs had two courses. The first course taught morphology and syntax of the Arabic language, while the second course taught mainly Sharia law, logic, and a condensed course of Muslim law. Karakalpak madrasahs gave less knowledge than madrasahs of Khiva and Bukhara; those who graduated from Bukhara madrasah were considered to have higher spiritual education, and those who graduated from Khiva madrasah - with secondary education and received the title of akhun. The Karakalpak madrasah did not even give the title of akhun, so large ishans and bais sent their children to study in Khiva and Bukhara.

Karakalpak oral folklore was spread among the people in the form of stories, songs and poems. According to its themes, Karakalpak folklore is conditionally divided into family and domestic (ritual) and historical and epic. Family and everyday folklore consists of two groups. Incantations and songs to which magical power of influence was attributed, preserved as vestiges of pre-Muslim religion: Badik or gulapsan (incantations for treating eczema, scarlatina, and other diseases causing rashes on the body); kurt shakiru (incantations for treating teeth); incantations of the zakirsha (shaman), which are a vestige of shamanic mysteries (porhay kosyklary); Muslim cult prayer performances (ayti-kurban, ayt-ruza, yaramazan). Household songs. They include children's songs (bolalar kosyklary), songs of girls and dzhigits (kyzlar kosyklary, dzhigit kosyklary) and wedding songs (xauzhar, bet ashar, synsu), songs connected with death (zhoklau), lyrical, humorous, satirical songs, etc. Dialogical competitions in composing and performing impromptu quatrains (aytys or zhuap), fairy tales (ertek), couplets (bayit), proverbs and sayings (makal or nakyl), riddles (jumbak), tongue twisters (janyltpash), teases, taunts (kulki soz, basklasu) and so on.

There were two historical and epic genres: historical songs and legends: tarikhi kosyklar - historical songs, tolgau - historical poems; terme - descriptions of the area or any historical event:

anyz soz - legends; heroic epic (dastan, dzhyr). The largest heroic tales of the Karakalpaks were "Kyrk Kyz", "Koblan", "Alpamys", "Maspasha", "Erkosai" and others. Kunhoja (1799-1880), whose real name was Djemurat (Kunhoja was a pseudonym), was a famous poet. In his childhood he was a shepherd. This period of his life was later reflected in the verse "Shopanlar" (Shepherds), which vividly and figuratively shows the hard life of Karakalpak shepherds. After graduating from the mekteb, he entered the madrasah of Karakum-ishan, but left his studies for lack of funds. Kunhodzha had to be employed as a laborer in Urgench, Khiva and other Khiva towns and villages. This period is characterized by the verse "Orakshylar" (Reapers), which tells about the difficult life of Karakalpaks forced to wander around the Khiva Khanate in search of work.

Azhiniyaz (1824-1878) was also an outstanding poet. He managed to graduate from madrasah in Khiva and received the title of akhun. He was well acquainted with the works of Navoi, Makhtumkuli, Ferdousi and Saadi. In the poem "Boz atau", which was widely recognized and popular among the people, the poet tells about the devastation of Karakalpaks by Turkmen feudal lords and Khiva troops in 1859 during the revolt in Kungrad. This poem has its own musical motif and was performed with dutar accompaniment. There is reason to believe that the music was composed by Azhiniyaz himself. Azhiniyaz lived for a long time in Kazakhstan, visited Orenburg and Uralsk, where he composed a verse "Yellerim bardy" (I have a homeland), which refers to the Khanate of Khiva.

Berdakh-shair (1827-1900) enjoyed wide popularity among the people. The themes of Berdakh's verses are diverse, his verses "Salyk" (Tax), "Zhaz kelerme" (Will Summer Come?), "Dauran" (Epoch), "Bolgan emes" (Never Happened) and others tell about the hard life of the Karakalpak people. The poems "Amangeldi" and "Yernazar-bi" are devoted to the struggle of Karakalpaks against oppressors. The verses "Kelin" (Daughter-in-law), "Oylanba" (Don't think), "Akmak patsha" (Tsar the tyrant) tell about the sad plight of Karakalpak women; in them he urges women to fight against the prohibitions of Shariat and adat. In the songs "Khalk ushyn" (For the people), "Balam" (My son), "Nadan balma" (Don't be a fool) he calls young people to do noble deeds for the sake of the people and to fight against oppressors.

Otesh-shair was a major poet of the 19th century. Biographical information about him is extremely scarce, the dates of his birth and death are unknown, and his works have been little studied. Otesh is the grandson of the famous Karakalpak poet Jien-zhrau. It follows from the content of his works that he was the same age as Berdakh and lived longer than the latter. Widely known among the people were Otesh-shair's verses "Yangyldy" (Similar), where he compares bays to dogs, and "Nuraddin and Shermende", fearlessly denouncing aul mullahs. In the verse "Kordim" (Seen) Otesh tells how he realized the inequality of people, the division into poor and rich and the difference of their interests. "Kyzlar" (Girls) and some other works by Otesh tell about the plight of Karakalpak women. One of the prominent Karakalpak poets of the late 19th and early 20th centuries was Omar Sugirimbet-uly. The main theme of Omar's works is the depiction of the plight of the poor people working for the bays. The exhausting labor of workmen, their sufferings, arbitrariness of bays, disgusting features of greedy, avaricious masters are depicted with special force in the poet's verses "Ne payda" (What is the use), "Kaitaman" (I will return).

At the end of the XIX century, another poet - Sarybai-Shair was working. Sarybai is famous for having pioneered the fable genre in Karakalpak poetry. In his works "Aytarman" (I am speaking), "Zharkanat" (Bat), "Kursym zhasym kursyn" (My bitter life) he depicts the hardships, misery and deprivations of the working people. In the late XIX - early XX century, the poem "On togyz" (Nineteen) by the remarkable poet Kulmurat-Shair became very popular. With exceptional force he exposes the volost and aul rulers. With great artistic skill he wrote a poem "Kairauda zhalgyz gas" (Goose-baiting).

References:

1. Абдуллаева Я.А. Қорақалпоғистон хотин-қизлари: Кеча ва бугун. XIX асрнинг охири ва XX аср. – Тошкент: Ijod dunyosi, 2004. – 224 б.

2. Веселовский Н. И. Очерк историко-географических сведений о Хивинском ханстве. — СПб., 1877.
3. Досумов Я.М. Очерки истории Каракалпакской АССР (1917-1927 гг.). — Ташкент: Изд-во АН Узбекистана, 1960. -490 б.
4. Жалилов О. XIX – XX аср бошларида қорақалпоқ тарихидан (Хива давлат ҳужжатлари асосида). – Тошкент: Фан, 1986.
5. Жданко Т.А. Очерки исторической этнографии каракалпаков.- М.-Л.: АН СССР, 1950
6. Иванов П.П. Қарақалпақлар тарихиның очеркleri. – Нөкис: Билим, 2021.
7. Камалов С.К. Қарақалпақлардың халық болып қәлиплесиўи ҳәм оның мәмлекетшилигинин тарихынан. – Нөкис, 2001. –76 б.
8. Карақалпақ елинің уллы уламасы // Республикалық илимий-теориялық конференция материаллары. Нукус: Билим. 2006
9. Карлыбаев М. А. Медресе в Каракалпакии XIX - начала XX веков. Нукус: Билим, 2002
10. Карлыбаев М.А. К истории ислама у каракалпаков: исторические, социальные, этнические и генеалогические контексты // Монография. – Нукус: Илим, 2021.
11. Косбергенов Р. Каракалпакстаннын Россияга косьшыуы. Тарийхый-этнографиялык монография. — Нөкис: Каракалпакстан. 1972. -390 б.
12. Кошанов Б.А., Отегенов Х. Очерки истории Каракалпакстана. 1916-1991. – Нукус, 2021.
13. Сейтақов Б. Қыз салығы. Туркманчадан таржимо. – Нөкис: Қара-қалпақстан, 1988. – Б.210.
14. Төреев А. XIX әсирдин ақыры XX әсирдин басында карақалпақ үлкесинде дийқанлар харекети. –Нөкис: Қарақалпақстан, 1991.- 280 б.
15. Тилеўмуратов М. Карақалпақ поэзиясы – тарийхый дерек. – Нөкис: Қарақалпақстан, 1994. -344 б.
16. Тухтаматов Т.Г. Амударьинский отдел (Социально-экономическое и политическое значение для Хорезмского оазиса). - Нукус: Каракалпакстан, 1977.- 287 б.
17. Шалекенов У. Очерки истории культуры Советской Каракалпакии (1917-1940 гг.). Нукус, 1960
18. Юсупов О. Ийшан-кала // Вестник ККФАНУзССР. 1984. №1. Сс. 64-67

Rezyume: *Ushbu maqolada o‘rganilgan materiallar asosida Amudaryoning quyi oqimidagi xalqlarning ma‘naviy madaniyati, jadidlarning siyosiy faoliyati tahlil qilinib, qoraqalpoq xalqi og‘ir iqtisodiy hayot kechirganiga qaramay, o‘zining boy asl nafislarini yaratgan. san‘ati, o‘ziga xos xalq og‘zaki ijodi, qoraqalpoq xalq amaliy san‘atining yuksak namunalari o‘z uyini bezashda, ayollar kiyim-kechaklarini bezashda, uy-ro‘zg‘or anjomlari, ot jabduqlari va asboblarida namoyon bo‘ldi. Qoraqalpoq xalqi o‘z safidan chinakam xalq madaniyati rivoji yo‘lida faol kurashgan Jiyejrau, Berdaq, Ajiniyoz, Utesh va boshqalar kabi ajoyib xalq shoirlarini yetishib chiqdi. O‘quv yurtlari orasida mektab va madrasalar bo‘lgan. Mekteblar boshlang‘ich konfessiya maktablari, madrasalar ilg‘or musulmon diniy maktablari.*

Резюме: *В статье на основе изученных материалов анализируется духовная культура народов низовьев Амударьи, политическая активность джадидов, что не смотря на тяжёлую экономическую жизнь каракалпакский народ создал свое богатое самобытное изобразительное искусство, оригинальный фольклор, высокие образцы каракалпакского народного прикладного искусства которые проявились в убранстве юрты, украшения женской одежды, домашней утвари, конской сбруе и орудиях труда. Каракалпакский народ выдвинул из своих рядов таких замечательных народных поэтов, как Жиijen-жрау, Бердах, Ажинияз, Утеш и другие, которые являлись активными борцами за развитие подлинно народной культуры. Из учебных заведений существовали мектебы и медресе. Мектебы - начальные конфессиональные школы, медресе - мусульманское духовное училище повышенного типа.*

Kalit so‘zlar: *ma‘naviy madaniyat, jadidlar, tasviriy san‘at, o‘ziga xos xalq og‘zaki ijodi, amaliy san‘at, xalq shoirlari, mekteblar, madrasalar.*

Ключевые слова: *духовная культура, джадиды, изобразительное искусство, оригинальный фольклор, прикладное искусство, народные поэты, мектебы, медресе.*

SOCIO-ECONOMIC SIGNIFICANCE OF PUBLIC TRANSPORT SERVICES (IN THE EXAMPLE OF NUKUS)

Khalmuratov K.P.

Karakalpak State University named after Berdakh

***Summary:** Public transport has a significant role in sustainable urban transport including the reduction of congestion, noise and air pollution. The main purpose of this paper is to present other important impacts of public transport i.e., the improvement of transport safety and public safety, too. Public transport is one of the safest transport modes according to the indication numbers in traffic accident and injuries. This phenomenon is illustrated through literature research as well as statistical data. Further opportunities are presented with a case study based on the transport system of the city of Nukus.*

***Key words:** transport, passenger transportation, transport services, urban agglomerations, gross domestic product, communications, railway transport, transport infrastructure.*

Transport as a process does not create value, the user (may be a driver, passerby or passenger) realizes his purpose through transport. A transportation service occurs when the end result of the trip creates value above the costs (including money and time spent). It can be seen that going to work, university and school is a daily activity and it has become a value [1]. Nevertheless, traffic accidents remain one of the main causes of death in Uzbekistan. Since transport is an integral part of everyday life, ensuring road safety is one of the important tasks of society. Thus, as a research object, we took the city of Nukus, where social transport services are not formed according to the requirements of world standards.

The city of Nukus has been designated as the capital of the Republic of Karakalpakstan since April 1, 1932. The city of Nukus is the economic, political and cultural center of the Republic.

The land area of the city is 221 square km, the population is 334.6 thousand people.

In the city of Nukus, there are 11 higher educational institutions, including Karakalpak State University, Berdak Museum, Student and Sports Palaces, Nukus international Airport, Railway Station, Bus Stations, Academic Lyceums and Vocational Colleges. schools, "Karakalpakstan State Art Museum named after Savisky", "Tashkent" hotel buildings, Ulugbek monument, etc. [2].

The volume of services provided to residents in the city of Nukus is increasing year by year. This can be seen in the volume of services per capita. In the Republic of Karakalpakstan, this indicator was 13786,7 thousand soums in 2022, while in the city of Nukus it was 5399,3 thousand, and in all districts except Kungirov and Nukus districts 4000 thousand soums in other districts excel. We can observe that it does not exceed.

Transport services are one of the main types of services in the service sector, and transport is the artery of the economy. The total volume of services in the Republic of Karakalpakstan in 2022 was 10,595.3 billion soums, and the volume of transport services was 2,867 billion soums. It can be seen that transport services make up 27% of the total services and that the transport services sector is considered as a strategic sector. Analyzing the indicators of the volume of transport services in the Republic of Karakalpakstan, in 2022 the amount of transported cargo was 36762,4 thousand tons, and the cargo turnover was 849,5 million. t-km, the number of transported passengers is 144597,5 thousand people, and the passenger turnover is 4209,3 million. passenger-km. organized [3].

The total volume of services rendered in the city of Nukus is 4,574.3 billion. made up soums. But it is difficult to find accurate information about transport services. The reason is that in the analysis of statistical data, it is problematic to provide accurate data on the volume of public transport services provided to the population due to the fact that minibuses carrying passengers, taxis, buses do not give receipts to passengers about the use of services, because of the existence of hidden services. Therefore, in the course of our research, we conducted a questionnaire in the city

of Nukus in order to determine the volume and quality of the use of transport services by passengers.

In 2022, the number of economically active population in the city of Nukus was 146 thousand people, the number of people employed in the economy was 133.2 thousand people, and the number of unemployed people was 12.7 thousand people. Public transport services are used not only by the economically active population, but also by parents to take their children to school and pre-school educational institutions. Students have an important place in the active population. For example, more than 30,000 students study at Karakalpak State University. It turns out that the number of public transport users in Nukus is higher than we expected.

Inadequate public transport services in Nukus will result in:

1. Only minibuses and taxis are inconvenient for residents as public transport;
2. Too few buses;
3. Failure to plan the field based on marketing research;
4. Non-operation of bus stops on roads (residents can get on and off minibuses from wherever they want);
5. Failure to work on the basis of the specified schedule;
6. The fact that the field is not digitized at all;
7. deterioration of the level of road safety;
8. increased air pollution;
9. loss of efficiency of people's time use;
10. increase in traffic congestion on the roads in the morning, noon and evening, etc.

As we mentioned above, we conducted a survey among the population, including students, teachers, students, workers, and merchants. The main purpose of this questionnaire was to identify issues for improving the public transport system and develop recommendations for improving the sector.

200 respondents took part in the survey, and the results are as follows.

1. Are you satisfied with the public transport service?

Out of 200 respondents, 178 answered "no", the remaining 12 answered "yes", and 10 answered "no clear answer";

2. Are directional-taxis (Damas) meet the requirements of passenger transportation?

All 200 respondents answered "no";

3. Are you satisfied with the newly installed minibus service?

Out of 200, 85 answered "yes", 34 answered "no", and the remaining 81 answered "Damas is better";

4. Are you satisfied with the bus services?

Out of 200, 24 answered "yes", 55 answered "no", 121 answered "I don't use".

5. Which public transport is convenient?

Out of 200, 89 people chose a taxi (Damas), 75 people chose a minibus, 36 people chose a bus;

6. Why are directional taxis (Damas) and minibuses convenient?

They answered that there is no bus and no other option;

7. Do directional taxis (Damas) and minibuses stop at the stations?

All of them gave the answer that "it will stop when there is an empty seat";

8. Are you satisfied with the timing of public transport?

All chose the answer "does not move in the same interval";

9. What should be done to improve the public transport system?

Out of 200 respondents, 122 think that it is necessary to remove taxis (Damas) and minibuses from the city's public transit system and replace them with buses, while the remaining 88 think that minibuses and buses should be used in the city.

The following conclusions were reached based on the research conducted on the development of public transport services in Nukus:

1. In order to ensure the safety of road transport, it is necessary to remove the status of taxis (Damas) as public transport. In this case, finding a new job for drivers can be presented as a problem. However, they can be connected to inter-city or inter-district routes;

2. It is necessary to add only buses to public transport and determine the number and routes and timetables according to the demand;

3. It is necessary to digitize the public transport system. At the same time, the passenger should know the routes of the buses in the system, where and when the bus will run through the platforms.

As a result of the implementation of the above proposals, along with the provision of transport safety, the improvement of the culture of using public transport, the establishment of parking and other services at the stations, the provision of ecological sustainability in the city, and the reduction of noise will be achieved.

References:

1. Henézi, Diana & Winkler, Ágoston. (2023). The Role of Public Transport in Transport Safety and Public Safety. The Eurasia Proceedings of Science Technology Engineering and Mathematics. V. 23. -P. 505-512.

2. Халмуратов К.П. Қорақалпоғистон республикасида хизматлар соҳасида давлат-хусусий шерикчилигининг ташкилий-иқтисодий механизмини такомиллаштириш. Иқтисодиёт фанлари бўйича фалсафа докторлиги (PhD) диссертацияси. Нукус. 2021.

3. Qoraqalpoğiston Respublikasi statistika boshqarmasi ma'lumotlari.

Rezyume: *Jamoat transporti barqaror shahar transportida, shu jumladan tirbandlik, shovqin va havo ifloslanishini kamaytirishda muhim rol o'ynaydi. Ushbu maqolaning asosiy maqsadi jamoat transportining boshqa muhim ta'sirini, ya'ni transport xavfsizligi va jamoat xavfsizligini yaxshilashni taqdim etishdir. Yo'l-transport hodisalari va jarohatlar ko'rsatkichlari bo'yicha jamoat transporti eng xavfsiz transport turlaridan biri hisoblanadi. Ushbu tadqiqot olimlar tomonidan olib borilgan izlanishlar va statistik ma'lumotlar asosida amalga oshirilgan. Shingdek, Nukus shahrining transport tizimini rivojlantirish bo'yicha amaliy takliflar taqdim etiladi.*

Резюме: *Общественный транспорт играет важную роль в устойчивом городском транспорте, включая снижение заторов, шума и загрязнения воздуха. Основная цель данной статьи – представить другие важные последствия общественного транспорта, а именно повышение транспортной и общественной безопасности. Общественный транспорт является одним из самых безопасных видов транспорта по показателям аварийности и травматизма. Это явление иллюстрируется литературными исследованиями, а также статистическими данными. Дальнейшие возможности представлены на примере транспортной системы города Нукуса.*

Kalit so'zlar: *Transport, yo'lovchi tashish, transport xizmatlari, shahar aglomeratsiyalari, yalpi ichki mahsulot, kommunikatsiya, temir jol transporti, transport infrastrukturasi.*

Ключевые слова: *Транспорт, пассажирские перевозки, транспортные услуги, городские агломерации, валовой внутренний продукт, коммуникация, железнодорожный транспорт, транспортная инфраструктура.*

INVESTIGATION THE HISTORY OF BRONZE AGE IN KHOREZM LANDS

Qdirniyazov O.-Sh., Maksetov F., Allanazarova U.
Karakalpak state University named after Berdakh

Summary: *The article presents the history of the study of the Khorezm Bronze Age culture, comparing it with other cultures and focusing on revealing its similarities and differences. Based on the archeological and geomorphological research conducted in the Bronze Age culture of Khorezm, the real information of the household is given.*

Key words: *Khorezm, Bronze Age, Tozabagjap, Amirabad, Suvjargan, culture, geomorphology, main canals.*

In 1938, a culture named Tozabagjap, a Bronze Age culture, was opened in Khorezm. For many years, they have been based on ceramic products scattered in Tozabagjap deposits and scraped due to the erosion process. It is known that the Tozabagjap culture is close to the signs of the Kazakh field named after the Lower Volga culture and the Andronova culture, which is narrowed in South Siberia.

In 1953, the Aigka 5 fund was identified for the first time during the Tozabagjap period. In 1956, the opening took place in the 3rd Floor fund. The results of the excavations of the two foundations began to give a detailed understanding of the economy and culture of the people of Tozabagjap, and the places of residence of this period.

Bronze Age Remembrances of Tozabagjap culture in 1954 Kokshe 3, the first large-scale exhibition of Tozabagjap culture, was opened on the sides of the Amiwdaya. It is located 6-7 km southwest of Kokshe mountain in the eastern edge of Sultanu-Izdag province. Scattered remains of the foundation site were kept near it. Under the name of Foundation 3 M. A. Itina and S. P. Tolstov¹⁵ carried out the excavations, the ethnological and craniological materials were studied by T. A. Trofimova¹⁶. More than 100 pipes with buried bones have been identified from the above-mentioned mine. 1954-1955 were all here, 74 pipes were studied. These Kokshe 3 pottery ware show similar characteristics to pottery of the Volga sides culture and pottery of the West Kazakhstan Andronova culture, especially to the pottery of Olekseev.

The last Bronze Age remains examined in Khorezm are named after the Amirabad culture. It belongs to the IX-V-III century BC. For the first time, it was opened in 1940 in the north of the current Amrabad Canal of South Karakalpakstan, where there were a few intact places, especially on the borders of sand fields and barren areas. In 1957, the archeological-ethnographic expedition in the northern part of the strip revealed the food reserves of Amrabad cuisine. Scythes, arrowheads, stone tools and their fragments were found here.

The sites of the Tozabagjap culture were investigated in the Fergana lowland near the Zamenbaba lakes in the lower reaches of Zarafshan and in the village of Mominabad near Samarkand. The inhabitants of this place were often engaged in philanthropy. In the archeological literature, bronze monuments of lower Zarafshan are called by the name of Zamonbaba culture. An ancient burial ground and a settlement were found and researched. The remains of more than 74 ancient graves were excavated and studied in Zamonbaba cemetery. Pairs were found in the 3rd chamber of the burial, and single skelters in the 20th chamber.

It is located near the Karatepe forest near the Zarafshan mountains, and it is one of the most memorable places of Sozagan. In the 2nd half of the 3rd millennium, livestock peoples settled in the steppe districts of Uzbekistan. In the Lower of Kashqadarya was found and investigated Gujayl remains belonging to the Late Bronze Age. You can see Gujayl monuments as a cultural impression

¹⁵ Итина М.А. раскопки могильника тазабагыбской культуры Кокча-3// МХЭ.вып.5. М.,1961. С.3-96.

¹⁶ Трофимова Т.А. Черепа из могильника тазабагыбской культуры Кокча 3 // МХЭ.вып.5. М.,1961. С.97.

of the times. Some monks from Zamanbaba cemetery are decorated with lapis lazuli from Badakhshan.

In July 1955, archeological works were carried out in the areas behind the Djetym-Sengir area, which is very close to the Aral Sea, and which was later called the Kokche Sea. A very interesting place of culture was revealed for the first time, since the middle of the hill is also suitable for cultivation. In the memories of this culture, its tributaries and ancient lakes are roughly located in the branches of the Jana Darya valley.

Suwjargan culture Khorezm archeological - ethnographic expeditions 1945-1946 years. At the head of Akshadarya delta were studied Janbas kala and the pottery of this place was strongly investigated.

One part of Suwjargan is called Qayunshi in X-IX. The remains which is related to Qayunshi and Bazar I is found this place. Qayunshi settlements are located near the lakes and sea. They have very large areas than Suwjargan places. If the area of Janbas 6 and Bazar 2 settlements are 60x40 m, then the large area of Qayunshi are 250x150 m¹⁷.

The archeological and geomorphological works carried out in the area of the old delta of Amu Darya-Aksha Darya not only give an opportunity to restore the appearance of the people who lived here, but also provide information about the origin of their household life.

Bronze Age memories of Khorezm are related to the formation of the first forms of irrigated agriculture. The simplest irrigation structures were found in the Zangoriche-3 area and near the Zangoriche-1 reservoir. Here the irrigation network is located on the slope of the square with a 2, 2-3 x 3, 5-4, 6 m below, based on the short capital line. There are some advanced irrigation constructions in the Bazar I and Bazar 3 foundations (2nd millennium BC completion). There, from the head of the shallow water, a channel of about ten meters came out, irrigating the fields near it. The irrigation area of Bazar-3 is approximately one hectare. The irrigation system of the Amrabad culture is equally complex. Main canals with a length of several kilometers go through the large networks of Akshadarya. They are wide and reach many meters, and they are close to the canals of ancient times. Problem: In Bazar-8 area there is a 1-km-long, parallel-flowing water channel. For example: There are 1 km long irrigation canals running parallel to each other in the area of Bazar-8 reservoir. In the lower parts of the canals, there are sparse networks. The irrigation area of Bazar-8 is approximately equal to Bazar-22, including 200 times larger than Bazar-3.

For the late Amrabad culture (the end of the 8th century BC, the beginning of the 7th century) it is a well-developed irrigation system. In Bazar-10 and 11, a large branch of the Amu Darya, there were canals with a width of 10-13 m and a length of several kilometers.¹⁸

In conclusion the materials of the Khorezm irrigation system forms of as a small view of the irrigation head of the archaic Egyptian irrigation system. This shows that the formation of the elements of the previous period was still formed from these periods during the early pistonant period. This thing shows that the pattern of the ancient period of communication has already formed in the work of the early community.

References:

1. Андрианов Б.В. Древние оросительные системы Приаралья. М.,1969. С.102-113.
2. Итина М.А. раскопки могильника Тазабагьябской культуры Кокча-3// МХЭ.вып.5. М.,1961. С.3-96.
3. Толстов С.П. По древним дельтам Окса и Яксарта. М.,1962. С.62.
4. Трофимова Т.А. Черепка из могильника Тазабагьябской культуры Кокча 3 // МХЭ.вып.5. М.,1961. С.97.

Rezyume: *Maqolada Xorazmning bronza davriga tegishli madaniyatning o'rganilish tarixi keltirilib, boshqa madaniyatlar bilan solishtirilib o'xshashlik, o'zgacha tomonlarini ochib berishga*

¹⁷ Толстов С.П. По древним дельтам Окса и Яксарта. М.,1962. С.62.

¹⁸ Андрианов Б.В. Древние оросительные системы Приаралья. М.,1969. С.102-113.

e'tibor qaratilgan. Xorazmning bronza davri madaniyatida olib borilgan arxeologik va geomorfologik tadqiqot ishlari asosida xojalikning haqqoniy malumotlari keltiriladi.

Резюме: *В статье представлена история изучения хорезмийской культуры бронзового века, сравнивая ее с другими культурами и акцентируя внимание на выявлении ее сходств и различий. На основе археологических и геоморфологических исследований, проведенных в культуре Хорезма эпохи бронзы, даны реальные сведения о быте.*

Kalit so'zlar: *Xorazm, Bronza davri, Tozabağyap, Amirabod, Suvjargan, madaniyat, geomorfologiya, magistral kanallar.*

Ключевые слова: *Хорезм, бронзовый век, Тозабагжан, Амирабад, Сувжарган, культура, геоморфология, магистральные каналы.*

APPLICATION OF MODERN METHODS IN LIVESTOCK INSURANCE

Kalenov K.T.

Karakalpak state university named after Berdakh

Summary: *The article describes the risks associated with the activities of agricultural enterprises and their classification, as well as issues of achieving the effectiveness of insurance services through government support and draws conclusions.*

Key words: *Agriculture, agricultural enterprises, risks associated with the activities of agricultural enterprises, agricultural insurance.*

Introduction

Insurance coverage has now become the financial foundation of all types of businesses. Today, when an epidemiological situation has arisen that worries everyone, global climate change poses serious problems for the cultivation of agricultural products, including livestock and food security, in all sectors and industries. It is the livestock sector that has a role to play in preventing food insecurity. In this regard, along with the development of animal husbandry, one of the urgent tasks is to improve insurance protection against various unforeseen accidents and risks arising in the process of providing agricultural products to the population.

The livestock sector is one of the most productive. Therefore, with the sustainable development of the livestock sector, it is important to provide the population with livestock products and meet their needs in this area, provide employment by expanding the livestock sector and at the same time increase incomes. To achieve these goals, insurance protection of the livestock sector against unforeseen natural disasters and natural disasters is one of the most important issues, since the industry is vulnerable to natural disasters and various diseases, and it is known from past experience that such accidents cause significant damage.

Анализ основной части

Our Government pays special attention to the development of animal husbandry in our country. In particular, there are opportunities to achieve positive changes in the development of the sector by increasing the number of livestock in personal assistants, farmers and farms, economic incentives for the livestock sector, subsidies for the development of the sector, the provision of preferential loans, the organization of a wide range of services.

The Message of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis says the following about the sustainable development of agriculture and support for farming in the agricultural sector and the development of animal husbandry: The Decree of the President of the Republic of Uzbekistan "On the Strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030" provides for "research to increase the productivity of livestock, fish and poultry, as well as sustainable intensification of milk production". Also, the Decree of the President of the Republic of Uzbekistan is aimed at state support of the livestock industry, the decision on additional measures of state support for animal husbandry. According to the data, the development of subsidies by commercial banks to support entrepreneurship, the implementation of projects for the cultivation and processing of livestock products, the construction of livestock complexes, including livestock, poultry, fishing and rabbit breeding, at the expense of the state. the Fund, as well as the allocation of loans and guarantees by commercial banks for the implementation of projects for the purchase of small cattle, cultivation and processing of livestock products.

Many world scientists and scientists of our country are conducting research on the development of livestock farms in the context of global climate change and its insurance against various risks. In particular, world scientists Tahere Biglari, Hamide Maleksaidi, Farzad Eskandari, Mohammad Jalali conducted research on existing problems in the field of animal husbandry and risk management, in particular, insurance. Scientists such as Felix Jonah, Russell Toth, Karin Frank, Jurgen Groenveld and Birgit Muller have also studied the impact of natural disasters on animal

husbandry and natural disasters related to natural climate change, such as drought or water scarcity, as well as insurance coverage, from Uzbek scientists Ashirov, A. Yadgarov conducted research on animal husbandry and his insurance against various risks. As a result of such research, the provision of insurance services to the livestock industry is improving worldwide and in our country. [3]

Animal husbandry is one of the main sectors of the agricultural sector and requires sustainable development as a leading sector in the supply of meat, dairy and processing industries with leather, wool and other raw materials. Today, due to a sharp increase in various global risks and the impact of climate change, drought and similar natural disasters in agriculture, there is a decrease in the productivity of agricultural enterprises, in particular livestock. Therefore, it is the increase in livestock production by agricultural enterprises, in particular by farmers and dehqan farms, that our government has identified today as an urgent problem.

As a result of reforms in the development of animal husbandry, the increase in livestock is mainly due to personal subsidiary farms. Despite the creation of benefits for farms in the regions of the country for the development of the livestock industry and the import of breeding cattle from abroad, the issues of effective organization and development of specialized farms in the livestock sector have not been resolved in practice. Official statistics on the state of livestock products grown in the country by economic categories show that in January-December 2022, the total volume of agricultural, forestry and fisheries products (services) amounted to 260.3 trillion. soums, including agriculture and animal husbandry, hunting and services in these areas - 251.8 trillion. Sumy, forestry - 6.7 trillion. soums, fishing - 1.8 trillion. soums. As a result of reforms in agriculture, positive growth in livestock production was achieved in January-December 2022, and compared to the same period in 2020, meat production (in live weight) increased by 102.1%, milk - by 102.8%. If we look at the volume of livestock production by economic categories, then in 2022 it accounted for 5.1% of farms, 3.5% of agricultural organizations, 91.4% of farmers (personal assistants). Compared to the same period in 2020, the share of farms decreased. As a result of effective reforms aimed at further increasing the domestic potential of the livestock sector, the state provides systematic assistance to these farms, which creates opportunities to increase the number of livestock in the country and fill domestic consumer markets with livestock products. In January-December 2022, all categories of farms produced 2,526.2 thousand. Tons of meat in live weight (2.1% more than in January-December 2020), 11009.9 thousand. Tons of milk (2.8% more), 7,825.0 million tons. caviar (growth by 0.7%), 35.7 thousand. tons of wool (an increase of 1.5%) and 144,085 tons of fish were caught (an increase of 18.4%).[5]

Today, the country focuses on the development of agricultural enterprises, mainly cluster farms. The state's attention to the development of this sector of livestock farms is also growing. In particular, the issues of creating livestock farms in all regions of the country and providing them with preferential loans and subsidies, providing benefits on customs duties for the purchase of breeding cattle are being resolved. What is the current state of insurance protection of the livestock sector and the provision of insurance services in the industry?

In many developed countries, insurance protection of livestock in the livestock sector is regulated by the state. The system of compulsory pet insurance has been introduced in developed countries, in particular, in the USA, Canada, Japan, Spain, CIS countries, Ukraine and Belarus. The main reason for this is that cases of livestock damage in these States are mainly associated with the occurrence of natural disasters and various diseases. Insurance is important in dealing with the consequences of such unforeseen natural disasters and natural disasters. In this regard, special attention is paid to this issue in Resolution No. 830 of the Cabinet of Ministers of the Republic of Uzbekistan "On the procedure for insurance of livestock and livestock" dated September 30, 2019. [4]

According to the decision, the insurance of the livestock industry will be carried out by the regional branches of Uzagrosugurta JSC and other insurance companies. In Uzbekistan, animal husbandry is insured on a voluntary basis. According to the requirements of the Regulations, for cattle, sheep, goats, horses, camels, pigs, poultry and fur-bearing animals - fire, storm, hurricane,

flood, flood, lightning, earthquake, freezing as a result of severe cold, electric shock. (manufacturer) poisoning, poisoning of vehicles, explosion, landslide, attack of wild animals, falling into water or cliff, theft (if a criminal case is initiated), damage or destruction of sharp objects, as well as Insurance against cases of forced slaughter in the presence of an employee of the state veterinary service and a representative of the district assembly of citizens with The aim is to prevent the spread of the disease when death is inevitable due to the occurrence of 101 types of diseases.

According to the above decision, the insurance protection of the livestock sector is mainly insured depending on the type of livestock. According to the insurance scheme, the maximum sum insured relative to the insured value of livestock is set at 80 percent for cattle, horses, camels, sheep and goats, 60 percent for fur-bearing animals and 50 percent for pigs, poultry, fish and other animals and bees. The insurance value of livestock owned by individuals is determined by an insurance contract based on the market price and an agreement between the insurer and the insured. In the case of pet insurance, the amount of the insurance premium is 8.0% of the amount of the insurance premium.

It is quite obvious that paying an insurance premium of 8% of the market value of this animal to insure one livestock for any enterprise or private farm will extinguish their interest in insurance. Therefore, we consider it necessary to amend this regulatory document. At the same time, it is necessary to focus on the tariff rate of the insurance premium, to make actuarial calculations to determine its optimal level. According to our estimates, the tariff rate should be set at 4%, and at least 50% of the insurance premium should be paid from the state budget in order to provide more insurance for existing livestock, rather than 50% of the cost of insured events. Such a measure will lead to a sharp increase in the number of livestock insurance contracts, which, in turn, will lead to a further decrease in the level of damage for this type of insurance. [2]

Roadmap of the Decree of the President of the Republic of Uzbekistan dated August 2, 2019 No. 444 "On measures to reform the insurance market and ensure its advanced development" to strengthen insurance protection in animal husbandry by expanding negative insurance mechanisms. the impact on their health, separation from them as a result of illness or their forced (if forced) murder.

The Regulation on the State Committee for Veterinary Medicine and Livestock Development of the Republic of Uzbekistan, adopted on June 27, 2019 (agency), for receiving agency remuneration from insurance companies at the expense of insurance premiums of the population and farms for livestock insurance. in the household and animal husbandry, as well as life insurance of workers in this area leads to an increase in the volume of insurance of livestock owned by business entities.

According to the Decree of the President of the Republic of Uzbekistan, up to 50% of the insurance indemnity will be covered by the Entrepreneurship Support Fund, which may lead to corruption cases. To put an end to such cases, the payment of 50 percent of the insurance premium, rather than insurance compensation, from the fund simultaneously provides direct financial support to the insured, as well as supports the insurer by increasing the number of insured.

The specifics of farm animal insurance products are usually determined by the general phytosanitary situation in the region and the requirements of veterinary legislation. In Australia, for example, livestock are "scattered" over vast areas of the country, and transmission of infectious diseases is very limited. In addition, veterinary quarantine has been strictly introduced in the country. All this leads to a very low level of infectious diseases of animals and a loss of interest in appropriate insurance. In Western Europe, by contrast, there is a high degree of animal accuracy and a high rate of livestock exchange between countries. This creates high tension in phytosanitary conditions and requires the immediate destruction of the herd in which the disease was detected (a requirement of the law). Accordingly, there is a great interest in animal insurance against infectious diseases in Europe.

Experience has shown that excessive administrative support used in the production of agricultural products also negatively affects the activities of infrastructure entities operating in

accordance with market requirements, which, in turn, leads to a decrease in the quality and cost of services. According to the study, infrastructure facilities serving the livestock sector in the country today can be divided into the following main groups according to service characteristics and production areas (see Table 2).

Table 2
Livestock service infrastructure *

The main directions of services of the livestock industry	Service infrastructure	Infrastructure for the supply (sale) of material and technical resources	Infrastructure forming the food base
	Infrastructure of veterinary services	Financial and insurance infrastructure	Infrastructure for processing, storage, and sale of livestock products
	Information and consulting services infrastructure	Services in the field of training and advanced training of specialists	Innovative infrastructure

Source: Developed by the author based on research.

These infrastructure facilities play an important role in the sustainable development of the country's livestock sector. Among these services, the financing and insurance infrastructure plays a particularly important role in the development of this sector. [5]

Conclusion

If we compare the conditions of animal husbandry in our country with foreign countries, Uzbekistan does not have such a large area for animal husbandry as in Australia, which has become a problem, especially in recent years, when the business sector is developing. The phytosanitary situation in the country is not at this level. These circumstances create the need to provide insurance services to the livestock sector in Uzbekistan.

The high complexity of risk assessment in agriculture requires determining the criteria for the occurrence of an insured event, assessing the impact of insured events on the real incomes of agricultural producers. First of all, this is due to many factors affecting the efficiency and profitability of agricultural production. In years that differ by the commonality of natural conditions, it is possible to obtain different volumes of products at the same cost per unit area or typical livestock. However, an increase or decrease in production does not mean a corresponding increase or decrease in agricultural producers' incomes, which also depends on the dynamics of market price parameters.

The following recommendations can be made for the development of the livestock sector and the improvement of insurance:

- Development of promising projects aimed at the development of animal husbandry in order to ensure food security;
- revision of the specialization of farms for the development of animal husbandry, taking into account the location of the regions;
- Increasing the level of involvement of business entities and farms in insurance services by establishing optimal levels of insurance tariff rates based on actuarial calculations in order to establish permanent insurance of livestock in agriculture. This, in turn, will further reduce tariff rates.;
- Introduction of electronic insurance policies for livestock insurance;
- timely compensation of losses on livestock insurance;
- It is necessary to improve the activities of livestock producers and the legal support of the industry in relation to insurance relations.

References:

1. Грищенко Н. Б., Грищенко Г.М., Зимина А. П. Система сельскохозяйственного страхования: теоретический аспект // Финансы и кредит. 2007. № 11.
2. UN Department of Economic and Social Affairs. Division for Sustainable Development (National CSD report: Austria - Agriculture) материаллари асосида

3. Улицких О.Н. Клишина Ю.Е. Страхование как основной метод регулирования сельскохозяйственных рисков. // Финансовая аналитика: проблемы и решения. 35 (173) 2013.

4. Каленов, К. (2021). АГРАР СОҲАДА СУҒУРГА ХИЗМАТЛАРИНИ ЙУЛГА ҚУЙИШНИНГ ЖАҲОН ТАЖРИБАСИДАН ФОЙДАЛАНИШ. *Economics and education*, (4), 343-347.

5. Tlegenovich, K. K., Istamovich, R. N., & Bahadirovna, U. R. (2024). Modern Trends and Factors of Financial Development of the Agricultural Sector in the Republic of Karakalpakstan, Taking Into Account Agricultural Insurance. *Information Horizons: American Journal of Library and Information Science Innovation* (2993-2777), 2(1), 97-101.

Rezyume: *Maqolada qishloq xo'jaligi korxonalari faoliyati bilan bog'liq risklar va ularni klassifikatsiyalash hamda davlat tomonidan qo'llab-quvvatlash orqali sug'urta xizmatlari bilan ta'minlashning samaradorligiga erishish masalalari yoritib berilgan va xulosalar shakllantirilgan.*

Резюме: *В статье описаны риски, связанные с деятельностью сельскохозяйственных предприятий и их классификация, а также вопросы достижения эффективности страховых услуг за счет государственной поддержки и сделаны выводы.*

Kalit so'zlar: *Qishloq xo'jaligi, qishloq xo'jaligi korxonalari, agrosug'urta, sug'urtalashni davlat tomonidan qo'llab-quvvatlash.*

Ключевые слова: *сельское хозяйство, сельскохозяйственные предприятия, агрострахование, государственная поддержка страхования.*

UDK: 349.6:342

ENVIRONMENTAL CONSTITUTIONALISM: PROTECTING THE PLANET THROUGH LEGAL FRAMEWORKS

Jumanov A.O., Omirzakov R.A.

Karakalpak State University named after Berdakh

***Summary:** Environmental constitutionalism is a growing movement that seeks to protect the planet through legal frameworks. This approach recognizes the importance of environmental protection in national constitutions and aims to ensure that the environment is given the same level of legal protection as other fundamental rights. By enshrining environmental rights and responsibilities in national constitutions, countries can create a legal framework that prioritizes the preservation of the natural world. Environmental constitutionalism also allows for the establishment of legal mechanisms to hold governments and corporations accountable for their environmental impact. This can include the right to a healthy environment, the protection of natural resources, and the promotion of sustainable development. By integrating environmental principles into the highest law of the land, countries can ensure that environmental protection is a priority for future generations. In this article, we will explore the concept of environmental constitutionalism and its potential to drive meaningful change in the fight against climate change and environmental degradation. We will also examine some examples of countries that have successfully integrated environmental rights into their constitutions and the impact it has had on environmental protection.*

***Key words:** environmental constitutionalism, environmental rights, constitutional law, sustainable development, global environmental challenges, governance*

Introduction:

Today, we are witnessing unprecedented land degradation and loss of arable land 30 to 35 times faster than in the past. Drought and desertification are increasing annually, resulting in the loss of 12 million hectares of land and affecting poor communities around the world. Of the 8,300 known animal breeds, 8% are extinct and 22% are at risk of extinction.[1, P.89]

Environmental degradation and the urgent need for sustainable development have become pressing concerns worldwide. In response, more and more countries around the globe are amending their constitutions to recognize environmental rights and duties relating to air, water, the use of natural resources, sustainability, climate change, and more, courts are increasingly engaging with these provisions and developing a common constitutional law of environmental rights.[2, P.9] and many countries have recognized the importance of embedding environmental rights within their constitutional frameworks. Environmental constitutionalism offers a valuable approach to analyze and compare the legal mechanisms that countries employ to protect and promote environmental rights. By examining the constitutional provisions and legal frameworks of different nations, this research aims to identify successful strategies and lessons that can be learned from environmental constitutionalism.

At present, the constitutions of about three-quarters of nations worldwide address environmental matters in some fashion. Constitutions from about 76 countries guarantee environmental rights explicitly, with courts in another dozen do so finding that attendant rights to life, dignity or health also embed rights to a quality environment. Constitutions from dozens of other countries impose reciprocal duties toward the environment, commit to environmental stewardship or policies, or guarantee rights to information, participation, and justice in environmental matters. Indeed, most people on earth now live under constitutions that protect environmental rights in some way.

The potential reach of environmental constitutionalism is staggering: it implicates most matters affecting the human condition. These include rights to life, dignity, health, food, housing,

education, work, socio-economic status, culture, nondiscrimination, peace, children's health, and general well-being—as well as the quality of the earth's water, ground, and air [3].

Environmental constitutionalism

Generally speaking, environmental constitutionalism is associated mostly with debates surrounding the protection of environmental rights and the way constitutions the world over employ a rights-based approach to augment environmental care[4]. Yet, environmental constitutionalism is a broader concept that stretches beyond but includes and is often based on the rights-based approach. As a socio-legal and political project that seeks to transform environmental governance to the extent that it provides improved environmental protection, environmental constitutionalism additionally employs a wide range of other constructs and features typical of the broader constitutional paradigm and the environmental governance movement. These include, among others, the rule of law, the separation of powers, the principle of legality, aspirational fundamental values such as human dignity and equality, and various principles derived from soft law such as sustainable development. [5, P. 187]

Douglas Kysar, for example, generally describes environmental constitutionalism as the “constitutionalization of environmental protection,” and elsewhere as “the constitutionaliz[ation] of environmental law,” which, he admits, remains largely a symbolic exercise in the regulatory scheme of things because constitutional provisions are usually weakly enforced and vaguely specified [6, P.231]. While David Boyd similarly seems to view environmental constitutionalism as a transformative process that provides constitutional environmental protection, his empirical-evaluative analysis leads him to conclude more optimistically that: “[w]hile no nation has yet achieved the holy grail of ecological sustainability . constitutional protection of the environment can be a powerful and potentially transformative step toward that elusive goal.”[4]

James May and Erin Daly take a comparative approach and explain that:

Environmental constitutionalism is a relatively recent phenomenon at the confluence of constitutional law, international law, human rights, and environmental law. It embodies the recognition that the environment is a proper subject for protection in constitutional texts and for vindication by constitutional courts worldwide.[4]

They admit that while it is difficult to determine exactly the conceptual and theoretical content, as well as the many different forms and components of environmental constitutionalism, “[T]he constant is that environmental constitutionalism exists in just about every nook and cranny on the globe, with growing significance.”[4] Environmental constitutionalism most probably originated from the failures of “ordinary” (mostly pollution and conservation oriented) laws to provide the requisite level of environmental protection that was initially envisaged by the fathers of environmental law. In the same way that a crying child who bumps his toe would instinctively run to his mother, in desperate times, regulators and legislators alike seem to seek refuge in the familiar, the constant, and the trusted. Constitutions and constitutionalism have been around since the 17th Century, [7, P. 416] thus providing a familiar language and the logical “go to” solution for environmental regulators in times of ecological upheaval and regulatory uncertainty.

As the world grapples with the increasing threats of climate change and environmental degradation, there has been a growing recognition of the need for stronger legal protections for the environment. Environmental constitutionalism has emerged as a powerful tool in this fight, providing a framework for governments to enshrine environmental rights and responsibilities in their constitutions.

Environmental constitutionalism is based on the idea that a healthy environment is a fundamental human right, and that it is the responsibility of governments to protect and preserve it for current and future generations. By including provisions for environmental protection in their constitutions, countries can create a legal foundation for environmental policy and regulation, ensuring that the rights of nature are given the same weight as other fundamental human rights.

Methods:

This study utilizes a comparative research methodology, analyzing constitutional provisions and legal frameworks related to environmental rights in select countries. The research includes a comprehensive review of relevant constitutional texts, legislative acts, judicial decisions, and scholarly literature. Comparative analysis is conducted to identify commonalities, differences, and emerging trends in environmental constitutionalism.

Results:

The analysis reveals that a significant number of countries have recognized environmental rights in their constitutions, although the extent of protection and enforcement varies. Common constitutional provisions include the right to a healthy environment, the duty to protect the environment, and the right to participate in environmental decision-making. Differences exist in the level of specificity, justiciability, and enforceability of these rights.

One of the key principles of environmental constitutionalism is the concept of intergenerational equity, which recognizes the need to consider the long-term impacts of environmental decisions on future generations. By including provisions for environmental protection in their constitutions, countries can create a legal foundation for environmental policy and regulation, ensuring that the rights of nature are given the same weight as other fundamental human rights.

Several countries have already embraced environmental constitutionalism, incorporating provisions for environmental protection into their constitutions. For example, Ecuador's 2008 constitution includes a groundbreaking chapter on Rights for Nature, which recognizes the right of ecosystems to exist and flourish, and imposes a duty on the government to prevent environmental harm. Similarly, Bolivia's constitution recognizes the rights of nature and mandates the government to take measures to prevent environmental destruction.

That countries and their subnational instruments have robust environmental statutory schemes, regulations, and common law traditions, does not mean constitutional entrenchment of environmental values is superfluous[8]. Rather, the international and regional turn toward environmental protection may buttress and help to promote these values at the national level. This may be done, of course, through legislative and regulatory efforts, but for numerous reasons, environmental constitutionalism offers advantages over non-constitutional means of advancing environmental protection. In addition to providing a legal framework for environmental protection, environmental constitutionalism can also serve as a tool for holding governments accountable for their environmental decisions. By enshrining environmental rights in the constitution, citizens and environmental organizations can use the legal system to challenge government actions that threaten the environment, ensuring that environmental considerations are taken into account in all decision-making processes.

However, while environmental constitutionalism holds great promise, its effectiveness ultimately depends on the political will and commitment of governments to uphold and enforce environmental rights. In many cases, the inclusion of environmental provisions in constitutions has not translated into meaningful action on the ground, as governments continue to prioritize economic development over environmental protection.

Nevertheless, environmental constitutionalism represents a significant step forward in the global effort to protect the planet. By recognizing the fundamental rights of nature and establishing a legal framework for environmental protection, countries can take a proactive stance in addressing the urgent environmental challenges facing the world today. As the threats of climate change and environmental degradation continue to escalate, the principles of environmental constitutionalism will play an increasingly important role in shaping the future of environmental governance.

Discussion:

The comparative analysis highlights the importance of constitutional recognition of environmental rights in promoting sustainable development and environmental protection. Countries that have strong constitutional provisions for environmental rights tend to have more

effective environmental governance and better environmental outcomes. The existence of justiciable environmental rights provides citizens with legal tools to hold governments accountable and seek remedies for environmental harm. The establishment of specialized environmental courts or tribunals can enhance access to justice and expertise in environmental matters.

The composition and adoption of a constitution can be a singular national achievement. Written constitutions can memorialize society's most ineluctable relationships and rules [9]. As Finer said, "Constitutions are codes of norms which aspire to regulate the allocation of powers, functions, and duties among the various agencies and officers of government, and to define the relationship between these and the public." [10]

For numerous reasons, environmental constitutionalism offers advantages over non-constitutional means of advancing environmental protection.

First, constitutionally embodied environmental provisions are more durable than non-entrenched rights. [11]

Second, environmental constitutionalism provides a normative function that is superior to other domestic legal approaches because "as supreme law of the land, constitutional provisions promote a model character for the citizenry to follow, and they influence and guide public discourse and behavior." [12]

Third, and perhaps because of constitutionalism's normative superiority, the public is more likely to respond to environmental constitutionalism than environmental regulation: "On a practical level, the public tends to be more familiar with constitutional provisions than specific statutory laws. Citizens tend to identify with, and in turn are identified by, the form of their national constitution." [12]

Based on the findings, it is recommended that countries consider incorporating environmental rights into their constitutions, ensuring their justiciability and enforceability. Governments should promote public participation in environmental decision-making processes and establish specialized environmental courts or tribunals to handle environmental disputes effectively. Policymakers and activists should also learn from successful models of environmental constitutionalism in other countries, adapting them to their own legal and institutional frameworks.

Conclusion:

Environmental constitutionalism offers valuable insights into the inclusion and implementation of environmental rights in constitutional law. By examining the experiences of different countries, policymakers, scholars, and activists can identify best practices and lessons that can contribute to more effective environmental governance. Strengthening constitutional provisions for environmental rights, ensuring their justiciability, and establishing specialized environmental courts or tribunals are crucial steps towards achieving sustainable development and protecting the environment.

References:

1. Omirzakov, R. (2023). SUSTAINABLE DEVELOPMENT GOALS AND ITS ROLE IN THE STATE POLICY OF THE REPUBLIC OF UZBEKISTAN IN THE FIELD OF ENVIRONMENTAL PROTECTION. *International Journal Of Law And Criminology*, 3(07), 89-93.
2. Daly, E., May, J.R. Comparative environmental constitutionalism. *Jindal Global Law Review* 6, 9–30 (2015). <https://doi.org/10.1007/s41020-015-0001-8>
3. U.N. Econ. & Soc. Council [ECOSOC], U.N. Comm'n on Human Rights, Sub Comm'n on Prevention of Discrimination & Prot. of Minorities, Human Rights and the Environment, U.N. Doc. E/CN.4/Sub.2/1994/9 (July 6, 1994) (prepared by Fatma Zohra Ksentini) [hereinafter U.N. Human Rights and Environment Report]
4. DAVID R. BOYD, THE ENVIRONMENTAL RIGHTS REVOLUTION: A GLOBAL STUDY OF CONSTITUTIONS, HUMAN RIGHTS, AND THE ENVIRONMENT 117-18 (2012); see generally JAMES R. MAY & ERIN DALY, GLOBAL ENVIRONMENTAL CONSTITUTIONALISM (2015).
5. Kotze, L.J. (2015) 'The conceptual contours of environmental constitutionalism', *Widener Law Review*, 21, p. 187. // URL: <https://widenerlawreview.org/files/2008/10/10-Kotze.pdf>
6. DOUGLAS A. KYSTAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY 229, 231 (2010).
7. Francois Venter, Die Staat, Staatsreg en Globalisering 3 TYDSKRIF VIR DIE SUID-AFRIKAANSE REG 412, 416 (2008).

8. ANDREW J. SCHLICKMAN, T.M. MCMAHON & NICOLINE VAN RIEL, INTERNATIONAL ENVIRONMENTAL LAW AND REGULATION (1996) (discussing the national environmental statutory and regulatory laws in these countries).

9. VISCOUNT JAMES BRYCE, CONSTITUTIONS 37–38 (1905).

10. SAMUEL EDWARD FINER, VERNON BOGDANOR & BERNARD RUDDEN, COMPARING CONSTITUTIONS (1995).

11. Ernst Brandl & Hartwin Bungert, Constitutional Entrenchment of Environmental Protection: A Comparative Analysis of Experiences Abroad, 16 HARV. ENVTL. L. REV. 4–5 (1992) (“Constitutional implementation enables environmental protection to achieve the highest rank among legal norms, a level at which a given value trumps every statute, administrative rule or court decision.”).

12. Ernst Brandl & Hartwin Bungert, Constitutional Entrenchment of Environmental Protection: A Comparative Analysis of Experiences Abroad, 16 HARV. ENVTL. L. REV. 4–5 (1992) (“Constitutional implementation enables environmental protection to achieve the highest rank among legal norms, a level at which a given value trumps every statute, administrative rule or court decision.”).

Rezyume: *Ekologik konstitutsiyaviylik - bu huquqiy asoslar orqali sayyorani himoya qilishga qaratilgan kuchayib borayotgan harakat. Ushbu yondashuv milliy konstitutsiyalarda atrof-muhitni muhofaza qilish muhimligini tan oladi va unga boshqa asosiy huquqlar kabi huquqiy himoya darajasini berishga intiladi. Milliy konstitutsiyalarda ekologik huquq va majburiyatlarni mustahkamlab, mamlakatlar tabiiy dunyoni asrashga ustuvor ahamiyat beradigan qonunchilik bazasini yaratishi mumkin. Ekologik konstitutsiyaviylik hukumatlar va korporatsiyalarning atrof-muhitga ta'siri uchun javobgarligini ta'minlash uchun huquqiy mexanizmlarni yaratishga ham imkon beradi. Bu sog'lom atrof-muhitga bo'lgan huquq, tabiiy resurslarni muhofaza qilish va barqaror rivojlanishni rag'batlantirishni o'z ichiga olishi mumkin. Atrof-muhit tamoyillarini urning oliy qonuniga integratsiyalashgan holda, mamlakatlar atrof-muhitni muhofaza qilish kelajak avlodlar uchun ustuvor vazifa bo'lishini ta'minlashi mumkin. Ushbu maqolada biz ekologik konstitutsiyaviylik kontseptsiyasini va uning iqlim o'zgarishi va atrof-muhit degradatsiyasiga qarshi kurashda mazmunli o'zgarishlarga olib kelishi mumkinligini ko'rib chiqamiz. Shuningdek, biz atrof-muhit huquqlarini o'z konstitutsiyalariga muvaffaqiyatli integratsiyalashgan mamlakatlarning ba'zi misollarini va uning atrof-muhitni muhofaza qilishga ta'sirini ko'rib chiqamiz.*

Резюме: *Экологический конституционализм - это растущее движение, направленное на защиту планеты через правовые рамки. Этот подход признает важность защиты окружающей среды в национальных конституциях и направлен на то, чтобы обеспечить ей такой же уровень правовой защиты, как и другим фундаментальным правам. Закрепляя экологические права и обязанности в национальных конституциях, страны могут создать правовую базу, в которой приоритет отдается сохранению мира природы. Экологический конституционализм также позволяет создать правовые механизмы, обеспечивающие ответственность правительств и корпораций за воздействие на окружающую среду. Это может включать в себя право на здоровую окружающую среду, защиту природных ресурсов и содействие устойчивому развитию. Интегрируя экологические принципы в высший закон страны, страны могут обеспечить приоритетность охраны окружающей среды для будущих поколений. В данной статье мы рассмотрим концепцию экологического конституционализма и его потенциал для осуществления значимых изменений в борьбе с изменением климата и деградацией окружающей среды. Мы также рассмотрим некоторые примеры стран, успешно интегрировавших экологические права в свои конституции, и влияние, которое это оказало на охрану окружающей среды.*

Kalit so'zlar: *ekologik konstitutsiyaviylik, ekologik huquqlar, konstitutsiyaviy huquq, barqaror rivojlanish, global ekologik muammolar, boshqaruv.*

Ключевые слова: *экологический конституционализм, экологические права, конституционное право, устойчивое развитие, глобальные экологические проблемы, управление*

UDC 316.77

INFORMATION COMPETENCE AS A SOCIAL NECESSITY FOR ENSURING INFORMATION SECURITY OF SOCIETY

Dusimbetova N.

Uzbekistan State University of World Languages

Summary: *One of the important trends characterizing the present time is the globalization of information processes. In this regard, the formation of the information space, as well as the importance of its protection, the ability to withstand information influence and attacks are among the most important issues. In the modern world, information security is an important part of national security and one of the significant factors of social stability, since it means the protection of national interests in the field of information, which is determined by the balance of individual, public and state interests. The study has analyzed the need to develop the information competence of future journalists as a social component of the complex protective mechanisms to ensure the rights and interests of the individual, society and the state, and to prevent and eliminate threats to information security.*

Key words: *information security, information society, information resources, threats, ideas, information competence, social necessity.*

In today's globalized world, information has turned out to be a strategic resource. This process is especially evident in local and international relations, daily collection, transmission of information and security. After all, the role of new modern information technologies in explaining the theory of local and international relations is very important. The term “information” has been given many definitions by scientists in the field, those who have dealt with sources and information resources in scientific research, and according to international standards (ISO 5127:2017(en) Information and documentation — Foundation and vocabulary: *data that are processed, organized and correlated to produce meaning*; ISO/IEC 10746-2:1996, Information technology — Open Distributed Processing — Reference Model: Foundations.3.2.5: *knowledge that is exchangeable amongst users about things, facts, concepts, and so on, in a universe of discourse*; ISO/IEC 2382:2015 Information technology — Vocabulary Wayback Machine: *knowledge concerning objects, such as facts, events, things, processes, or ideas, including concepts, that within a certain context has a particular meaning*; ISO/IEC/IEEE 24765:2010 Systems and software engineering — Vocabulary Wayback Machine: *Although information will necessarily have a representation form to make it communicable, it is the interpretation of this representation (the meaning) that is relevant in the first place*). Most of them lay special emphasis on information targeting and security in general. Because “information”, whether internal or external, has become very important in every era. As a result of this, concepts such as “information wars” and “information security” have appeared, which are directly considered as a priority direction for determining the domestic issues and foreign policy of states.

Recently, issues of ensuring information security have become extremely relevant and important, and its theoretical foundations have been considered in the studies of a number of foreign scientists. For example, N. Ganizheva (2021), in her article “Fundamentals of Information Security,” states that “the relevance of threats to the integrity and confidentiality of information requires us to pay close attention to the task of protection. Today, the great danger that every country faces is material and moral losses caused by neglect of the management of information infrastructure facilities.” [1]

In turn, E. Vostretsova (2019) in her work “Fundamentals of Information Security” defines that “information resources are a collection of data combined to provide verified information in various fields of knowledge and professional activity; this collective set of ideas creates

opportunities that can largely promote the development of technology and science or, conversely, derail everything.” [9]

According to S. Makarenko (2009) “by information security we understand natural or man-made, as well as ideological security caused by deliberate intervention.” [2]

Also, Uzbek scientists F. Mo‘minov and Sh. Barotov (2013) examined information and psychological security in open information systems and emphasize that “the desire to have any necessary information has become a requirement of the present time. Today, the information space of each country is filled with two types of information: the first is information developed by countries with strong information technologies and serves their interests, and the second is information developed by each country about itself, and this information protects national interests.” [4] Thus, it is obvious that information security is directly related to politics.

D. Muirov (2014) in his book “Geopolitics and Journalism” also notes the relationship between geopolitics, journalism and information and states that “the debate about the wave of negative information in the world community is reaching its climax. In this case, every citizen striving for a free society faces the questions: “What information should I rely on? Who is right and who is wrong?” On the other hand, it is important not to forget that geopolitical centers spare no effort to capture the world of information.” [5]

In turn, A. Mo‘minov (2013) in his work “Uzbekistan on the path to an information society” speaks of the importance of the relationship between information, society’s culture, ideology and state security, noting that “today state security is not only an understanding and vision of the essence of various “masks”, disagreements and conflicts that have arisen in society, but also its culture. It is necessary to take into account the information flow, the processes of creating a clearly directed and ongoing state of nervousness of society, ideology, and public consciousness.” [3] In this regard, increasing the psychological safety of society in the information sphere is one of the pressing issues. Moreover, the role of the media and journalists is especially important in these processes.

N. Qosimova (2012) also considered some approaches to classification, noting that “global or international security is a situation in which various disputes, conflicts and other threats are prevented in the course of diplomatic international relations. According to the scope of ensuring, security is divided into military, political, economic, environmental, humanitarian and informational... In addition, security can belong to the individual, society and the state.” [6]

Therefore, it can be confidently generalized that today the main field of struggle is the information space, and the main goal is not land or wealth, but the possession of human consciousness. The problem of information security is based on the fact that all spheres of activity of the state and society - economics, politics, science, culture, national and international security - are subject to high-quality information exchange, information and telecommunication systems, technologies and tools. This situation is associated with the development and implementation of a set of protective mechanisms to ensure the rights and interests of the individual, society and the state, to prevent and eliminate threats to information security.

Depending on the direction of origin of the threats, they can be divided into types and forms, such as political threat, economic threat, external threat, internal threat, and others. All threats are based on ideologically beneficial relationships, which in the framework of this work we can divide into two types depending on their target orientation: 1) ideas that have destructive characteristics; 2) ideas that serve to enhance spiritual and educational horizons.

During the research, we noted the need to analyze a number of theoretical foundations for studying the problem of developing the information competence of future journalists as an important component of the formation of public opinion and the influence of ideas in the modern information society.

Thus, I. Zimnyaya (2021), one of the famous scientists of the CIS, defines information competence as “the ability to use, increase and improve the means and methods of obtaining and reproducing information in printed and electronic form.” [10] According to L. Sattorov (2020), one

of the domestic scientists, “information competence is the ability to master information technology and work with all types of information.” [7] In turn, we share the point of view of O. Shergova (2010), who notes that “competence is a set of already formed personality characteristics. That is, a competent specialist is a person who has the necessary knowledge, skills and experience, and competence is a characteristic of an individual who has these necessary competencies. Observing the actions of successful people in modern society, it is easy to understand: “a more educated person does not mean that he knows more, but he is a person who participates more in communication.”” [8]

As the main components in developing competence in the field of information security among future journalists as a basic social necessity, we propose to highlight the following components:

- motivational and value-based component, which consists in creating conditions for the formation of important value orientations and motivational desires that influence a person’s attitude to work and life in general;

- the ability to use information, which is defined as knowledge of modern search methods, the ability to collect educational information, the ability to find information from various sources, the ability to systematize and summarize information, the ability to use the received information in professional activity;

- technical and technological conditions that reflect an understanding of the principles of operation, capabilities and limitations of technical devices intended for automated search and processing of data. This is the ability to classify problems according to their main characteristics, to make further solutions and to select a certain technical tool;

- communication skills, knowledge, understanding, use of natural and formal languages, demonstration of technical means of communication to transfer information from one person to another (in the form of written or oral text, information);

- professional activity, which should consist of operational, communicative, methodological, organizational and constructive activities.

In conclusion, we would like to note that the creation of pedagogical and psychological conditions for the development of competence in the field of information security is very important in the modern world of digital technologies. Particular attention must be paid to systematic work on the implementation of educational strategies using global experience in ensuring information security, developing competence in the field of information security among future journalists, and improving their professional skills. In an era of rapid technological development and growing cyber threats, future journalists play an important role in disseminating accurate and reliable information to the public. We can ensure information security by equipping future journalists with the skills and knowledge to work safely and responsibly in the digital environment. In addition, it is essential to encourage future student journalists to develop critical thinking and a deep understanding of the potential risks and vulnerabilities associated with the social network, media space and online platforms. Integrating education and technology, it is necessary to prioritize information security as a core component of journalism educational curricula, introducing comprehensive training in areas such as secure communications, data protection and ethical aspects of the use of digital media.

References:

1. Ganizheva N.Zh. Fundamentals of information security // Young scientist, 2021. – No. 31 (373). – C. 11.
2. Makarenko S.I. Information Security. – Stavropol: SB MSHU named after M.A. Sholokhov, 2009. – 372 p.
3. Mo‘minov A. O‘zbekiston axborotlashgan jamiyat sari. – Toshkent: Turon zamin ziyo, 2013. – 113 b.
4. Mo‘minov F., Barotov Sh. Ochiq axborot tizimlarida axborot-psixologik xavfsizlik // O‘quv qo‘llanma. – Toshkent: JIDU, 2013. – B. 9.
5. MUITOV D. Geosiyosat va jurnalistika // O‘quv qo‘llanma. – Toshkent: Turon-Iqbol nashriyoti, 2014. – B. 67.
6. Qosimova N.S. Internet jurnalistikaning texnologik asoslari. – Toshkent, 2012. – B 40.

7. Sattorov L.B. Competencies and their classification // Public Education. – 2020.
8. Shergova O.B. Media education and journalism: communicative and linguistic components // Abstract of thesis in Ph.D. Phil. Sc. – Moscow: MSU, 2010. – 29 p.
9. Vostretsova E.V. Fundamentals of information security. – Ekaterinburg: UrFU, 2019. – 204 p.
10. Zimnyaya I.A. Key competencies as a result-target basis of a competency-based approach in education. – Moscow: Research Center for Problems of Quality of Training of Specialists, 2021. – 114 p.

Rezyume: *Hozirgi davrni tavsiflovchi muhim tendentsiyalardan biri axborot jarayonlarining globallashtirishidir. Shu munosabat bilan axborot makonini shakllantirish, shuningdek, uni himoya qilishning ahamiyati, axborot ta'siri va hujumlariga bardosh bera olishi dolzarb masalalardan biri hisoblanadi. Zamonaviy dunyoda axborot xavfsizligi milliy xavfsizlikning zarur qismi va ijtimoiy barqarorlikning muhim omillaridan biridir, chunki u shaxs, jamoat va davlat muvozanati bilan belgilanadigan axborot sohasidagi milliy manfaatlarini himoya qilishni anglatadi. Ushbu maqolada shaxs, jamiyat va davlat huquq va manfaatlarini ta'minlash, axborot xavfsizligiga tahdidlarning oldini olish va bartaraf etish bo'yicha kompleks himoya mexanizmlarining ijtimoiy -tarkibiy qismi sifatida bo'lajak jurnalistlarning axborot kompetentsiyasini rivojlantirish zarurligi tahlil qilindi.*

Резюме: *Одним из важных направлений, характеризующих настоящее время, является глобализация информационных процессов. В этой связи формирование информационного пространства, а также важность его защиты, способности противостоять информационному воздействию и атакам относятся к числу важнейших вопросов. В современном мире информационная безопасность является важной частью национальной безопасности и одним из важных факторов общественной стабильности, поскольку означает защиту национальных интересов в сфере информации, которая определяется балансом индивидуальных, общественных и государственных интересов. В рамках исследования проанализирована необходимость формирования информационной компетентности будущих журналистов как социального компонента комплекса защитных механизмов для обеспечения прав и интересов личности, общества и государства, предотвращения и устранения угроз информационной безопасности.*

Kalit so'zlar: *axborot xavfsizligi, axborot jamiyati, axborot resurslari, tahdidlar, g'oyalar, axborot kompetentsiyasi, ijtimoiy zarurat.*

Ключевые слова: *информационная безопасность, информационное общество, информационные ресурсы, угрозы, идеи, информационная компетентность, социальная необходимость.*

WAYS OF TOURISM DEVELOPMENT IN THE REPUBLIC OF UZBEKISTAN

Ibragimova N.B.

Karakalpak State University named after Berdakh

Summary: *The article discusses the issues of effective use of tourism potential. At present, tourism has become the most relevant area in ensuring sustainable economic development of the country. In recent years, the state has been paying close attention to the implementation of an active policy in the field of tourism development, regulatory legal acts and targeted regional programs have been adopted to form the legal foundations of a modern civilized tourist market, as well as the tourist infrastructure is being modernized. In addition, tourism is an essential factor in the implementation of the state's foreign policy.*

Key words: *tourism, tourism sector, regional development, tourist services. High-yield economy, quality of tourist services, economic development, competitiveness.*

Accelerated development of the tourism sector and increasing its role in the economy is considered one of the important tasks in the Strategy of Action for the further development of the Republic of Uzbekistan. In recent years, tourism has become one of the “growth points” of the national economy, which, as a driver of the development of other related industries, stimulates income growth, having a high multiplier effect: 1\$ of direct income from tourism gives at least 5-7\$ in related sectors of the economy. It should be noted that tourism services and related catering services (accommodation and meals in the interpretation of the OKED) have a noticeable impact on the growth of market services and GDP as a whole. Thus, calculations show that GDP growth and an increase in household incomes are more influenced by the development of the service sector (an increase in GDP and household income by 67.2% and 60.3%, respectively, which are provided by expanding the volume of market services).

In recent years, a large range of regulatory and legal documents on tourism development has been adopted, an institutional management system for tourism development has been formed, and structural divisions of the tourism department have been created in all regions of the country to effectively use the huge tourism potential of the regions. New organizations contribute to the development of the tourism industry: the Center for Certification of Tourist Services, the Institute for Tourism Development, the National PR Center and others. By now, tourism has become one of the leading sectors of the global economy. In this regard, Uzbekistan pays special attention to the modernization of the tourism industry, the development and improvement of the regulatory framework for the sustainable development of the industry, the organization of services for foreign guests in accordance with international standards. During the years of independence, our country made a significant breakthrough in this area, coupled with the preservation and enhancement of the historical and cultural heritage of the people, the revival of national traditions and customs, the restoration and improvement of the sights of the republic.

Tourism is a major socio-economic phenomenon, and its impact extends to the entire national infrastructure system. This area is based on a high level of development of transport and social services, which ultimately makes it a highly profitable sector of the economy. Uzbekistan has great potential for further development of tourism due to its rich cultural and historical heritage, as well as natural resources. Consistent reforms are being carried out in the Republic of Uzbekistan to develop the tourism sector as one of the strategic sectors of the national economy, which in the long term will help solve such important social and economic tasks as job creation, economic diversification and accelerated development of regions, increasing incomes and quality of life of the country's population.

The result of the measures taken in this direction is an increase in tourists arriving in our beautiful region. Thus, more than 2 million people from different parts of the world visit Uzbekistan

every year. The geography of foreign guests is wide. Our country is especially popular among citizens of Germany, France, Italy, the Republic of Korea, Japan, China, Malaysia, Russia, India.

In recent years, new types of travel, including eco-tourism, have been actively introduced in Uzbekistan. The presence of nature reserves, national parks, nurseries, sanctuaries, natural monuments, and a biosphere reserve in the republic turns ecotourism into a very promising direction.

A few years ago, Uzbekistan, for many residents of foreign countries, especially those who did not find or poorly remember Soviet times, was a kind of terra incognita - an unknown land. This is understandable: for many years the country has been, there was no need to talk about the development of tourism in these conditions. However, the situation began to change when the current president Shavkat Mirziyoyev was at the helm of the state. A pragmatic leader of the modern type, the president rightly believes that closeness, autarky do not fit into the realities of the current world in any way. And in light of this, tourism was named one of the important elements of the country's development. And this is natural: the tourism industry plays a significant role in the economic development of a number of countries. This is especially true for Uzbekistan, which is rich in historical sites of world importance. It is enough to mention the famous monuments of Bukhara, Samarkand, Khiva - cities that have always been and will always be the "calling card" of the country, the real "pearls of the East".

Over the past five years, the situation has changed dramatically. Airports and roads have been built and reconstructed, thousands of new hotels have appeared, from family-type to luxury international class hotels. As a result, tourism in Uzbekistan is developing rapidly today. Suffice it to say that last year almost 570 thousand tourists from Russia alone came here. And this, we note, is three times more than a year earlier. The tourist flow from other CIS countries is also growing. Among other things, guests are attracted by the calm, friendly atmosphere, tolerant attitude of local residents. However, hospitality has always been a distinctive feature of Uzbeks.

These are the points that Western experts also note. Thus, Dr. Simone Grano, senior lecturer at the University of Zurich (UZH), director of the Taiwan Studies project YZH, discussing the situation in Uzbekistan with other participants in the discussion online on the Asia Society Switzerland portal, noted that tourism to Uzbekistan began to develop actively relatively recently, in 2017-2018, when the visa procedure was simplified or even completely cancelled. Before that, it was difficult to get a visa, and therefore traveling and staying with friends was difficult. But nowadays it is possible to travel freely throughout the country without visiting Tashkent, since only from the capital it was possible to get to a remote area of the country. Today, transport accessibility extends to the whole of Uzbekistan. New modern roads have been built that connect all corners of the country with each other, which is very convenient for travelers.

When Shavkat Mirziyoyev said that "we must develop tourism that will feed us", he was well aware that appeals alone would not achieve success. The state has taken a number of specific measures that have allowed the development of the industry to begin at a faster pace. For example, the presidential decree "On measures to further accelerate reforms and effective organization of the public administration system in the tourism sector" was recently published. In order to increase the tourist flow and provide additional state support to tour operators, it was decided from January 1, 2024: to allocate incentive subsidies from 20 to 300 dollars in equivalent for each tourist attracted by tour operators to the republic from countries with a low level of tourist flow, at the expense of the state budget and the Tourism Support Fund.

Part of the expenses of tour operators and air carriers for the organization of charter flights from foreign countries to the international airports "Samarkand", "Bukhara", and "Urgench" will also be compensated, 20\$ in equivalent, in winter (from November 20 to February 20) and 50\$ in equivalent for each foreign tourist, subject to his stay on the territory of the republic for at least five nights.

A system of compensation for part of investors' expenses for the construction and equipping of new hotels with a height of at least five floors will also be introduced. Tax benefits will be

provided to campsite owners and safari tourism organizers in remote and hard-to-reach places. But tourism is not only cultural and architectural monuments, not only natural attractions. Tourism is about people who present the best sides of their country to guests in a fascinating and professional way. Therefore, the presidential decree provides for measures to improve the skills of specialists and train new personnel, the level of which must meet international standards. In particular, it is envisaged to attract internationally recognized educational programs based on franchises, higher education programs are reviewed taking into account the experience of reputable foreign universities in the top 100 of the world ranking.

President Shavkat Mirziyoyev's far-sighted bid to return the country to the orbit of international tourism not only brings tangible material results, but also contributes to increasing the country's authority in the international arena.

Thus, in October this year, for the first time, the 5th anniversary session of the General Assembly of the United Nations World Tourism Organization (UNWTO) will be held in Uzbekistan. Ancient Samarkand will host heads of government agencies working in the field of tourism, international organizations and representatives of the tourism business from almost 160 countries around the world.

Moreover, Uzbekistan has been accepted into the Powers Committee of the UNWTO Executive Council for the coming 2023-2027. This means that the republic is entrusted with the authority to monitor the authenticity and compliance with the principles of important decisions and documents adopted by the Executive Council of this important UN unit. This, in turn, testifies to the country's strong positions in the international arena, the progressive growth of Uzbekistan's international prestige. And in this context, it is important to emphasize that holding such an authoritative and representative forum in the country will contribute not only to the progress of the tourism sector alone, but also to the growth of foreign investment in general, since it will allow guests to familiarize themselves with various regions and individual facilities with high investment potential.

Uzbekistan has a huge tourism potential and in order to form and promote a competitive tourist offer, the Committee on Tourism of Uzbekistan, together with local authorities, is taking the necessary measures for the further development of tourism, including the creation of infrastructure, the development of the transport system. The tourism sector has already received an assessment of attractiveness due to the benefits and preferences provided to entrepreneurs. This is the result of the attention that the state pays to the development and formation of a high-quality environment for the further development of the sphere. For these purposes, a number of benefits and preferences are provided for business entities in the field of. Especially:

- within 5 years from the date of payment of corporate income tax, land tax and property tax, as well as a single tax payment of legal entities, business entities were exempt when commissioning hotels and motels of at least 4 stars certified in accordance with established procedures;
- legal entities are exempt from paying customs duties (except for customs clearance fees) on imported equipment, machinery, components, spare parts and materials not produced in the Republic of Uzbekistan for the construction and reconstruction of hotels and motels, according to approved lists in accordance with the established procedure;
- buses designed to transport 30 or more people, including a driver conforming to the Euro 3 standard and more, are exempt from import customs duty and value-added tax when imported into the territory of the Republic of Uzbekistan.

In addition, by the Decree of the President of the Republic of Uzbekistan dated August 16, they were released until January 1, 2022: hotels - from the payment of a single social payment from the wage fund of qualified foreign specialists engaged as management personnel. The income of qualified foreign specialists invited as a hotel staff manager is from income tax. Relations between the Republic of Uzbekistan and the countries of the world in the field of tourism should be conducted on the basis of an agreement between the Government of the Republic of Uzbekistan and

the governments of other countries on cooperation in the field of tourism, which is supposed to be provided for multilateral cooperation of interested countries in the field of tourism.

References:

1. Decree of the President of the Republic of Uzbekistan "On measures for the further development of domestic and pilgrimage tourism in the Republic of Uzbekistan" dated February 09, 2021 No. UP-6165.
2. Olimovich D.I., Khabibovna K.M., Samadovich R. S. Improving tourist season in Bukhara region // Вестник науки и образования, 2020. № 1-2 (79).
3. Khalmuratov Bakhtiyar Seitmuratovich, Zhyemuratov Temirbai Polatbaevich, Kalbaeva I.E. ANALYSIS OF THE TOURISM POTENTIAL OF THE REGION // Bulletin of Science and Practice. 2022. №11. URL: <https://cyberleninka.ru/article/n/analiz-turisticheskogo-potentsiala-regiona> (date of application: 03.03.2024).
4. Khalmuratov Bakhtiyar Seitmuratovich Priorities of the cluster approach in the innovative developed construction industry // Bulletin of Science and Practice. 2020. №4. URL: <https://cyberleninka.ru/article/n/prioritety-klasternogo-podhoda-v-innovatsionnoy-razvitoy-stroitelnoy-promyshlennosti> (date of application: 03.03.2024).
5. Tleuov N.R., Sagyndikova Sh., Uteniyazova D. Current trends and prospects for the development of gastronomic tourism // "JOURNAL OF SCIENCE-INNOVATIVE RESEARCH IN UZBEKISTAN" JURNALI VOLUME 2, ISSUE 2, 2024. FEBRUARY Research Bib Impact Factor: 8.654/2023 ISSN 2992-8869

Rezyume: *Maqolada turizm salohiyatidan samarali foydalanish masalalari muhokama qilinadi. Hozirgi vaqtda turizm mamlakatning barqaror iqtisodiy rivojlanishini ta'minlashda eng dolzarb sohaga aylandi. Keyingi yillarda davlatimiz tomonidan turizmni rivojlantirish sohasida faol siyosatni amalga oshirishga jiddiy e'tibor qaratilmoqda, zamonaviy sivilizatsiyalashgan turizm bozorining huquqiy asoslarini shakllantirishga qaratilgan normativ-huquqiy hujjatlar va maqsadli hududiy dasturlar qabul qilindi, shuningdek turizm infratuzilmasi modernizatsiya qilinmoqda.*

Резюме: *В статье рассматриваются вопросы эффективного использования туристического потенциала. В настоящее время туризм стал наиболее актуальной сферой в обеспечении устойчивого экономического развития страны. В последние годы государство уделяет пристальное внимание реализации активной политики в сфере развития туризма, приняты нормативные правовые акты и целевые региональные программы, формирующие правовые основы современного цивилизованного туристского рынка, а также модернизируется туристическая инфраструктура.*

Kalit so'zlar: *turizm, turizm sektori, hududlarni rivojlantirish, turistik xizmatlar. Yuqori rentabellikdagi iqtisodiyot, turistik xizmatlar sifati, iqtisodiy rivojlanish, raqobatbardoshlik.*

Ключевые слова: *туризм, туристический сектор, региональное развитие, туристические услуги. Высокодоходная экономика, качество туристических услуг, экономическое развитие, конкурентоспособность.*

ENSURING THE SUSTAINABILITY OF PRODUCT PRODUCTION IN THE CONTEXT OF GLOBAL CLIMATE CHANGE

Kalbaeva J.K.

Karakalpak State University named after Berdakh

***Summary:** The agro-industrial complex is an important sector of the economy as many products are grown and exported to foreign countries. Increasing the competitiveness of agricultural products in the domestic and foreign markets ensures food security and increases the level of well-being of the people. Export is a source of effective development of New Uzbekistan. The production and sale of competitive goods and services to other countries is an important step in the further development of the country and the growth of the population's lifestyle.*

***Key words:** transition economy, agro-industrial complex, export potential, competitiveness, agricultural strategy.*

Providing competitiveness of economic entities of the agro-industrial complex in the markets is a pressing, complex and strategically important task due to the specifics of agricultural products, associated with the heterogeneity of the territories of Uzbekistan, as well as the peculiarities of the existence and principles of development of the agro-industrial complex.

The Agricultural Development Strategy of Uzbekistan for 2020–2030 “Strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030” contains important priorities for the development of the agricultural sector for the coming years, including, among other things, strengthening the role of market mechanisms in management and increasing the investment attractiveness of the sector. As the President of the Republic of Uzbekistan noted, “The priority tasks are to strengthen the integration of the national economy into world economic relations and support exports.” Qualitative development of agriculture, taking into account the characteristics of agriculture of the Republic of Karakalpakstan, on a modern basis including:

- continuous provision of the population with high-quality food products;
- effective organization of comprehensive program measures to ensure food security and export of products;
- increasing production of agricultural products;
- introducing effective organizational and economic management mechanisms taking into account the characteristics of the region.

According to American importers, the consumer basket of the US population, taking into account the high level of income, makes it possible to sell domestic goods among a wide segment of the population. However, for this it is necessary to revise the pricing policy, as well as improve the quality of goods to obtain permission from the standardization bodies of quarantine departments.

The United States of America is the second largest importer of consumer goods in the world. In 2022, 27 percent of all U.S. imports were food products. American consumers are looking for safe, varied and plentiful food products that are simultaneously available throughout the year. To meet these consumer demands, the United States imports about 15 percent of its total food supply. Today, more than 200 countries, 125,000 food service establishments and farms supply approximately 32 percent of the fresh vegetables, 55 percent of the fresh fruits and 94 percent of the seafood Americans consume each year. According to the US Department of Agriculture (USDA), food imports amounted to almost \$200 billion in 2022, an increase of 15% compared to 2021¹⁹.

An important factor in ensuring the competitiveness of agriculture is the development of value chains. High costs of collection, transportation, storage, processing, packaging and certification when delivering products from the field to final consumers reduce the profits received by agricultural producers. The low level of development of the food industry limits the possibilities

¹⁹ Chamber of commerce and industry (USDA)

for increasing the volume of production of products with high added value. In order to attract investment in infrastructure development, it is required

- developed financial markets,
- favorable business climate,
- taking measures to support producers and promote the development of value chains.

Opportunities in processing and packaging of products on dekhkan farms, which produce the bulk of exported fruits and vegetables, leads to significant losses. At the same time, seasonal price

Product name	2022 year (thousand dollars)	Share (%)	2023 year (thousand dollars)	Share (%)	Difference	
					(+/-)	%
Total	239 617,6	100,0%	191 983,2	100,0%	-47 634,4	-19,9%
Plastic (plastic products)	175 054,6	73,1%	131 017,7	68,2%	-44 036,9	-25,2%
Yarn	21 803,4	9,1%	20 980,3	10,9%	-823,0	-3,8%
Pharmaceuticals	13 381,8	5,6%	12 009,8	6,3%	-1 372,0	-10,3%
Fruits and vegetables	5 071,7	2,1%	8 400,0	4,4%	3 328,4	65,6%
Animals	4 497,9	1,9%	4 266,9	2,2%	-231,1	-5,1%
Textiles	3 347,9	1,4%	4 543,8	2,4%	1 195,9	35,7%
Wood and wood products	21,6	0,0%	4 646,7	2,4%	4 625,1	
Agricultural products	4 005,7	1,7%	2 864,0	1,5%	-1 141,7	-28,5%
Food products	3 788,6	1,6%	1 322,8	0,7%	-2 465,8	-65,1%
Natural excavations	570,2	0,2%	703,6	0,4%	133,5	23,4%
Glass and glassware	1 070,6	0,4%	514,4	0,3%	-556,2	-52,0%
Chemical products	247,2	0,1%	385,5	0,2%	138,4	56,0%
Hygiene products	125,9	0,1%	99,9	0,1%	-26,0	-20,7%
Stone, gypsum, cement products	38,4	0,0%	90,4	0,0%	52,0	135,5%
Musical instruments	40,2	0,0%	37,3	0,0%	-2,9	-7,1%
Household utilities	51,1	0,0%	11,0	0,0%	-40,0	-78,4%
Technological tools and equipment	1 619,9	0,7%	3,3	0,0%	-1 616,6	-99,8%
Wool, fur, leather and products made from them	12,7	0,0%	5,9	0,0%	-6,8	100,0%
Trees, plants	3,3	0,0%	0,5	0,0%	-2,8	-83,7%

fluctuations and unstable market conditions also negatively affect their activities. In recent years, small producers have been actively investing in modern storage facilities and processing equipment through various sources of financing, including credit lines from international financial institutions. Despite this, they remain largely isolated from processing industries and exporting organizations. It is necessary to ensure the safety and quality of agricultural and food products by bringing the national legal framework for sanitary and phytosanitary control into compliance with the requirements of the World Trade Organization and the standards of target international markets. The experience of foreign countries shows that the digital economy is developing in a wide range of

areas and cannot be built by a limited number of companies. Therefore, the main role in the digital economy should be played by

- private business with a strong entrepreneurial and innovative approach,
- the state must create infrastructure and conditions for private initiative.

When revealing the essence of this issue, it is necessary to consider the comparative analysis of exports of goods of the Republic of Karakalpakstan for 2022-2023 (January-August months)

Table1

(Compiled by the author based on data from the State Customs Committee of the Republic of Uzbekistan)

In this table you can consider the composition of exports of the Republic of Karakalpakstan and the change in its share compared to the previous year. The exports of the Republic of Karakalpakstan mainly consist of industrial and agricultural products. In 2022, plastic and plastic products and films were exported for \$175,054.6 thousand, but in 2023 the volume of exports of plastic products decreased by 25.2%. In 2023, silk products amounted to \$20,980.3 thousand and accounted for 10.9% of export volumes. In total, in August 2023, products worth 191,983.2 thousand dollars were exported. In 2023, exports of goods decreased compared to the previous year, except for products such as fruits and vegetables, textiles, timber, natural excavations and chemical products. Total exports were down almost 20 percent compared to 2022. The problem of the drying up of the Aral Sea is an environmental problem for Uzbekistan, the region and the international level. As a result of the drying up of the waters of the Aral Sea, the ecological environment and natural balance are disrupted, and the climate is changing in a negative direction. At the moment, the economic efficiency of these indicators corresponds to the contribution of small enterprises. The main types of food products produced by food industry enterprises of the republic differ

- ecological purity (no GMOs)
- low price
- high quality

However, there are still unresolved problems in the food industry of the republic, since products are sold in food markets and exported to foreign countries. Currently, about one hundred percent of agricultural products and retail trade turnover are entirely accounted for by small enterprises. However, the level of development in the field of reproduction of industrial products in the food industry does not fully satisfy demand.

Export goods in the main enterprises section (January-August 2022-2023) thousand dollars							
№	Name of enterprises	2022 year	Share (%)	2023 year	Share (%)	thousand dollars	
						Difference	
						(+/-)	%
TOTAL		239 617,6	100,0%	191 983,2	100,0%	-47 634,4	-19,9%
1	LLC JV "UZ-KOR GAS CHEMICAL"	175 052,4	73,1%	131 063,8	68,3%	-43 988,6	-25,1%
2	LLC "KANTEKS INVEST"	7 349,5	3,1%	7 741,7	4,0%	392,2	5,3%
3	LLC JV "AMUDARYOTEX"	3 259,9	1,4%	5 711,6	3,0%	2 451,6	75,2%
4	LLC "BIRCH-PRODUCT"	0,0	0,0%	4 646,7	2,4%	4 646,7	100,0%
5	LLC "LANEXTRAKT"	3 236,0	1,4%	4 167,1	2,2%	931,2	28,8%
6	LLC "BERUNIY TEXTILE INVEST"	7 050,9	2,9%	2 749,5	1,4%	-4 301,5	-61,0%
7	LLC "SHOMANAY ECO TEKS"	692,1	0,3%	2 541,5	1,3%	1 849,4	267,2%

8	LLC "LANKO MIYA"	2 981,5	1,2%	2 688,6	1,4%	-292,9	-9,8%
9	LLC "EXPO OHAN"	0,0	0,0%	1 883,2	1,0%	1 883,2	100,0%
10	LLC "BO`STON CLUSTER"	1 831,8	0,8%	1 518,0	0,8%	-313,8	-17,1%

(Compiled by the author based on data from the State Customs Committee of the Republic of Uzbekistan)

This table lists 10 successful exporting companies. A successful exporting company is UZ-KOR GAZ CHEMICAL LLC (68.3% in 2023), followed by KANTEX INVEST LLC (4%). In 2023, the new BEREZKA-PRODUCT LLC and EXPO OHAN LLC exported their products. In the Republic of Karakalpakstan, each region exports products, that is, each region has its own economic drivers. The drivers of the Konlikol region are cotton yarn, agricultural products, textile products, and pharmaceutical products. The Kungrad district mainly specializes in chemical products, wood and boards and products made from them. Chimbay district mainly exports pharmaceutical products and fruits and vegetables. The Moinak area specializes in live animals and their parts. The city of Nukus exports plastic and products made from it, film. In the Republic of Karakalpakstan, cities and regions are unevenly developed. The 17 districts of the republic are divided into different categories. In order to reduce the imbalance between territories and develop entrepreneurship, the President of the Republic of Uzbekistan signed Decree No. UP-287 on December 30, 2022, which defines tax incentives and subsidies, measures to support them, taking into account the category of districts and cities. From January 1, 2023 to January 1, 2026, the following differentiated taxation procedure will be introduced at the expense of the Fund for Attracting the Population to Entrepreneurship.

An important factor in ensuring the competitiveness of agriculture is the creation of an effective system for promoting the attraction of private investment for the modernization, diversification and sustainable development of the agri-food sector.

For the sustainable development of the agro-industrial complex, the following proposals are listed, including:

- introduction of the “warehouse receipts” mechanism for lending to agricultural producers;
- expansion of the activities of the Uzbek Republican Commodity and Raw Materials Exchange in terms of trade in agricultural products;
- development of transparent partnership mechanisms by introducing additional mechanisms and financial instruments, as well as ensuring equal access for market participants;
- increasing competition in the market for resources and services through the privatization of non-strategic state-owned enterprises in the supply of resources and services;
- abolition of the practice of providing resources and provision of services at the expense of concessional loans;
- assistance and encouragement of work based on futures contracts between subjects of the agro-industrial complex;
- improving the mechanism for using land use rights as collateral by revising the procedure for market determination of the value of the right to lease land plots;
- development of an investment program to ensure targeted attraction of credit lines from international financial institutions;

References:

1. Decree of the President of the Republic of Uzbekistan, dated October 23, 2019 No. UP-5853 “Strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030.”
2. Khalmuratov Bakhtiyar Seitmuratovich Priorities of the cluster approach in the innovative developed construction industry // Bulletin of Science and Practice. 2020. №4. URL: <https://cyberleninka.ru/article/n/priority-klaster-nogo-podhoda-v-innovatsionnoy-razvitoy-stroitelnoy-promyshlennosti> (date of application: 03.03.2024).

3. https://www.greengrowthknowledge.org/initiatives/aran-sea-grip-project-0/knowledge?f%5B0%5D=countries%3A238&f%5B1%5D=initiative_knowledge_organisation%3A234
4. <https://lex.uz/ru/docs/6333227>

Rezyume: *Agrosanoat iqtisodiyotning muhim tarmog‘i bo‘lib, ko‘plab mahsulotlar yetishtirilib, xorijiy mamlakatlarga eksport qilinmoqda. Qishloq xo‘jaligi mahsulotlarining ichki va tashqi bozorda raqobatbardoshligini oshirish oziq-ovqat xavfsizligini ta‘minlab, xalq farovonligini yuksaltirmoqda. Eksport – Yangi O‘zbekistonning samarali rivojlanishi manbai. Raqobatbardosh tovar va xizmatlarni ishlab chiqarish va boshqa mamlakatlarga sotish mamlakatni yanada rivojlantirish va aholi turmush tarzini yuksaltirishda muhim qadamdir.*

Резюме: *Агропромышленный комплекс является важной отраслью экономики, многие продукты выращиваются и экспортируются в зарубежные страны. Повышение конкурентоспособности сельскохозяйственной продукции на внутреннем и внешнем рынках обеспечивает продовольственную безопасность и повышает благосостояние народа. Экспорт – источник эффективного развития Нового Узбекистана. Производство и продажа конкурентоспособных товаров и услуг другим странам является важным шагом в дальнейшем развитии страны и улучшении образа жизни населения.*

Kalit so‘zlar: *agrosanoat, eksport salohiyati, raqobatbardoshlik, qishloq xo‘jaligi strategiyasi.*

Ключевые слова: *агропромышленный комплекс, экспортный потенциал, конкурентоспособность, аграрная стратегия.*

UDC 316.4

FOREIGN EXPERIENCE IN PROVIDING SERVICES IN THE FIELD OF RAILWAY TRANSPORT

Utebergenov A.O.

Karakalpak State University named after Berdakh

***Summary:** In the context of the development of the transport industry, the main task of railway transport is the use of flexible tariff regulation, which, in conditions of competition with other modes of transport, will improve the efficiency and productivity of railways. This article examines international experience in the regulation of railway transportation in the countries of the European Union, the USA, Japan and China. This experience is considered in comparison with Uzbek regulatory practice, and the main advantages and disadvantages associated with the implementation of individual measures are identified.*

***Key words:** tariff regulation; reforming railway transport; competition; subsidizing railway transportation; economically justified tariff level.*

Currently, with the continuous development of the global economic market, railway transport is beginning to experience strong intermodal competition, including from road transport. As competition within the road transport industry increases and the number of carrier companies within this mode of transport increases, the main advantage of railway transport is the flexibility of transportation within the framework of pricing policy and logistics. If the monopolization of the railway market continues, losses are possible in terms of volume and financial indicators due to the lack of proper flexibility and efficiency of the railway system as a whole[1.108]. At the same time, this problem of railway transport can be solved by improving individual mechanisms of the current regulatory system. In addition, a solution can be achieved by restructuring the railway industry system and developing competition in it[2.403].

EUROPEAN UNION EXPERIENCE

Reform of the railway industry within the European Union began in 1991 with the adoption of EU Directive No. 91/440 (19). The Directive contained the main goals of the reform: restructuring and privatization of state-owned railway transport enterprises, providing access to infrastructure to carriers and introducing fees for provision, prohibiting cross-subsidization of freight and passenger transportation, and specializing routes by type of transportation.

Professor K. Kirchner's research, carried out as part of an order from IBM's global business support service, mentions the unevenness of reform processes, the presence of "leading" countries, states carrying out reforms "according to schedule" and "lagging behind". There is also a fourth category of countries that are just starting reforms in railway transport [3.17].

Due to the small share of rail transport in the overall transportation process, rail carriers in the European Union operate at free tariffs. The main task - increasing competitiveness - is very relevant and is solved by the following methods:

- regulation of tariffs for the use of railway infrastructure;
- distribution of infrastructure financing between the user and the state;
- carrying out transportation on a unified railway network by operators of any country

that is a member of the European Union.

Thus, when comparing the approaches to restructuring the railway transport systems of the European Union and Uzbekistan, a number of analogies are revealed.

USA EXPERIENCE

The principles of regulation in the USA were fundamentally different from domestic ones, including the regulation of suburban passenger transportation, which in the USA throughout the history of railways was given into private hands. The main measure was to support private and

commercial carriers at the state level. Along with maintaining competition between market participants, the establishment and regulation of tariffs played an important role.

When comparing the existing passenger transportation system in the United States with the domestic one, the following should be noted. As part of the state regulation of railway transport in Uzbekistan, as well as due to the fact that railways in the United States are in the private sector, it is not possible to objectively compare the expenditure and revenue parts of passenger transportation activities. However, the process of organizing transportation associated with the rental, management and operation and repair of rolling stock in the countries under consideration is similar, and it is possible to estimate the cost elements of paying for these services [4.120].

UNITED KINGDOM EXPERIENCE

With this in mind, the UK government has developed a railway privatization scheme to increase competition in all modes of transport. The government's main tasks were divided into two parts, which included programs to reform the state's relations with the railways and reorganize the structure of the industry. One of the obligatory tasks of the Government was the privatization of the railways nationalized in 1947.

In 1993, the Government passed the Rail Transport Act, which abolished British Rail and created the Railtrack corporation, which was given ownership of the infrastructure. For more than 10 years, passenger transportation has been carried out by franchise companies. This mechanism works successfully, as evidenced by a 50% increase in passenger turnover over the past ten years [5.19]. There are 19 passenger franchises in the UK with ten different ownership groups.

A franchise is a unique form of subsidizing passenger transportation by the state, which is a minimum subsidy determined after bidding for the right to carry out transportation activities in a certain section of the network. After the introduction of the franchise system, passengers returned to the railway. One of the best results was achieved by Midland Mainline (MML) - transportation has doubled in 10 years. Comparing the described mechanism for financing transportation activities with the Uzbekistan option, one can see parallels in licensing the activities of passenger carriers.

GERMAN EXPERIENCE Following German reunification under the Railway Reform Act of the Federal Republic of Germany, the railways were united in January 1994 and the state-owned federal concern Deutsch Bahn AG (DBAG) was established.

The advantages of large carriers were based on large discounts from the owner of the infrastructure. At the same time, instead of transferring financial responsibility to the regional states, regional funds worth billions of euros were established at the federal budget level, with payments beginning in 1996.

The main executive authorities regulating the activities of railways in Germany are: the Ministry of Transport, Construction and Urban Development (BMWS), the Federal Network Agency (BNetzA), the Federal Railway Agency (EBA) [4.120].

At the same time, a distinctive feature in the regulatory complex of German railways is the presence of several departments and regulatory powers, among which are divided, and each of which controls activities related to the operation of railway transport, and the financing of this type of transport from the state budget with its subsequent distribution.

JAPANESE EXPERIENCE

The Japanese model of reform in the transport market sets itself the task of creating a significant number of vertically integrated operators of various sizes and specializations. At the same time, rail transportation is primarily focused on serving passenger traffic. The country has three large private vertically integrated companies with a predominant share of passenger transportation, which are linked through lease agreements to a national freight company, which is a mirror image of the American system. Thus, during the reform of Japan, pricing in the field of transportation became completely free [5.22].

Comparing the transport system of Japan with the domestic one, it is not possible to objectively assess the advantages and disadvantages of these models due to the fact that the railway market for freight transportation in Uzbekistan is single, and a large number of private operators

operate on it, creating competition in the market for the provision of a rolling stock fleet. As a result, the implementation of the investment program aimed at developing infrastructure is carried out at the expense of income received from freight transportation.

CHINESE EXPERIENCE

In China, the railway industry is subject to the interests of national strategy and is controlled by a number of ministries, including the Ministry of Defense. Road transport is also strictly subject to government control. All decisions regarding the selection of carriers are made at the Chinese government level. Railway tariff policy is controlled and adjusted by the National Development and Reform Commission, initially developed by the railway.

Thus, using the example of world experience, the basis for reforming railways constantly emphasizes that competition is a more effective mechanism than regulation. This thesis has been proven by the experience of several countries in which railway reforms took place. Therefore, an important task of the state regulator is to promote the formation of competitive segments within the railway industry, which will eliminate or reduce the need to regulate tariffs.

References:

1. Omirbayevich, Utepbergenov Allambergen. "PERSPECTIVE DIRECTIONS OF INCREASING EFFICIENCY IN THE TRANSPORT SECTOR." SO'NGI ILMIIY TADQIQOTLAR NAZARIYASI 7.1 (2024): 107-110.
2. UTEPBERGENOV A. O. (2023). EFFICIENCY OF RAILWAY TRANSPORT INFRASTRUCTURE DEPARTMENTS ECONOMIC EVALUATION, On the birthday of Academician Charjav Abdirov 90 years have been dedicated to the treatment of wages "Nowadays, I'm still educated Internationalization in the term "Important Practices". scientific-practical conference, volume 2023 , December 12, 403p.
3. Golomzin A.N., Gorlinsky A.I., Davydov G.E., Reutov E.V. The position of railway transport in the socio-economic system and prospects for reforming the railway transportation markets in the EU countries and in some OECD and CIS countries // Transport Information Bulletin. - 2014. - No. 3. - P. 3-21.
4. New forms of long-term state regulation of railway transport / A.K. Angelina, M.E. Dmitriev, Yu.V. Elizariyev and others / Edited by Yu.V. Elizariyeva. - M.: MCFR, 2013. - 120 p. - (Supplement to the journal "Railway Economics", 2013).
5. Khusainov F.I. Economic prerequisites and results of privatization and liberalization on foreign railways // Transport Information Bulletin. - 2006. - No. 2. - P. 18-28.

Rezyume: *Transport sanoatining rivojlanishi sharoitida temir yo'l transportining asosiy vazifasi moslashuvchan tariflarni tartibga solishdan foydalanish bo'lib, u boshqa transport turlari bilan raqobat sharoitida temir yo'llarning samaradorligi va unumdorligini oshiradi. Ushbu maqolada Yevropa Ittifoqi mamlakatlari, AQSH, Yaponiya va Xitoyda temir yo'l transportini tartibga solish bo'yicha xalqaro tajriba o'rganiladi. Bu tajriba O'zbekistonning normativ-huquqiy amaliyoti bilan solishtirganda ko'rib chiqilib, individual chora-tadbirlarni amalga oshirish bilan bog'liq asosiy afzallik va kamchiliklar aniqlangan.*

Резюме: *В условиях развития транспортной отрасли основной задачей железнодорожного транспорта является использование гибкого тарифного регулирования, что в условиях конкуренции с другими видами транспорта позволит повысить эффективность и производительность железных дорог. В данной статье рассматривается международный опыт регулирования железнодорожных перевозок в странах Евросоюза, США, Японии и Китая. Данный опыт рассмотрен в сравнении с практикой регулирования Узбекистана и выявлены основные преимущества и недостатки, связанные с реализацией отдельных мер.*

Kalit so'zlar: *tariflarni tartibga solish; temir yo'l transportini isloh qilish; musobaqa; temir yo'l transportini subsidiyalash; iqtisodiy asoslangan tarif darajasi*

Ключевые слова: *тарифное регулирование; реформирование железнодорожного транспорта; соревнование; субсидирование железнодорожных перевозок; экономически обоснованный уровень тарифов.*

UDK: 342.7

THE CONSTITUTIONAL FUNDAMENTALS OF THE PROTECTION OF HUMAN RIGHTS

Kutlimuratov F., Akmalov H.

Karakalpak state university named after Berdakh

Summary: *The constitutional reforms carried out in the country this year and the adoption of the new Constitution consolidated the new stages of development in our country. In particular, the state further strengthened the human being, his life, honor, dignity and all his inalienable rights and freedoms. It's important to recognize that respect for human rights is more important today than ever before. This article describes the constitutional basis for the protection of human rights in our country.*

Keywords: *Constitution, human rights, individual rights and freedoms, the death penalty, habeas corpus, the Miranda rule, the presumption of innocence.*

INTRODUCTION.

The Constitution is the supreme law of the state. We all know that the importance, influence and influence of this Law in the fate of our people are increasing. Our Constitution, which is the political will of our people, reflects the basic principles of building a just society, protecting the legal rights and freedoms of citizens and human dignity, and serves as a guideline for the practical implementation of these principles. As these principles find their direct expression in our lives, the political worldview and legal knowledge of our citizens are increasing.

The fact that 90.21 percent of the citizens who participated in the referendum held in our country on April 30, 2023 voted in favor of the adoption of the Law on the Constitution of the Republic of Uzbekistan in the new edition testifies to the reflection of the dreams and aspirations of our people to build New Uzbekistan. The referendum was a credible expression of the unity and harmony of our great multi-ethnic people, its determination to build a sovereign, democratic, legal, social and secular state. It was announced that the new Constitution entered into force on May 1 of this year. The updated constitution includes Title VI, Chapter XXVII, and Article 155.

If I refer to the Constitution in the new edition based on my field of study, the updated Constitution includes the following 9 most important norms on the protection of human rights in the investigation, investigation and judicial process and is enshrined in our Law in the following forms:

- 1) during the arrest of a person, his rights and the grounds for detention must be explained to him in an understandable language;
- 2) a person is not obliged to prove his innocence and may at any time exercise the right to remain silent;
- 3) all suspicions of guilt must be resolved in favor of the suspect, accused, defendant or convict;
- 4) a person may not be found guilty or punished if the confession of his guilt is the only evidence against him;
- 5) a person is not obliged to testify against himself or his close relatives;
- 6) a person may not be detained for more than forty-eight hours without a court decision;
- 7) arrest, detention and custody are allowed only by a court decision;
- 8) restrictions on the confidentiality of correspondence, telephone conversations, postal, electronic and other messages and house searches are allowed only in accordance with the law and on the basis of a court decision;

9) everyone is guaranteed the right to receive qualified legal assistance. Legal aid is provided at the expense of the state in cases provided by law.

With the adoption of the Constitution of the Republic of Uzbekistan in the new edition, the guarantees and mechanisms for the protection of human rights have been strengthened at the highest level at the level of the Basic Law. The goal of New Uzbekistan is not only to recognize human rights and freedoms, but also to strengthen the basis for their observance and protection. The fact that more than 40 percent of the amendments and additions to the Constitution, 11 of the 27 newly introduced norms are directly related to ensuring human rights and freedoms, the full alignment of its norms with international standards in the field of human rights defines the essence of the Constitution in the new edition, which is to fully ensure the priority of human rights and freedoms. The Preamble of the Constitution in the new edition, which begins with the words "We, the united people of Uzbekistan, solemnly declare our commitment to human rights and freedoms", symbolically expresses the fact that the main purpose of society and the state in Uzbekistan will henceforth be to ensure the primacy of human rights and freedoms [1].

If we talk about the changes in the field of human rights and freedoms included in our updated Constitution, many norms have been introduced in the field of human rights and freedoms. In particular, according to Article 25 of the new constitution, the death penalty is prohibited in Uzbekistan. The right to life is an inalienable and natural right of every human being. In our country, the death penalty was abolished for all crimes in 2008, but not in the constitution, but in the criminal code.

The constitutional prohibition of the death penalty guarantees that not even the state has the right to deprive a person of life. With this law, our state shows the world that it will never back down on this serious issue, and that it is committed to the ideals of humanism. For example, today 106 countries have abolished the death penalty for all crimes. Some states have abolished the death penalty by law, but have reinstated it as a punishment because it is unconstitutional. There is also a risk that the courts will make mistakes. So if a death sentence is passed on a person who is later acquitted by a court, there is no way to restore the life of a wrongfully convicted person. In this regard, the firm position of Uzbekistan, which is included in our Law, once again confirms the high level of protection of human life and its value in our country and strictly limits any initiatives to restore and apply this form of punishment in our socio-political life. Ultimately, it serves to guarantee the right to life of every human being, even if he has committed a crime [2].

The constitutional provision of the inviolability of human dignity and honor, the prohibition of torture, violence, cruel or degrading treatment, medical or scientific experiments without the consent of the person, serves to strengthen the rights and freedoms of persons detained in places of punishment, further enhance the reputation of Uzbekistan in the international arena, as well as to implement the principles of humanity, justice and the rule of law [3].

According to Article 27 of the new Constitution, "No one shall be arrested, detained, imprisoned, detained or otherwise deprived of his liberty without due process of law. Arrest, detention and detention shall be allowed only by a court decision".

The right to liberty and security of person is the inherent right of every human being to be free to act freely and to choose his or her own conduct in a manner that does not infringe upon the liberty and security of others. The freedom of the person should not exceed the limits of the moral norms in society and be based on the law, that is, the person can perform any action if it is not prohibited by the law and legislation and does not contradict the legal provisions [4].

One of the most important institutions for the judicial protection of human rights is the requirement of the Habeas Corpus that any action involving the restriction of personal liberty must be carried out only on the basis of a court decision. This provision is intended to guarantee the inviolability of personal liberty and to prevent the unlawful arrest, detention and detention of persons by the investigating authorities. The significance of this new norm is that it serves to restrain law enforcement agencies from illegal actions in judicial-investigative processes, to eliminate cases of unjustified detention of a person, and as a result, to avoid mistakes related to the

restriction of a person's freedom during the investigation. Another important aspect of this article is that an important guarantee derived from the presumption of innocence is that a person cannot be detained for more than 48 hours without a court order. A person must be brought before a court for a decision on the legality and reasonableness of the detention until 48 hours have elapsed from the time of detention. It was stipulated that a person should be released immediately if the lawfulness and validity of the detention is not proven to the court. This article serves as a constitutional guarantee of the right to liberty and security of person. This provision also implies the introduction of the habeas corpus system in the constitution of our country [5].

Article 28 of the updated Constitution states that persons deprived of their liberty have the right to be treated humanely and to have their dignity and worth respected. A person accused of committing a crime is considered innocent until his guilt is proven in the manner provided by law by means of a public trial and determined by a court judgment that has entered into force. It was determined that the accused would be given every opportunity to defend himself. In introducing this norm, first of all, the proposals received from our people and international norms were taken into account. That is, this clause reflects the Miranda principle. The essence of the Miranda rule is that it excludes the possibility of pressure being exerted by officers of the appropriate department against a person arrested on suspicion of a crime. This will allow us to apply the noble principle of supreme value of the human being, his life, rights and freedoms in practice. This rule also serves to further strengthen the guarantees of the rights and freedoms of our citizens, prevent the commission of various illegal acts and unfounded accusations against them.

CONCLUSION

Thus, the Constitution of the Republic of Uzbekistan in the new edition is the fundamental law with the highest legal force, defines the most important, priority guarantees of human dignity and ensuring rights and freedoms. Also, the Constitution, as a document that will be translated into many languages of the world, will introduce New Uzbekistan to the peoples of the world as a just, progressive state that protects human values and interests.

Of course, the norms of the new Constitution will serve as the basis for further accelerating the pace of reforms in our country, mobilizing all the leading forces of society in this direction.

The Constitution plays an important role in building a civil society in a democratic, legal and social state, which is enshrined in our Constitution. Summarizing all of our ideas about its significance, we can conclude the following:

The adoption of the Constitution in the new edition will serve as a foundation for the accelerated and successful implementation of comprehensive reforms in the entire legal system of the country and in all spheres in the construction of the foundations of independent statehood and new Uzbekistan. The changes that are taking place in the minds of our citizens through our new Law will serve as a powerful force for the progress of our country. As has been said many times, this Constitution is the legal product of the will of our people. From this point of view, it is the duty of each of us to respect our Constitution, which is literally the product of our own creativity, to follow its requirements. Following it means contributing to the prosperity of our country and serving to build a just society.

References:

1. Konstitutsiyadagi yangi normalar va ularning tahlili. F.Q.Qutlimuratov, H.A.Akmalov. (Metodik qo'llanma) -Nukus; 2023. -84b.
2. Akmalov Hamid Akmal o'g'li. (2023, Aprel). Yangilanayotgan konstitutsiyada inson huquq va erkinliklari, sud-huquq sohasidagi islohotlar. "Talqin va tadqiqotlar" ilmiy-uslubiy jurnali. UIF-2023: 8.2|2181-3035|№22.
3. Inson huquqlari. A.R.Mo'minov, M.A.Tillaboyev. Darslik. Ikkinchi nashr. -T.: Adolat, 2013. -290b.
4. O'zbekiston Respublikasi Konstitutsiyasiga sharh. Qayta ishlangan va to'ldirilgan ikkinchi nashri. -T.: "O'zbekiston" 2013. -590 b.

5. L.Yugay. Yangi tahrirdagi konstitutsiyada qiynoqlarning ta'qiqlanishi kafolatlari mustahkamlanmoqda. "Yangi O'zbekiston Konstitutsiyasi" yagona milliy portali. URL: <https://meningkonstitutsiyam.uz>

Rezyume: *Joriy yilda mamlakatimizda amalga oshirilgan konstitutsiyaviy islohotlar va yangi tahrirdagi Konstitutsiyaning qabul qilinishi mamlakatimizdagi yangi taraqqiyot bosqichlarini o'zida mustahkamladi. Jumladan, inson, uning hayoti, sha'ni, qadr-qimmati va uning barcha ajralmas huquq va erkinliklari davlat tomonidan yanada mustahkamlab qo'yildi. Bundan kelib chiqib aytish mumkinki bugungi kunda inson huquqlarini hurmat qilish har qachongidan ham muhim hisoblanadi. Ushbu maqolada mamlakatimizda inson huquqlarini himoya qilishning konstitutsiyaviy asoslari yoritilgan.*

Резюме: *Осуществленные в нынешнем году конституционные реформы и принятие новой Конституции укрепили новые этапы развития нашей страны. В частности, государством еще больше закреплены человек, его жизнь, честь, достоинство и все его неотъемлемые права и свободы. Из этого следует, что уважение прав человека сегодня важнее, чем когда-либо. В этой статье освещаются конституционные основы защиты прав человека в нашей стране.*

Kalit so'zlar: *Konstitutsiya, inson huquqlari, shaxsiy huquq va erkinliklar, o'lim jazosi, Habeas korpus, Miranda qoidasi, aybsizlik prezumpsiyasi.*

Ключевые слова: *Конституция, права человека, личные права и свободы, смертная казнь, Хабеас корпус, Миранда, презумпция невиновности.*

PRINCIPLES OF ADMINISTRATIVE PROCEEDINGS

Baynazarova G.J.

Judge of the Nukus Interdistrict Administrative Court of the Republic of Karakalpakstan

Summary: *This article highlights the current issues of timely and correct application and application by courts of the principles of administrative proceedings in making legitimate and informed decisions.*

Key words: *массовые правоотношения, спор, другая организационно-функциональная деятельность суда, административный суд, принцип, принципы судопроизводства.*

INTRODUCTION.

Ensuring the supremacy of the Constitution and the law is the main criterion for building a democratic rule of law state. The fruit of the large-scale reforms carried out in our country, the main guarantee of peace and progress, is also closely linked to ensuring the supremacy of the Constitution and the law. The reason is that in the existing spheres of our life, our working people, therefore, is an important and urgent issue of creating an environment in which senior employees, citizens should learn the Constitution and laws well, implement them positively, and strictly observe these rules by all members of society. Due to the rapid changes and updates taking place in the Republic of Uzbekistan, we, as everyone knows, pursue a noble goal -to put into practice the provision that state bodies should serve the interests of the people, largely defined in our Basic Law in the new edition.

In order to further improve the effectiveness of the ongoing reforms, create conditions for the comprehensive and dynamic development of the state and society, implement priority areas of modernization of our country and liberalize all spheres of life, the “new development strategy of Uzbekistan for 2022-2026” was approved on February 28, 2022²⁰.

Within the framework of the tasks set by the Development Strategy for Ensuring Justice and the Rule of Law, in 2022, the procedure for providing citizens in need of social protection with free legal assistance at the expense of the state in both criminal cases and civil and administrative cases was introduced; the obligation to prove in an administrative court that a decision, action (inaction) they are not illegal, in accordance with the procedure established for the official who accepted it. strictly guaranteed; A unified online electronic register of persons with limited freedom of movement, etc. has been established.

As a result of the reforms carried out in our country, in many States the aim of administrative reforms was to improve administrative and judicial procedures, and major changes also took place in the system of administrative legislation, which led to an increase in the role and importance of administrative regulation of public relations. This concerns, first of all, the institutionalization of the institutions of democratization, which have consistently developed in accordance with constitutional and other norms of law.

In the following years, measures are being taken to improve the procedural mechanisms of administrative records management, democratization, ensuring the rule of law and reliable protection of citizens' rights. The report of the Head of state “the concept of further deepening democratic reforms and the development of civil society in the country” defines the tasks of creating an effective system of control and balance between the branches of government, effective mechanisms to ensure the rule of law in the activities of state bodies, law enforcement and regulatory structures, as well as in their relations with citizens.

²⁰O‘zbekiston Respublikasi Prezidentining 2022 yil 28 fevraldagi “2022 — 2026-yillarga mo‘ljallangan yangi O‘zbekistonning Taraqqiyot Strategiyasini “insonga e’tibor va sifatli ta’lim yili”da amalga oshirishga oid davlat dasturi to‘g‘risida” PF-27-son Farmoni.

The President of the Republic of Uzbekistan, Sh.M. Mirziyoyeva, in a Message to the Oliy Majlis, said that “on the basis of advanced foreign experience, we are bringing the activities of administrative courts to a new level. In case of appeal to the administrative courts with a complaint against the governor's decision, the practice of considering cases in an extraterritorial manner, that is, in another territory, will be introduced,” he stressed²¹.

The relevance of the topic indicates the need for a comprehensive study of the institute of administrative justice, the development of scientific and theoretical tools and methods for solving existing problems, and the formation of practical skills.

In addition, the issues of protection of human rights and freedoms, as well as legitimate interests, are among the main ones at the present time. The World Declaration of Human Rights, the European Convention for the Protection of Fundamental Human Rights and Freedoms, the International Covenant on Civil and Political Rights, the International Covenant on Social, Economic and Cultural Rights and other international documents ratified by the Republic of Uzbekistan contain in their Constitution international principles containing minimum requirements for the protection of human rights. They are embodied in the basic principles of the Code of the Republic of Uzbekistan “on administrative proceedings”, which defines the rules for dispute resolution, arising in our country from administrative and other public legal relations.

At this stage, the perfection of the institute of administrative record keeping largely depends on a full understanding of the content of the basic principles set out in it and its application.

In the scientific study of relations related to administrative proceedings, its guidelines are interpreted in different ways.

This ultimately leads to a violation of the rules of law or their improper application. This justifies the need to form a common understanding of the content, classification and application of principles in this field.

At the same time, the correct interpretation by the courts of the basic principles established by the Code when considering disputes arising from administrative and other public legal relations, their observance and strict observance of the rules established therein will ensure high-quality consideration of the court case.

In this regard, the concept, composition and classification of the principles of administrative proceedings, theoretical and legal disclosure of concepts related to its application are very relevant.

The structure, classification and disclosure of the specifics of the principles of administrative proceedings in the Republic of Uzbekistan, as well as the relationship of the application of the principles of administrative proceedings with theoretical and practical analysis constitute the object of research.

When considering disputes arising in administrative and other public law relations, as well as in the organizational and functional activities of the court, the subject of the study is the conceptual provisions of the application of principles, ideas and theories, applicable legal norms, judicial practice and statistical data.

The goals and objectives of the study. The main purpose of the study is to define the concept of the principles of administrative proceedings, as well as to substantiate the structure, classification and specifics of the application of these principles.

On the application of principles in administrative proceedings, scientists from foreign countries A.P.Aleksin, E.A.Shilova, A.A.Vlasov, V.M.Sherstyuk, V.V.Maklakov, A.V.Melekhin, Yu.N.Starilov, N.Y.Khamaneva, A.V.Sikhote-Alin, principles of argumentation and equality of the parties in court O.V.Pankova and G.A.Shmavonyan, the principle of glasnost by D.A.Yagupov and A.G. Found its expression in Richter's scientific works.

²¹ Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг 2023 йил учун Мурожаатномаси. Интернет саҳифа: <https://review.uz/oz/post/uzbekiston>.

In general, according to the principles of judicial proceedings, our national scientists Sh.Sh.Shayakhmetov, D.Y.Khabibullaev, D.Egemberdiev, E.Khozhev, M.Mamasidikov's scientific research has partially found expression in textbooks and teaching aids.

In our country, there has been no unified scientific work on the concept, classification and application of the principles of administrative proceedings.

References:

1. O'zbekiston Respublikasi Prezidentining 2022 yil 28 fevraldagi "2022 — 2026-yillarga mo'ljallangan yangi O'zbekistonning Taraqqiyot Strategiyasini "insonga e'tibor va sifatli ta'lim yili"da amalga oshirishga oid davlat dasturi to'g'risida" PF-27-son Farmoni.

2. Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг 2023 йил учун Мурожаатномаси. Интернет саҳифа: <https://review.uz/oz/post/uzbekiston>.

Rezyume: *Ushbu maqolada sudlar tomonidan qonuniy va asosli qarorlar qabul qilishda ma'muriy sud ishlari yuritishning prinsiplari o'z vaqtida va to'g'ri qo'llash hamda ularga amal qilish bugungi kunning dolzarb masalalar yoritilgan.*

Резюме: *В данной статье освещаются актуальные на сегодняшний день вопросы своевременного и правильного применения и применения судами принципов административного судопроизводства при принятии законных и обоснованных решений.*

Kalit so'zlar: *omnaviy-huquqiy munosabatlar, nizo, sudning boshqa tashkiliy-funksional faoliyati, ma'muriy sud, prinsip, sud ishlarini yuritish prinsiplari.*

Ключевые слова: *массовые правоотношения, спор, другая организационно-функциональная деятельность суда, административный суд, принцип, принципы судопроизводства.*

**SEARCH FOR SCIENTIFIC APPROACHES TO THE ANALYSIS OF THE
TRADITIONAL CULTURE OF THE KARAKALPAKS**

Utebayev M.B^{1.}, Rzaeva M.A^{2.}

¹*Karakalpak Scientific Research Institute of Humanities, Karakalpak Branch of the Academy of Sciences of the Republic of Uzbekistan*

²*Karakalpak State University named after Berdakh*

Summary: *It should be noted that this analysis largely relies on classical directions of social anthropology, particularly diffusionist, or has significant overlap in terms of the main idea. Thus, the analysis of information in terms of synchronous-diachronic directions can be further actualized and developed in future research.*

Keywords: *Karakalpaks, society, culture, transformation, information, events, tradition.*

Problem Statement: In ethnological science, the study of the origins of rituals within a specific ethnological group is quite challenging because many rituals have roots that extend back to periods preceding the formation of the ethnic group itself. It is natural that rituals and customs that undergo diffusion, meaning that one people borrow from another, or the roots of many traditions extend to many ancient peoples simultaneously. However, in subsequent epochs, after the completion of ethnogenesis processes and the formation of a nation, the study of both indigenous to a specific ethnicity and non-indigenous (i.e., borrowed) rituals holds significant value for the analysis of transformational issues. Consequently, the transformation of traditional cultural and behavioral patterns, conditioned by the societal experience, falls within the purview of many sciences. These transformations can be interpreted as the collective adaptation to various socio-economic realities. In this regard, the analysis of ethnocultural phenomena, using the most justified approaches in science, is of paramount importance, as it is capable of distinguishing one social phenomenon from another.

The aim of this study is to apply the analysis of diachronic and synchronic information connections, developed by the leading scientist S.A. Arutyunov, using various aspects of the traditional culture of a people as examples. It was S.A. Arutyunov who substantiated the advantages of this approach to analysis, both in terms of intergenerational information linkage within a specific ethnic group vertically (over time) and the interconnection of these information waves horizontally (across space) among different ethnic groups. These approaches can be effectively applied within Bromley's theory of ethnos. However, we will only attempt to provide examples in favor of the aforementioned approach, which can not only explain but also differentiate the phenomenon of the formation of folk, and later national culture against the background of various forms of ethnic existence at different stages of its development.

Synchronous information linkage refers to increased information density flowing horizontally (for example, the spread of a common script and language, printing, literacy, the presence of legislation, media, etc.), whereas diachronic linkage flows vertically (customs and traditions, creative heritage, etc.), transmitted from generation to generation in oral, written, and material-visual forms [1.5].

Literature Review:

In the Literature Review section, we present the works of scholars who have applied methodology to analyze social phenomena from diachronic and synchronic perspectives. However, the approach proposed by Arutyunov slightly differs from the theories mentioned below in that the synchronous-diachronic method smoothly transitions from the toolkit directly to the object of study, making it the subject of analysis as trajectories of information waves (folk culture). At the origins of diachronic and synchronic analysis stands Michel Bréal (1832-1915), a French linguist and philologist, the founder of the science of word meaning - semantics. As the method of diachronic

analysis further developed, researchers made several attempts to apply it to historical phenomena in society as a whole. One such researcher was I.D. Kovalchenko, who developed the "historical-diachronic" method. It was considered a necessary tool for any historical study objectively aimed at studying temporal transformations, so it was not distinguished as an independent method. Additionally, I.D. Kovalchenko proposed two main approaches to studying changes in historical phenomena over time: diachronic (differentiated by time, different moments) and synchronic (simultaneous). For a complete understanding of historical and social processes occurring in society, it is necessary to correctly use the historical-diachronic method. It was I.D. Kovalchenko who distinguished three variants of the use of the historical-diachronic method, taking into account the peculiarities of the object of analysis. These are primarily: 1) measuring and evaluating the duration, frequency of different events, allowing judgments about the quantitative and qualitative characteristics of the development process of individual objects; 2) understanding the internal laws of development and highlighting qualitative stages of change in complex systemic objects and processes, i.e., creating periodization; 3) characterization of the dynamics of historical systems against the background of a more complex system. The latter variant allows for evaluating changes in a relative regime, aimed at identifying the influence of external factors on the development of the studied object, the correlation of the dynamics of one system with others.

Continuing to dissect the definition and specificity of the diachronic analysis method, let's turn to another definition. Diachronic analysis is a method of cognition consisting of dissecting the evolution process of the studied subject (object) into a series of sequentially succeeding stages in real historical time, followed by comparing these temporal states of the object with a certain feature of their structure. Diachronic analysis, conducted through horizontal time sections, facilitates the identification of certain regularities and tendencies in the evolution of the object of cognition. It is actively used in many sciences (geology, geography, cosmology, biology, anthropology), but especially in social sciences (history, sociology, cultural studies, etc.).

Object and Subject of the Study:

Throughout history, traditions have been developed as the most optimal ways of life, which, to some extent, established a lasting diachronic cultural connection. However, these traditions tend to undergo transformation. The speed and quality of transformation do not occur uniformly. In societies oriented towards traditions or rituals, they typically proceed slowly and evolutionarily, whereas in industrially developed societies, they occur revolutionarily. In this regard, it is also worth referring to Arutyunov's research, where "traditional" refers to traditions that have developed over a long period within a "traditional society" (pre-industrial). By "new," he understands innovations in culture that result from the transformation of traditions through two pathways: evolutionary (changes in the structure of the custom or ritual through adaptation to new conditions) and revolutionary (through borrowing elements from the cultures of other peoples). In our view, "traditional" for the Karakalpak refers to customs before the beginning of the 20th century, as this period is characterized by the preservation of traditional ways of life. "New" refers to the transformation of traditions in the Soviet and post-Soviet periods (due to factors such as industrialization, urbanization, globalization of culture, etc.).

If the object of this study is the advantage of analyzing information within the framework of synchronous-diachronic waves, then the subject of the study is the analysis of informational data as aspects of traditional-cultural transformation. In this regard, the culture of the Karakalpak people has always been influenced by Turkic and Islamic cultures on one hand, and Soviet and post-Soviet cultures on the other. At the same time, within the ethnic group, communication or information exchange vertically has developed, characterized by the cementation of culture in oral, written, material, and behavioral forms specific to the Karakalpak people. Thus, the synchronous and diachronic exchange of information, involving all aspects of culture and traditions both internally and externally, is closely interconnected.

Research Methodology:

The research methodology involves analyzing specialized scientific literature and observing field materials during an ethnographic expedition to Karakalpakstan as part of the implementation team of an applied project ("Transformation of Social Institutions in Karakalpakstan: History and Practice"). Working within the framework of the project's idea prompted us to turn to Arutyunov's scientific perspectives. It was the process of cognitive abstraction that became the basis of the methodology for examining Karakalpak culture under the theory of synchronous and diachronic information proposed by the leading scientist.

Research Results:

Below, we attempt to provide examples from various aspects of the traditions of the Karakalpaks and partly the Uzbeks to identify the components of the people's own culture and the conditions of their existence under the influence of ethnocultural and globalization processes. For a long time, there was unity between diachronic and synchronic connections, as a result of which, seemingly, even the cultural heritage of another people became part of one's own culture. For example, the Komsomol wedding, which originated in the Soviet period, has long been rooted in the traditional life of the peoples of Central Asia, thereby acquiring national traits while continuously transforming. Today, this wedding is called "jaslar toyı" and is already perceived by the people as their own tradition.

The Karakalpaks, being a semi-nomadic and semi-sedentary people in the past, the majority of the population did not have access to education and did not have a written culture until the 19th century. Only members of the clergy and officials could read and write due to the privileged nature of their social status, so masterpieces of oral folk art were created and transmitted by the common people. The folklore of the Karakalpaks, formed over a long period, represents a unique work of diachronic nature, as a huge number of epics, legends, fairy tales, proverbs, and other genres contribute to the strengthening of identity on one hand, and the preservation and transmission of historical memory on the other. Although it cannot be asserted with certainty that folklore was formed solely thanks to diachronic directions of information within the ethnic group, otherwise we would not find different versions or similarities of the same folklore work among different peoples. For example, the Karakalpak epic "Qyrq-qyz" (Forty girls) has some similarities with the myth of the Amazons in Ancient Rome. The heroic epic "Edigei" is widespread among the Tatars, Kazakhs, Nogais, Bashkirs, Karakalpaks, Crimean Tatars, and others. We want to say that many components of traditional culture, even folklore, being a powerful driver of national identity in its origin, have synchronous connections, and in terms of its influence and dissemination, may have diachronic connections. Nevertheless, folklore is a distinctive ethnic code of many peoples, and it is customary to consider it as diachronic information. In this regard, "Information that determines the existence of an ethnic group is transmitted in various ways. Language communications are especially important for people – the transmission of verbal messages from person to person, both orally and in written form" [1.20]. If folklore before the beginning of the 20th century was strictly oral and many of its epics were only accessible to storytellers, then in subsequent epochs, folk epics became available to everyone thanks to printing. Here, printing became, as it were, a crucial factor, playing a synchronous role in the dissemination of information, thereby enhancing the process of identity on a larger scale. In other words, the synchronous dissemination of information stabilizes diachronicity.

The Karakalpaks are among those peoples who have also well-preserved behavioral norms associated with clan and tribal traditions and stereotypes. This is evident during introductions when individuals inquire about each other's lineage. Thus, the clan self-identification of the people reflects the preservation of tradition. As we interpret it, the example mentioned above pertains to the diachronic aspect of information waves. There also exists synchronous information, which, in our view, is actualized in the conditions of the formation of a modern type of state, as it is precisely in the conditions of today's society, thanks to printing, that information spreads intensively horizontally, covering more ethnic groups, societies, and people. Thus, the integration of different ethnic groups occurs against the backdrop of the globalization of the same information. For

example, state law or a literary work disseminated in a particular unified language. The latter can be confirmed by the spread of a unified literary Uzbek language. Despite representatives from different regions of Uzbekistan speaking in their own dialects, they read and write in the literary Uzbek language. It is also necessary to note that the literary Uzbek language, which is today the state language, plays a significant role in synchronizing information (i.e., actualizing a unified national culture in the conditions of a modern state with its technological and informational capabilities).

It should also be noted that spatial factors, which are unrelated to the innate ethnic properties of a particular people and cultural phenomena, serve as synchronous connections. For example, the cultural influence of other peoples, elements of the political system such as power, press, parties, civil culture, rights, etc. They influence all stages of historical development in the history of a particular people. For example, the consequences of the Soviet government's policy of collectivization and industrialization, contemporary migration processes, and so on.

As for diachronic connections, they mainly ensure the continuity of the culture of the ethnic group. For example, in the culture of the Karakalpak people, rituals of the life cycle (Besik Toy (birth ceremony), circumcision, "shashiw", "qudaliq", engagement ceremony, age of the Prophet, funeral, almsgiving, etc.), calendar holidays (Navruz), folklore, self-identification (clan or ethnic self-awareness), characteristics of material and everyday culture, traditional economy, beliefs, etiquette, and much more provide a diachronic flow of information. They typically preserve the memory of the people vertically (the development of ethnoculture over time), evolving in space (in the conditions of synchronous connections), thereby representing a unified social experience. This indicates that even elements of another culture over time become part of one's own culture. Such a phenomenon occurs as a result of the intersection of diachronic and synchronous connections, resulting in the formation of distinctiveness.

Below, from the perspective of diachronic and synchronic "modeling" of information, let's take a brief excursion into the world of social norms and traditions, through the analysis of some aspects of everyday life from the pre-Soviet, Soviet, and 1990s periods of the 20th century.

Returning to the analysis of ethnic processes using diachronic and synchronic methods, it is noted that synchronically, the late 19th and early 20th centuries became a pivotal moment in terms of fundamental transformations in the economy, migration processes, national issues, and way of life. Even major political events that occurred before Soviet times still to some extent influence the consciousness of the people. For example, there is a belief among the people that the population of the left bank of the Amu Darya River differs from the right bank. According to many elderly informants, the inhabitants of the left bank in the past led a settled way of life, unlike those on the right bank, where nomadic animal husbandry remained the main economy until the beginning of the 20th century. Differences were manifested in their primary economic activities; the inhabitants of the right bank were more conservative and religious in terms of their way of life, with Uzbek and Islamic customs prevailing compared to the Karakalpaks on the left bank, who led a semi-nomadic way of life and were less Islamized. For example, they still jokingly refer to each other: "he is a Zarechny," meaning he is different (foreign), referring to differences in mentality. Therefore, according to the informants, they have different values, which influences the difference in behavior.

The stereotyping of the behavior of the peoples of the right and left banks of the Southern Aral Sea occurred as a result of major events in the conquest policy of the Russian Empire. It was in 1874 that the Amudarya Department was formed on the right bank of the Amu Darya. In 1887, after the introduction of the "Regulation on the Management of the Turkestan Region," the department was included in the Syr Darya Region. This department was directly subordinate to the Turkestan Governor-General. According to the treaty of 1873 between the Russian Empire and the Khanate of Khiva, the left bank of the Amu Darya remained part of the Khanate of Khiva.

This difference in behavior over a long period ensured the maintenance of their diachronic connection within a separate territory and relatively isolated ethnic group, although even this diachronic connection arose as a result of synchronous flows, i.e., the division of the territory of the

Southern Aral Sea after Russia's conquest. However, today, this difference is gradually fading due to the long-term synchronous density of information links within a single state.

Similar synchronous information links can be observed in the example of recent history, when different behavioral patterns were formed among the same peoples, as well as different national cultures and identities following the division of Germany into the GDR and the FRG or Korea into North and South, which intensified diachrony.

The most vivid evidence for a clear example of the results of synchronous-diachronic information links can be fragments of material culture. For example, traditional types of housing, food, and clothing were formed over a long period of time. However, it should be noted that a culture with a diachronic connection, such as the yurt, did not arise out of nowhere. The invention and spread of the yurt dates back to the middle of the 1st millennium BCE and is associated with the ancient Turkic environment. In subsequent centuries, the yurt spread widely among Turkic-Mongolian peoples, from East Asia to Eastern Europe; apparently, by the end of the 1st millennium, it penetrated to the steppe tribes of Central Asia, in particular, to the Oghuz. Perhaps it was among them that the yurt was borrowed by the medieval population of Northern Khorezm.

Being a portable dwelling, it emerged among nomads as a result of the integration of diachronic and synchronic connections. Therefore, the yurt is the heritage of the entire nomadic and semi-nomadic civilization. However, each Turkic people has its own form of yurt, so we recognize it as a diachronic stream. The Karakalpak yurt differs in size, its structural elements, ornamentation, etc.

The same can be assumed about other types of stationary housing, such as the "shöpkerzhay," which is characteristic only of the Karakalpaks and emerged in the 19th century. And other types of adobe structures like the "tam" are characteristic of the culture of the Khorezm Uzbeks, which was borrowed by the Karakalpaks. This confirms the existence of a once synchronous connection, which led to the emergence of stationary dwellings among the Karakalpaks, which over time acquired the status of "cultural code" information for the people in a diachronic sense.

Modern European-style housing from the Soviet and post-Soviet times also spread synchronously and influenced the architecture of private houses, single-story and two-story mansions. We can see these houses within and beyond modern cities. Although these houses look European from the outside, the facade and interior finish have an eastern flavor. The interior of these houses, the layout of rooms in their structure, are European, but furnished according to local traditions. For example, there is a chest with a bedding set, the living room lacks European furniture, as it occupies space that hinders the reception and comfortable accommodation of guests. In short, the houses clearly demonstrate the result of synthesizing diachronic and synchronic connections in the process of harmonious adaptation.

Another synchronous indicator of a people is its visual-applied art. For example, the Karakalpaks often use a zigzag ornament on clothing or dwellings, which symbolizes water. Apparently, the Karakalpaks have always lived near river valleys, so the wave found its reflection in the visual culture of the people. Cultural features indicate the presence of a diachronic connection, although in its formation, synchronous connection also played a significant role, i.e., the possible influence of elements of neighboring cultures, which smoothly entered the general composition of the ethnic culture of this people.

Conclusion and Discussion

The examples provided above significantly complicate making a definitive conclusion regarding the dissemination of information in synchronous and diachronic planes since the origins of any information cannot be considered in isolation. It cannot be asserted that a culture arising under the influence of other peoples or through the borrowing of cultural elements from "others" is inherently "foreign," as socio-economic and other factors have contributed to the fact that a certain culture has already been accepted and integrated into the repertoire of the receiving party. In general, figuratively speaking, it turns out that a certain cultural element is transmitted

diachronically and spreads synchronously on one hand, while on the other hand, the incoming "foreign" culture is perceived and "digested" synchronously as well and over time tends to be transmitted diachronically. It should be noted that this analysis largely relies on classical directions of social anthropology, particularly diffusionist, or has significant overlap in terms of the main idea. Thus, the analysis of information in terms of synchronous-diachronic directions can be further actualized and developed in future research.

References:

1. Arutyunov S.A. Peoples and Cultures: Development and Interaction. Moscow, 1989.
2. Mazur L.N. The definition of the concept cited from: Theory and Methodology of Historical Science. Terminological Dictionary. Ed. by Chubaryan A.O. Moscow, 2014.
3. Lebedev S.A. Philosophy of Science: Dictionary of Basic Terms. Moscow: Academic Project, 2004.
4. dic.academic.ru
5. Zhdanko T.A., Kamalov S.K. Ethnography of the Karakalpaks. XIX - early XX century. Tashkent, 1996.
6. Tleubergenova N.A. Traditional Housing of the Karakalpaks XIX - early XX centuries. Dissertation for the degree of Candidate of Historical Sciences. Nukus, 1996.
7. Field materials of the author No. 11 from 2018. Informant Ramberdiev Kudaybergen born in 1924, Halkabad.
8. Field materials of the author No. 20 for 2018. Informant Azatov Q. born in 1980, Nukus.
9. Field materials of the author No. 21 from 2018. Informant Kallibekova Raikhan born in 1938, Takhitaash.
10. Yesbergenov K., Atamuratov T. Traditions and Their Transformation in the Urban Life of the Karakalpaks. Nukus, 1979.
11. Lobacheva N.P. Formation of New Rites among Uzbeks. Moscow: Nauka, 1975.

Rezyume: *Shuni ta'kidlash kerakki, ushbu tahlil ko'p jihatdan ijtimoiy antropologiyaning klassik yo'nalishlariga, xususan, diffuzionistik yo'nalishlarga tayanadi yoki asosiy g'oya nuqtai nazaridan sezilarli darajada mos keladi. Shunday qilib, axborotni sinxron-diaxronik yo'nalishlar bo'yicha tahlil qilish kelgusidagi tadqiqotlarda yanada dolzarb va rivojlanishi mumkin.*

Резюме: *Следует отметить, что данный анализ во многом опирается на классические направления социальной антропологии, в частности на диффузионистские направления, либо в значительной степени соответствует основной идее. Таким образом, анализ информации по синхродиахроническим направлениям может быть более актуальным и развитым в будущих исследованиях.*

Kalit so'zlar: *Qoraqalpoqlar, jamiyat, madaniyat, o'zgarishlar, axborot, hodisalar, an'analar.*

Ключевые слова: *каракалпаки, общество, культура, трансформация, информация, события, традиции.*

FORMATION OF A RISK MANAGEMENT SYSTEM FOR SMALL BUSINESSES IN THE FIELD OF AUTO SERVICES

Temirkhanov A.U.

Karakalpak State University named after Berdakh

***Summary:** The article examines the widespread development of private entrepreneurship, which is inherently characterized by entrepreneurial risk. As a result of the expansion of market processes in the economy, the state rightfully refused sole responsibility for the consequences of risks, shifting most of them to business structures.*

***Key words:** Local budget, tax, interest, property tax, income, financial leverage effect, commercial risk mechanism, business.*

In the context of globalization, it should be noted that general methodological approaches to the formation of an effective risk management system at domestic enterprises are currently poorly developed, but are extremely necessary, which once again confirms the relevance of his research. The main issue is the development of theoretical and methodological issues of forming an effective risk management system at a service enterprise (vehicle servicing). According to which the following tasks are solved:

- identifying the essence of business risk and developing a risk classification based on an analysis of the factors that shape the risk environment at enterprises;
- analytical review of the used scientific tools for measuring and assessing risks as a probabilistic category;
- determination of the essence and function of the risk management system, which is inherent in high-risk business;
- modeling of a risk situation in the service sector;
- development of a methodological aspect of analysis and assessment of business risks in the service sector;
- development of methodological recommendations to reduce the level of business risks and manage the risk situation;
- study of the theoretical provisions and conditions for creating a scientific apparatus for the formation of a risk management system in business structures;
- development of project proposals for organizing a risk management system in the service sector, organizing risk control in the risk management system;
- selection of a risk reduction mechanism in the risk management system;
- research into the possibility of using new information technologies and computers for risk management purposes.

Within the framework of the general systemic-functional method of studying the problem, the cognitive potential of the scientific tools of logical and analytical approaches, methods of mathematical statistics, comparative analytical analysis, economic-statistical analysis, functional and system analysis, as well as the method of economic-mathematical modeling should be used.

The results of the research, which is of an applied nature, consist in the development of a concept and scientific and methodological tools for implementing its provisions for the purpose of forming a system of entrepreneurial risk management for small businesses in the field of auto services. However, the following points must be taken into account:

- taking into account the properties of services that increase the uncertainty of results and the degree of risk, the concept of “entrepreneurial risk in the service sector” is defined as the danger of

a potential, probable loss of resources or loss of income compared to an option designed for the rational use of resources in a given type of business activity;

- a classification of business risks is proposed based on the environment in which they arise, highlighting the risks of the auto services sector;

- the author's approach to the formation of a risk management system is formulated based on the concept of economic control over the level of business risk based on the use of budgeting techniques;

- a mechanism has been developed for implementing the main provisions of the concept through the formation of a risk control system using a system of "control points" for the results of financial and economic activities;

- a method has been developed to reduce risk in the risk management system through its distribution across vertically integrated business networks created by a holding structure;

- a model device for increasing the income of small businesses through minimizing the tax burden is proposed.

Based on the results of the work performed, the following conclusions can be drawn:

1. Analysis and assessment of business risks in the service sector are necessary stages of risk management in the risk management system. The classification of business risks and the study of risk assessment methods made it possible to develop a model of the risk situation in the service sector.

2. Business risk in the service sector is considered in this work as a cumulative risk that accumulates commercial and production risks. In the field of business services, other types of risks that are classified as economic, for example, investment ones, may occasionally arise.

3. The mechanism of commercial risk is presented in the form of methodological developments for assessing the effectiveness of the financial lever, which increases or decreases the level of economic profitability of own funds.

4. The effect of financial leverage is an increase in the return on equity obtained by using borrowed funds, provided that the economic profitability of the company's assets is greater than the interest rate on the loan. Commercial risk is associated with the activities of the company and appears in the form of a negative differential value (then not only will there be no increase in the profitability of equity, but it will decrease) and the risk of reaching such a leverage value when it becomes impossible to pay interest on loans and current debt.

5. The effect of operating leverage directly shows the amount of production (business risk) associated with a given enterprise. The greater the impact of the production lever, the higher the entrepreneurial risk associated with this enterprise. This gives rise to two rules: it is necessary to strive for a position where revenue exceeds the profitability threshold, and to perform services (work) in excess of their threshold value. At the same time, the company's profits will increase.

6. The closer production is to the profitability threshold, the greater the impact of operating leverage, and vice versa. This means that there is a certain limit of exceeding the profitability threshold, after which a jump in fixed costs must inevitably follow.

7. The total risk associated with an enterprise increases in two cases: reaching the threshold of profitability and a sharp increase in fixed costs due to the need to develop new products. Precisely determining the beginning of these periods can be called a "universal" method of reducing overall risk.

8. Recommendations on options for the enterprise's activities that allow reducing the overall risk:

- high effect of financial leverage and weak effect of operational (production) leverage;
- weak effect of financial leverage;

- moderate financial and production leverage. The last option is the most time-consuming. The criteria for choosing one option or another is the market value of the stock.

Conceptual approach to the formation of a risk management system and the mechanism for its implementation.

The basis for the formation of a risk management system is the author's concept of control over the level of business risk based on the use of budgeting techniques. The implementation of this concept requires the creation of an organizational mechanism and a risk control system such as:

1) The information necessary for setting up budgeting, first of all, includes documents regulating the activities of the organization: constituent documents, accounting policies of the enterprise, working chart of accounts, information on the composition of personnel, regulations on wages and bonuses, staffing, financial reports enterprises for previous periods, etc.

2) Scheme of the organizational structure of the enterprise. Here it is necessary to determine the composition of structural units, consider the system of internal relationships between units and their subordination, and also highlight their functions. If the enterprise does not have dedicated structural divisions, it is necessary to consider the positions and the system of subordination between them.

3) Cost structure of the enterprise. The purpose of this step is to study the features of formation of the cost of products (works, services). Here it is necessary to classify the costs of the enterprise into individual elements. For example, costs can be classified according to the following elements: a) personnel wages with social insurance contributions; b) expenses for the purchase of consumables; c) OHR; d) business expenses; d) other expenses. According to this. The classification will further determine the composition of the operating budgets of the enterprise.

Building a budget structure:

1. Enterprise budget system. The overall budget of the enterprise is formed from the operating and financial budgets, which in turn include a number of auxiliary (functional) budgets. The composition of operating budgets depends on the type of activity of the enterprise (production, trading activities, provision of services, etc.) and the characteristics of the formation of the cost of products (works, services). Thus, in accordance with the previously carried out classification of costs, the following budgets can be included in the operating budgets of an enterprise: wages budget, materials cost budget, maintenance budget, commercial expenses budget.

2. Development of the form of the consolidated budget and functional budgets.

The enterprise budget does not have a standardized form. Therefore, the development of budget forms is a purely specific and creative matter for each individual enterprise. At the same time, it is obvious that the budgeting system must be interfaced with a system of accounting accounts to ensure high-quality and prompt collection of relevant information to monitor the actual implementation of the budget. To do this, in our opinion, it is necessary to assign certain codes to each budget item. These codes will then need to be indicated in primary accounting documents and other registers when drawing up accounting entries, which will provide the ability to identify actual data for certain budget items.

3. Determination of criteria for budget optimality.

The criterion for the optimality of the budget is, firstly, the balance of its income and expenditure parts, and secondly, at least ensuring break-even sales. However, in addition to this, certain quantitative or qualitative indicators that are planned to be achieved in the planning period can also be considered as optimality criteria.

The procedure for forming the general budget of an enterprise is determined by the field of activity of the enterprise and the peculiarities of the formation of the cost of products (works, services). Development of a system for implementing budgetary risk control. There are no fundamental differences in the mechanism for organizing and implementing budget control at large

enterprises or at a small enterprise. In general, the control system is designed to ensure the implementation of the following main tasks: establishing standards; measurement of achieved results; making adjustments if results are obtained that differ from established standards. At the same time, at the stage of setting up budgeting, it is necessary to carry out at least two of the following activities:

1) Determining the circle of persons who control the execution of various budget items (in a small enterprise, as a rule, the implementation of control functions over the budget falls on the manager and accountant).

Defining a set of “benchmarks” for analyzing budget execution. Since any enterprise is organized with the aim of making a profit, it is advisable to choose it as the main benchmark. In addition, it is necessary to determine acceptable threshold values of deviations, select formulas for calculating control indicators and develop rules for conducting control.

These are, in general, the features of the organizational mechanism of budget management of small enterprises.

In reality, there are no mandatory requirements for how budgets should be used to manage a business. Unlike accounting, there are no approved recommendations and rules. The implementation of budget management technology is a creative process in which one should be guided by an understanding of management processes, business knowledge and common sense.

A total risk assessment involves systematically tracking all possible causes of serious damage and quantifying their likelihood and size. The simplest assessment methods: probabilistic, ranking.

One of the most important components of risk control is risk weighing. Risk weighing is the process of making assessments based on a risk analysis, with the goal of determining whether its level is acceptable or not. The discussion of the problem of risk identification in the first two chapters showed us that it is quite complex. In most cases, judgment is made based on assessments of the existing situation and previous experience. The factors that determine it are rarely completely specific. ~ : •

Risk is a probabilistic category, and in this sense it is most reasonable to characterize and measure it as the probability of the occurrence of certain losses. In a comprehensive risk assessment, it would be necessary to establish for each absolute or relative value of the magnitude of possible losses the corresponding probability of occurrence of such a magnitude.

The probabilities of certain loss levels are important indicators that allow us to make judgments about the expected risk and its acceptability, therefore the constructed curve can be called a risk curve. Thus, if the probability of a catastrophic loss is expressed by an indicator indicating a tangible threat of losing the entire fortune, then a cautious entrepreneur will obviously refuse such a business and will not take such a risk.

Risk control can be used throughout the enterprise, at the level of its divisions and local branches. It is a method of quickly measuring risks by taking into account their severity and frequency, the impact that individual risks have on risk categories, and who is helping to control them.

Based on the results of the research work carried out, the following conclusion can be drawn:

1. Analysis and assessment of business risks in the service sector are necessary stages of risk management in the risk management system. The classification of business risks and the study of risk assessment methods made it possible to develop a model of the risk situation in the service sector.

2. The mechanism of commercial risk is presented in the form of methodological developments for assessing the effectiveness of the financial lever, which increases or decreases the level of economic profitability of own funds.

3. The effect of financial leverage is an increase in the return on equity obtained by using borrowed funds, provided that the economic profitability of the company's assets is greater than the interest rate on the loan. Commercial risk is associated with the activities of the company and appears in the form of a negative differential value (then not only will there be no increase in the profitability of equity, but it will decrease) and the risk of reaching such a leverage value when it becomes impossible to pay interest on loans and current debt.

4. The effect of operating leverage directly shows the amount of production (business risk) associated with a given enterprise. The greater the impact of the production lever, the higher the entrepreneurial risk associated with this enterprise. This gives rise to two rules: it is necessary to strive for a position where revenue exceeds the profitability threshold, and to perform services (work) in excess of their threshold value. At the same time, the company's profits will increase.

5. The closer production is to the profitability threshold, the greater the impact of operating leverage, and vice versa. This means that there is a certain limit of exceeding the profitability threshold, after which a jump in fixed costs must inevitably follow.

6. The total risk associated with an enterprise increases in two cases: reaching the threshold of profitability and a sharp increase in fixed costs due to the need to develop new products. Precisely determining the beginning of these periods can be called a "universal" method of reducing overall risk.

It is concluded that providing insurance protection with the involvement of insurance organizations is the most cost-effective compared to other methods of risk management in an enterprise - however, this conclusion is not always acceptable for all cases. Therefore, the dissertation develops the question of the economic efficiency of insurance. The issue of developing an insurance program at an enterprise, in which the enterprise combines various types of insurance, is highlighted in a separate paragraph. Their recommended set is proposed by the dissertation.

The recommendations on the use of options in managing business risks are of practical interest. Options, futures and other derivatives markets have a special status because their participants can receive additional income or limit the amount of their losses.

Thus, the more potential danger a particular type of activity contains, the greater the degree of risk. To reduce the level of risk to an acceptable level, it is necessary to resort to risk control measures. Risk control involves four main strategies: avoidance, reduction, containment and transfer.

References:

1. Вархолова Т. Возможности оценки предпринимательского риска: опыт Словакии // Проблемы теории и практики управления, 1996, №4. с.74-77.
2. Грабовый и др. Риски в современном бизнесе. М.: АЛАНС, 1994. - 200с.31 .Гранатуров В. М. Экономический риск. — М.: Дело и сервис, 1999.
3. Гранатуров В.М. Экономический риск: сущность, методы измерения, пути снижения: учебное пособие. -М.: «ДиС», 1999. -212с.
4. Дубров А.М., Лагоша Б.А., Хрусталеv ЕЛО. Моделирование рисковvх ситуаций в экономике и бизнесе. М.: Финансы и статистика, 1999.-е. 174.
5. Егорова Н. Е. Вопросы согласования плановых решений с использованием имитационных систем. М.: Наука, 1987.

Rezyume: *Maqolada tadbirkorlik tavakkalchiligi bilan ajralib turadigan xususiy tadbirkorlikning keng miqyosda rivojlanishi ko'rib chiqiladi. Iqtisodiyotda bozor jarayonlarining*

kengayishi natijasida davlat xatarlarning oqibatlarini uchun yagona javobgarlikdan haqli ravishda voz kechish, ularning aksariyatini biznes tuzilmalariga o'tkazish..

Резюме: В статье рассматривается широкое развитие частного предпринимательства, которому по своей сути свойственен предпринимательский риск. В результате расширения рыночных процессов в экономике государство правомерно отказалось от единоличной ответственности за последствия рисков, переложив большую их часть на бизнес-структуры.

Kalit so'zlar: Mahalliy byudjet, soliq, foiz, mulk solig'i, daromad, moliyaviy dastag effekti, tijorat tavakkalchilik mexanizmi, biznes.

Ключевые слова: Местный бюджет, налог, проценты, налог на имущество, доходы, эффект финансового рычага, механизм коммерческого риска, бизнес.

UDC 338.47

MODERN SERVICES IN RAILWAY TRANSPORT OF UZBEKISTAN, ON THE ANALYSIS OF STRATEGIC DIRECTIONS FOR INDUSTRY DEVELOPMENT

Utebergenov A.O.

Karakalpak state university named after Berdakh

***Summary:** The article presents an overview of modern services in railway transport in Uzbekistan, based on an analysis of the strategic directions of development of the industry. Key initiatives to improve passenger and cargo transportation, modernize infrastructure, and improve controllability and safety are discussed. The article also discusses the achieved results and prospects for the further development of railway transport in Uzbekistan.*

***Key words:** railways, railway transport, transport company, transport processes, infrastructure.*

Introduction.

Rail transport is the foundation of modern economy. In this meaning, it acts as an object of market relations, from whose effective activity depends on the functioning and development of all sectors of the economy, enterprises, their associations and complexes. Despite its significant contribution to the country's economy, railway transport is experiencing certain difficulties: up to of the present time, the problem of moral and physical wear and tear of its fixed assets. Railway transport is the foundation of modern economy. In this sense, it acts as an object of market relations, the efficient operation of which determines the functioning and development of all the economic sectors, enterprises, their associations and complexes served by it.

Increasing production efficiency is based on scientific and technical achievements, introduction of new methods of production organization, improvement of economic mechanisms for regulation of internal processes in the organization, and interaction with external entities. Improving economic management of process efficiency should affect all stages: planning and forecasting, accounting, analysis and control, regulation, motivation[1.1].

A decisive moment in the organization of the transport production process is the precise expression of the characteristics necessary for its input and output data. Input data for carrying out the transportation of goods can be the availability of fixed assets, i.e. locomotives, wagons, devices of road transport infrastructure in working condition. Wagons and containers must be suitable for the type of cargo and its quantity. To implement the production process, labor is required - workers with appropriate professions and qualifications.

In order to further improve the railway transport system, ensure a closer relationship between functional and territorial approaches to management, increase the level of decentralization of management approaches, as well as to build close horizontal connections between departments, in our opinion, a qualitatively different level of information support for management processes is necessary, which, in turn, can ensure the generation of reporting by segments of activity. At the same time, the main problem is the current lack of close horizontal connections between departments. This situation leads to the need for additional approvals when making management decisions and, consequently, increases the time for making and implementing decisions[6.108].

The first railway in Central Asia, known as the Central Asian Railway, was built in 1888. It stretched from the Caspian port of Krasnovodsk (Turkmenbashi) to Tashkent through Bukhara and Samarkand. In 1898, a railway line was added to Andijan, and in 1935 branches were added serving the Fergana Valley and Tajikistan. The headquarters of the Central Asian Railway was in Tashkent.³ The second major railway, built in 1906, was the Trans-Aral Railway from Tashkent to Orenburg (Russia) via Arys, Turkestan and Aktobe (all in Kazakhstan). When the former Soviet Union (FSU) collapsed in 1991, Uzbekistan Temir Yollari (UTY) was established in Uzbekistan to manage, operate and maintain the country's railway network. The railway network coverage in Uzbekistan is denser than in most other CAREC countries. UTY also has a strong position in the

market. These are predominantly freight railways, with ever-increasing freight volumes accompanied by increased containerization due to increased industrialization.

Transport production is the foundation of a market economy. In this sense, it acts as an object of market relations, from effective whose activities depend on the normal functioning and development of all sectors of the economy, enterprises, and their associations served by transport and complexes. Transport production acts as a subject regulated market relations, especially when creating demand for transportation and distribution between interacting modes of transport, when establishing mutually beneficial economic and legal relations between transport and cargo owners, transport and passengers[2.403].

Rail transport services are usually classified according to various criteria, such as the type of transport, the nature of the cargo or passengers, and the terms of service. Here are the main categories of railway transport services:

1. Freight transport:

- General Cargo: General cargo carried in wagons or containers.
- Specialized cargo: for example, dangerous, listed in the dangerous goods classification, oversized, transported in special wagons.
- Container transportation: transportation of goods in containers.
- Carriage transportation: transportation of goods in separate cars.

2. Passenger transportation:

- Passenger trains: regular trains with different classes of service.
- Fast and high-speed trains: trains that provide faster and more comfortable transportation.
- Intercity and international trains: trains providing transportation between cities and countries.
- Car transportation: special wagons for transporting cars.

3. Specialized services:

- Custom cargo transportation services: rental of wagons or containers for specific purposes.
- Logistics services: storage, loading/unloading of goods, customs clearance, etc.
- Express transportation: fast delivery of goods or passengers with minimal delays.

4. Passenger services:

- Food and service on trains.
- Ticket booking services and information support.
- Passenger transportation with additional amenities (e.g. Wi-Fi, entertainment systems).

5. Technical and transport services:

- Maintenance and repair of rolling stock.
- Development and maintenance of train routes and schedules.
- Management and control of train traffic and transportation safety.
- The classification of services may vary depending on the specific railway operator and regional characteristics.

The indicators of the transport production results include the volume indicators of the transport and the fulfillment of the quality indicators of the transport product, the level of consumer satisfaction or the level of unsatisfied demand and, ultimately, the size of the economic effect obtained as a result of the production. transport production process[3.22].

Currently, fundamental approaches to measuring the efficiency of transport production, such as systematic, complex, technological approaches, have been formed and are widely used. The systematic approach represents research and is based on the study of objects as complex systems consisting of individual elements with many internal and external relationships. A systematic approach to the analysis of the activity of economic units means understanding that each such unit is a complex system of elements connected with each other and with the external environment.

Improving the quality of transport is the most important component of the problem of increasing the efficiency of transport production. Economic and social aspects of the study of the

quality problem in the economy, including in the field of transport, constitute a whole field of scientific research. The development of the transport network of this direction theoretically requires that it reflect both the general quality and the special quality unique to transport[4.292].

Table 1. Measures to increase the economic efficiency of production facilities, processes in railway transport

Events	Expected (positive) the result
1	2
Improvement of work and rest regimes, professional development employees, the use of scientific organization, the organization of the work of quality groups, increasing the level of motivation of employees, the results of work	Reducing human impact factor influencing course outcomes production processes; increase labor productivity
Improvement of technical and economic indicators, new products, current state of timely diagnostic technical means; use of modern diagnostic systems; progressive scientific developments, quality control of delivered components and spare parts from suppliers, improvement of technical (design) documents, compliance with deadlines for current and major overhaul of machines and equipment in accordance with quality parameters, rational operation of equipment	Technical tools to reduce the number of failures that lead to technological failures
Development and introduction of progressive technologies, increasing the technological level equipment, mechanization and automation production processes	Reduce operating costs organizations; the ability to absorb more volume works
Further improvement of the technical and economic characteristics of manufactured products, increasing the share of high-quality products in the total volume of production, reducing defects	Increase competitiveness companies; reduce ineffective losses eliminate the effects of marriage
Use of innovations, scientific achievements technical progress	Increase competitiveness companies, develop a new purpose segments

*materials compiled by the author. Production organization and enterprise management: Textbook / Turovets O.G., Bukhalkov M.I., Rodinov V.B. and others; Ed. O.G. Turovets. 2nd edition. - M.: INFRA-M, 2009. - 544 p.

Transport products are the result of transport production. N.M. Sheremet offers the following concept of products: "In general In any case, any product should be understood as the result of the production process in material or information form, which has useful properties and is intended for use by consumers for the purpose of meeting their needs."

Transport products have their own characteristic features:

- transport products do not have a material form, but they are material, i.e. material change in the location of cargo or passengers;
- transport products cannot be stocked, stored, stored, which necessitates a quick response to the emerging situation when organizing the transportation process;
- the peculiarity of pricing for transport products is that the price of the transported cargo is not included in the cost of transport products;

- the next feature is the units of measurement of products transport and volume of work performed[5.372].

Conclusion.

As of the end of the year, the operating UTY fleet consisted of 98 mainline electric locomotives, 82 mainline diesel locomotives, 21 high-speed electric trains (SEP) and 172 shunting diesel locomotives. Many of the locomotives at their disposal are reaching the end of their service life. Two thirds of mainline diesel locomotives, 91% of shunting locomotives and 35% of electric locomotives are over 30 years old. They will require replacement in the coming years.

The result of transport production process is the completed transportation of goods or passengers and therefore the unit of measurement is the amount of goods transported or passengers, transport performance is expressed by a specific indicator -tonne -kilometers or passenger-kilometers, which can be indicator of the level of population satisfaction in transportation or in combination with other indicators to express the quality characteristics of the operational work.

References:

1. Decree of the President of the Republic of Uzbekistan No. PF-94 dated June 14, 2023 "On measures to effectively organize state management in the field of transport within the framework of administrative reforms"
2. UTEPBERGENOV A. O. (2023). EFFICIENCY OF RAILWAY TRANSPORT INFRASTRUCTURE DEPARTMENTS ECONOMIC EVALUATION, On the birthday of Academician Charjaw Abdirov 90 years have been dedicated to the treatment of wages "Nowadays, I'm still educated Internationalization in the term "Important Practices". scientific-practical conference, volume 2023, December 12, 403p.
3. REIMBAEVICH, I. A. (2023). Ensuring stable economic development of enterprises in modern conditions. International Journal of Formal Education, 2(7), 22–26. <http://journals.academiczone.net/index.php/ijfe/article/view/1088>
4. UTEPBERGENOV A. O. (2023). CREATION OF A MODEL OF DEVELOPMENT OF TALENTED YOUTH MANAGEMENT SYSTEM, New Uzbekistan Economy, Scientific and Practical Journal No. 7 (9) 2023, November 24, 2023, 292p.
5. UTEPBERGENOV A. O. (2023). Prospects for the rapid development of regional entrepreneurship, innovative technologies and industrial infrastructure in the context of digitalization of the economy: problems and solutions. Collection of the Republican scientific-practical conference, October 10, 2023, 372-375p.
6. Omirbayevich, Utepbergenov Allambergen. "PERSPECTIVE DIRECTIONS OF INCREASING EFFICIENCY IN THE TRANSPORT SECTOR." SO 'NGI ILMIY TADQIQOTLAR NAZARIYASI 7.1 (2024): 107-110.

Rezyume: *Maqolada tarmoqni rivojlantirishning strategik yo'nalishlari tahlili asosida O'zbekiston temir yo'l transportida zamonaviy xizmatlar ko'rsatish haqida umumiy ma'lumot berilgan. Yo'lovchi va yuk tashishni takomillashtirish, infratuzilmani modernizatsiya qilish, nazorat qilish va xavfsizlikni yaxshilash bo'yicha asosiy tashabbuslar muhokama qilinmoqda. Shuningdek, maqolada erishilgan natijalar va O'zbekiston temir yo'l transportini yanada rivojlantirish istiqbollari haqida so'z boradi.*

Резюме: *В статье представлен обзор современных услуг на железнодорожном транспорте Узбекистана, основанный на анализе стратегических направлений развития отрасли. Обсуждаются ключевые инициативы по совершенствованию пассажирских и грузовых перевозок, модернизации инфраструктуры, повышению управляемости и безопасности. В статье также рассматриваются достигнутые результаты и перспективы дальнейшего развития железнодорожного транспорта Узбекистана.*

Tayanch iboralar: *temir yo'llar, temir yo'l transporti, transport kompaniyasi, transport jarayonlari, infratuzilma*

Ключевые слова: *железные дороги, железнодорожный транспорт, транспортная компания, транспортные процессы, инфраструктура*

THE CONCEPT OF REALIZING THE INVESTMENT POTENTIAL OF AN INDUSTRIAL ENTERPRISE, THE FORMATION AND DEVELOPMENT OF THE CONDITIONS FOR MODERNIZATION OF THE NATIONAL ECONOMY OF UZBEKISTAN

Bainiyazova M.P.

Karakalpak State University named after Berdakh

***Summary:** The article, based on an analysis of existing modern approaches to defining the economic category “investment potential,” gives the author’s approach to the investment potential of an industrial enterprise. The development of the investment potential of an industrial enterprise is also considered, the investment activity of the enterprise and the attraction of external investment resources to the enterprise are analyzed.*

***Key words:** investment potential, development factors, economic activity, investment resources, industry.*

Today, new horizons for investment are opening up in Uzbekistan - the most favorable conditions for business have been created, including political and macroeconomic stability, strong guarantees have been established to protect the rights of foreign investors, and an extensive system of benefits has been provided for them. In addition, foreign investors are attracted by low prices in comparison with neighboring countries for raw materials, materials, energy resources, and highly qualified labor that are vital for production. The government of the republic is pursuing an active policy in order to create the most favorable conditions for foreign investors. The introduction of convertibility of the national currency for current international transactions and the strategy of ongoing reforms in Uzbekistan create a solid basis for further liberalization of the economy and the implementation of projects involving foreign capital. The republic has created a wide system of legal guarantees and benefits for foreign investors, which is based on the Laws “On Foreign Investments”, “On Investment Activities”, “On Guarantees and Measures to Protect the Rights of Foreign Investors”, “On the Protection of the Rights of Foreign Investors in the Securities Market”. " These legal acts provide foreign investors with fair and equitable treatment, protection and security. In addition, a comprehensive system of additional measures has been developed to stimulate the activities of enterprises with foreign investment, including tax benefits and preferences[9].

Activation of investment activity in the field of industrial production is one of the pressing problems of the current stage of economic development of the Republic of Uzbekistan. This circumstance necessitates the search for new ways to solve it, which determines the need for additional study of individual investment categories both in the theoretical plane and for practical purposes. One of these categories is the investment potential of an industrial enterprise. Currently, there are already a number of studies in which attempts have been made to define the investment potential of an industrial enterprise.

The study of the works of domestic authors made it possible to see that there is no agreed understanding of the concept of “investment potential”, as well as other categories of investment issues. At the same time, it should be noted that recently a number of works have appeared in the domestic scientific literature that explore methodological approaches to determining the essence of the concept of “investment potential.” Of particular scientific and practical interest are the works of BC Bard [1], V.Yu. Katasonova [2], L.A. Tolstolesova [3] and others, which are based on approaches that make it possible to develop tools for assessing investment potential, applicable in the practice of making management decisions at the level of an economic entity.

In defining the concept of investment potential of an industrial enterprise, it is necessary to proceed from the essential content of the concept “potential” and the term “potential”, which is basic for this concept.

In the scientific literature, potency (from the Latin *potentia* - opportunity) is defined as the ability, the possession of sufficient strength to manifest any actions, any activity; something that exists in a latent form (hidden power) and can manifest itself under certain conditions. In philosophical literature, the concept of potentiality is introduced, which means possibility, available forces that can be put into action and used. Derived from these concepts is the concept of potential, which in a narrow sense is understood as the degree of power, hidden capabilities in any respect, the totality of means necessary for something.

The definition of the term “potential” in an expanded interpretation may read as follows: sources, opportunities, means, reserves that can be put into action and used to solve a problem or achieve a certain goal.

Based on these theoretical premises, the category “investment potential” is interpreted in most scientific studies, but not in all. Sometimes investment potential is identified with the volume of investment resources possible for development. Close to a similar understanding of investment potential are its definitions, in which, in relation to the regional level, investment potential is assessed as the volume of investment that can be attracted to the fixed capital of the region at the expense of all (internal and external) sources of financing [4] or investment potential is identified with the capabilities of the region to attract investment.

In accordance with the presented definitions we can say that in relation to an industrial enterprise, investment potential represents the maximum possible volume of attracted investments, subject to the conditions of feasibility (economic efficiency) of their placement. However, this definition, in our opinion, reflects the economic essence of investment capacity, and not investment potential. Therefore, it is not entirely correct and correct (at the terminological level) to identify “investment potential” and “investment capacity” or “investment needs” of a business entity. Therefore, in order to avoid confusion, one should clearly distinguish between the concepts of “investment capacity,” which represents the demand for investment resources of business entities, and “investment potential,” which represents the supply side of investment resources. In this regard, it seems that the essence of this category can only be determined on the basis of a market approach - through the relationship between demand and supply of investment resources.

At the same time, all resources accumulated in the process of economic activity of an industrial enterprise can be divided into two groups:

- financial resources in monetary form (national and foreign currency) or in the form of securities;
- other resources – tangible and intangible resources, in the form of working capital and in the form of non-current assets (fixed assets).

According to this classification, the investment potential of an industrial enterprise can be represented as a combination of financial and non-financial components.

Non-financial investment potential includes various property on the balance sheet of enterprises (it can directly be used for investment activities in the form of capital investments), as well as human resources (specialists and other employees). Personnel potential is extremely difficult to assess in monetary units, and it is not adequately reflected in the balance sheets and other reports and documentation of an industrial enterprise. In addition, the property component of non-financial investment potential includes: land plots, rights to natural resources (subsoil use), buildings and structures, industrial infrastructure facilities ready for operation (roads, power lines, water supply systems), various types of unfinished capital construction projects, unused equipment etc. P[10].

Non-financial investment potential receives a monetary valuation based either on accounting data or on information on market prices for relevant types of property, as well as information on the conditions practiced by banks and other lenders for providing loan capital secured by property.

Financial investment potential is a set of financial (in cash, as well as in the form of liquid securities) resources available to an enterprise, which can be directed to investment activities

without prejudice to current economic activities. When preparing for the implementation of large-scale investment projects, an industrial enterprise can accumulate financial resources for several years to finance such projects, especially when the possibility of attracting resources from external sources is difficult or impossible for one reason or another.

At the same time, we believe that the proposed approach to determining investment potential, although methodologically correct and allowing for a monetary assessment of the investment potential of an industrial enterprise, is not entirely productive. It does not take into account the characteristics of investment resources, that is, it does not assess the real value of the resources that make up the investment potential as a real possibility of using them as investments.

Combining traditional elements of investment potential into a single whole in conjunction with the conditions for their use allows us to achieve a synergistic effect in investment activities.

The “synergy effect”, also called the “ $2 + 2 = 5$ ” effect, characterizes a set of elements included in the system that has significantly better indicators than the simple sum of indicators of all elements separately, that is, the properties of the system as a whole are not reducible to the properties of its constituents its structural elements, which together reflect its essential aspects and form its quality. The synergy effect, we believe, in relation to the elements that make up the investment potential is determined by many characteristics, however, in relation to an industrial enterprise, these will be conditions that characterize it as a subject of investment activity in all its diversity. In this regard, we agree with scientists who consider the characteristics of an industrial enterprise that it possesses as components of investment potential[7].

This approach to determining “investment potential” is based on the theory of comparative and absolute advantages. The initial postulate of the theory of a market economy is the condition of limited resources for the functioning of economic entities. From the postulate of limited resources and their unequal distribution between business entities, a methodological conclusion can be drawn that each business entity, as an element of the overall economic system, has certain types of advantages.

The absolute advantages of the investment potential of an industrial enterprise are determined by the geostrategic, geographical, natural, climatic, and demographic conditions of the area in which it is located. That is, the investment potential of an industrial enterprise depends not only on the characteristics of the enterprise itself, but also on the parameters of the territory of its location. This has been confirmed by a number of studies by domestic scientists [5, 6]. Relative comparative advantage in the framework of modern science can be characterized as characteristics determined by investment potential that allow the implementation of cost reduction strategies or differentiation of product output.

Thus, from the standpoint of the development of investment potential, the concept of investment potential of an industrial enterprise should be clarified using the following methodological principles.

Firstly, the economic category “investment potential” should express the economic essence of investment potential as a theoretical generalization of economic phenomena associated with the involvement of hitherto unused investment resources into economic circulation.

Secondly, potential is usually defined as the totality of available funds and capabilities in any area. And at the same time the term

“potential” means “existing in potential”, hidden, not manifested, possible.

In this case, investment potential is a set of investment resources, as well as conditions and opportunities for their effective investment.

The essence of investment potential is that it reflects not only the aggregate abilities of economic entities to invest investment resources in specific projects, but also the capabilities of a given economic entity to develop investment resources. The absence of such opportunities leaves the accumulated investment capital unclaimed, and the enterprise that has it does not develop. Conversely, an enterprise that has the opportunity to invest investment capital realizes its own abilities, that is, realizes its investment potential and attracts investment resources external to it,

which contributes to its active development. Investment potential turns into real production and social facilities.

The investment potential of an industrial enterprise in this case is transformed from a simple set of investment resources accumulated by an economic entity and unclaimed at the current time, into the possibility of investing these resources and attracting additional investment resources to involve idle production capacities and social facilities of the enterprise into economic circulation. The essential characteristic of the investment potential of an industrial enterprise is its constant development and increase [9, 10].

The list of components of the investment potential of an industrial enterprise in this case expands from a simple set (even if ordered) of material, financial and intellectual resources owned by the enterprise and traditionally taken into account when forming the investment potential, to the inclusion of natural resource, financial and the labor potential of the territory where the industrial enterprise is located, which can be used by the enterprise in its activities, as well as conditions characterizing the degree of development of market economy institutions observed at the location of the industrial enterprise.

Considering the investment potential of an industrial enterprise as an integral system in connection with the conditions of its use and agreeing with existing ideas about the structure of the potentials included in it, we can identify the following components as its main elements:

- financial (a set of monetary resources and highly liquid financial assets that can be used in investment activities);
- production (the totality of tangible and intangible assets accumulated by an industrial enterprise as a result of production activities);
- resource and raw materials (provision of balance sheet reserves of the most important types of natural resources that can be used by an industrial enterprise in its production activities);
- infrastructural (conditions characterizing the level of development of industrial and social infrastructure in the area where the industrial enterprise is located);
- institutional (provision with necessary market economy institutions);
- personnel (availability of professionally trained workforce and engineering and technical personnel);
- intellectual (educational level of the population, the possibility of retraining personnel, the degree of development of R&D, etc.);
- innovative (a measure of the implementation of scientific and technological progress and the degree of modernization of production).

Let us call the investment potential of an industrial enterprise, which includes all of the listed components, cumulative.

By classifying the elements of the investment potential of an industrial enterprise in accordance with the proposed methodological approach, we can assume that based on an assessment of the current state of each component and their future shifts, we can judge the magnitude (level) of investment potential. In addition, assessing the investment potential of an industrial enterprise can be the starting step for the development of any consolidated programs and development forecasts. The basis for assessing investment potential can be based on the following technique:

- the resources available to an industrial enterprise, as elements of investment potential, are valued in monetary terms;
- conditions characterizing investment potential from the standpoint of the possibilities of its use, including the personnel potential of the enterprise, are assessed in points.

In accordance with the views expressed, the investment potential of an industrial enterprise, in our opinion, has the following characteristic features (specific features):

- it is a consequence of a thoughtful and competent financial and investment policy of an industrial enterprise and regional authorities;
- for each industrial enterprise, due to its characteristics, the potential has its own

specifics and at the same time, due to the integrity of the structure, is not unique (it is this feature that allows economic entities to be compared with each other);

- it depends on the availability of various types of resources that are available in the area where the industrial enterprise is located, regardless of whether they are used or not;
- maximization of the investment potential is achieved through the optimal use of all resources available to the industrial enterprise;
- the realization of investment potential is carried out not only in the process of creating capital (in the form of fixed production assets) or increasing the efficiency of its use, but also in the formation of special conditions (for example, human capital, informatization);
- investment potential is a dynamic value, that is, it has the ability to develop.

Thus, the total investment potential of an industrial enterprise is formed on the basis of the integration of interrelated and interdependent elements (components) and can change (quantitatively and qualitatively) its characteristics, develop in accordance with the influence of a certain set of factors, which allows us to consider it as an object of management, which is consistent with positions of domestic and foreign scientists [5, 14–18].

The application of the proposed classification characteristics of investment potential and factors affecting its state in real management practice will make it possible to solve the problem of its formation and effective use, which is the most important condition for attracting investment resources by an industrial enterprise and ensuring its progressive development.

References:

1. Bard B.S., Buzulukov S.N., Drogobytskii N.N., Shchepetova S.E. *Investitsionnyi potentsial Rossiiskoi ekonomiki* [Investment potential of the Russian economy]. Moscow, Ekzamen Publ., 2014, 320 p.
2. Katasonov V.Yu. *Investitsionnyi potentsial ekonomiki: mekhanizmy formirovaniya i ispol'zovaniya* [Investment potential of the economy: mechanisms of its formation and use]. Moscow, Ankil Publ., 2005, 328 p.
3. Tolstolesova L.A. *Finansovo-investitsionnyi potentsial syr'evykh regionov: teoriya i praktika* [Financial and investment potential of raw material producing regions: theory and practice]. St. Petersburg, Polytechnic University Publ., 2011, 284 p.
4. Kravtsova A.E., Denikaeva R.N. Finansovye istochniki investitsionnogo potentsiala Rossii [Financial sources of the investment potential of Russia]. *Ekonomika i upravlenie: problemy, resheniya = Economics and Management: Problems and Solutions*, 2015, no. 11, pp. 114–117.
5. Suslov N.I., Mel'tenisova E.N. Upravlenie investitsionnym potentsialom generiruyushchikh kompanii Rossii: osnovnye printsipy i rekomendatsii [Steering the investment potential of generating companies of Russia: fundamental principles and recommendations]. *Menedzhment i biznes-administrirovaniye = Management and Business Administration*, 2013, no. 2, pp. 156–165.
6. Korostelev O. Regional'nyi investitsionnyi potentsial predpriyatii metallobrabatyvayushchei promyshlennosti [Regional investment potential of metal industry enterprises]. *Predprinimatel'stvo = Entrepreneurship*, 2008, no. 4, pp. 62–65.
7. Frolova I.V., Koroleva N.Yu. Regional'nye determinatsii upravleniya investitsionnym potentsialom territorii [Regional determination of investment potential management of the territory]. *TERRA ECONOMICUS*, 2013, vol. 11, no. 3-3, pp. 111–115.
8. Khotamkulov A. Usilenie investitsionnogo potentsiala promyshlennykh predpriyatii putem povysheniya effektivnosti investitsii v osnovnye fondy (na primere tekstil'nykh predpriyatii) [Enhancing the investment potential of industrial enterprises by improving the efficiency of investment in property, plant and equipment (the textile companies case)]. *Voprosy ekonomicheskikh nauk = Issues of Economics*, 2010, no. 2, pp. 105–109.
9. Nazarova R. R «Оценка инвестиционной деятельности предприятий машиностроительной промышленности Узбекистана»// “Иқтисодийёт ва инновацион технологиялар” илмий электрон журнали. № 1, январь-февраль, 2017 йил № 1, 2017 www.iqtisodiyot.uz
10. SHVAKOV E, TROTSKOVSKII A, Investment Potential Of The Industrial Enterprise, Its Evaluation, Formation And Development//3 (2016) 54–64 Finance and Credit 54-63 p
11. Калмуратов Б.С. КОНЦЕПЦИЯ ИННОВАЦИОННОГО УПРАВЛЕНИЯ РАЗВИТИЯ ПРОМЫШЛЕННОСТИ РЕГИОНА // Экономика и социум. 2021. №1-2 (80). URL:

<https://cyberleninka.ru/article/n/kontsepsiya-innovatsionnogo-upravleniya-razvitiya-promyshlennosti-regiona> (дата обращения: 07.03.2024).

12. Kalmuratov B. The current state of innovative development of the construction industry of the Republic of Uzbekistan. International Scientific Journal Theoretical & Applied Science, 82 (02), 455-463. – 2020.

13. Kalmuratov B. S., Qalbaeva I. Y. Innovative directions of industrial policy of Uzbekistan // International Scientific Journal Theoretical & Applied Science. – 2021. – Т. 11. – С. 819-823.

Rezyume: *Maqolada «investitsiya salohiyati» iqtisodiy toifasini aniqlashning mavjud zamonaviy yondashuvlari tahlili asosida sanoat korxonasi investitsiya salohiyatiga muallifning yondashuvi berilgan. Sanoat korxonasi investitsion salohiyatini rivojlantirish ham ko‘rib chiqiladi, korxonaning investitsion faoliyati va korxonaga tashqi investitsiya resurslarini jalb qilish tahlil qilinadi.*

Резюме: *В статье на основе анализа существующих современных подходов к определению экономической категории «инвестиционный потенциал» дается авторский подход к инвестиционному потенциалу промышленного предприятия. А также рассматривается развитие инвестиционного потенциала промышленного предприятия, анализируется инвестиционная деятельность предприятия и привлечения внешние инвестиционных ресурсов в предприятие.*

Kalit so‘zlar: *investitsion salohiyat, rivojlanish omillari, iqtisodiy faollik, investitsiya resurslari, sanoat.*

Ключевые слова: *инвестиционный потенциал, факторы развития, хозяйственной деятельности, инвестиционные ресурсы, промышленность.*

**FOREIGN EXPERIENCE OF EFFECTIVE PUBLIC ADMINISTRATION AND
REGULATION OF THE PRODUCTION POTENTIAL OF THE AGRO-INDUSTRIAL
COMPLEX**

Babanazarova S.K.

Karakalpak state university named after Berdakh

***Summary:** The article examines the experience of foreign countries in effective state regulation of the production potential of the agro-industrial complex, as well as various measures and forms of state support for the agro-industrial complex in developed countries, and also outlines the principles of functioning of the agrarian policy of the European Union, directions for its improvement, and features of the Common Agrarian Policy.*

***Key words:** agro-industrial complex, agrarian policy, methods of management of agro-industrial complex, state regulation of agro-industrial complex, mechanism of management of agro-industrial complex.*

In developed countries, much attention is paid to the global agricultural economy and there are various measures and forms of government support. State support for the agricultural sector in developed foreign countries is based on a combination of economic and administrative management methods.

Administrative methods include government programs, directive planning, foreign trade policy instruments, and they are aimed at increasing the efficiency of government regulation of the agricultural sector.

Economic methods are divided into:

- direct;
- indirect.

Measures of direct government influence include instruments of financial and budgetary policy, financing of R&D, education and advanced training in rural areas.

Indirect measures of state regulation of agriculture include:

1. Pricing policy instruments (government procurement, guaranteed purchase prices for main types of agricultural products).
2. Tax policy instruments – preferential tax regime (preferences).
3. Instruments of financial and credit policy (preferential lending, compensation of costs of agricultural producers for the acquisition of means of production by providing subsidies for the purchase of fertilizers, pesticides and feed).

Among the measures considered, measures of indirect government regulation prevail. The experience of foreign countries in which agriculture is a priority sector of the economy is worthy of attention, and based on this, the state subsidizes agricultural production in one form or another. For developed countries there is a standard and the amount of subsidies is determined by climatic conditions, with southern countries subsidizing 10-100 dollars/ha or less, while northern countries (Sweden) 800 dollars/ha. Finland 1600 USD/ha, Norway 3500 USD/ha. [1].

In developed countries such as EU members, Japan and others, the state regularly provides support to agriculture [2].

State support for the EU agro-industrial complex can be divided into two groups:

- market protection and rural development;
- development of agricultural production and households. In 2009, more than 42 billion euros were spent on agricultural marketing in EU countries, including 3.13 billion euros for market protection. More than 39 billion euros were activities to directly support agricultural marketing. All activities for the development of agricultural marketing are financed from the EU budget.

Currently, the leading positions in the production and consumption of agricultural products in the world are occupied by the USA and the EU. They provide more than half of the world's

agricultural exports [3]. Let us consider in more detail the experience of implementing public policy in agriculture in the United States. The main goals of US agricultural policy are to increase the level of production of high-quality agricultural products, support agricultural producers both domestically and abroad, and ensure a balanced diet for the country's population [4].

An important element of the modern production structure of the agricultural sector of the American economy is agro-industrial formations, which were the result of the development of agro-industrial integration. There are two main types of industrial integration - vertical integration and contracting, which determine the creation of two main models of agro-industrial formations - vertically integrated and contractual. Vertical integration is the combination of two or more stages of the production and marketing process of a product within one ownership.

The predominant form of agro-industrial integration in the United States is the contractual form of APO. Conventionally, all contracts between farms, on the one hand, industrial and trading companies, on the other, are divided into production and sales. Production contracts regulate the conditions of production and are concluded before the start of the production cycle. The contractor's participation in agricultural production varies from the requirement to carry out periodic supervision over the fulfillment of the terms of the contract to the detailed specifics of agricultural technology with strict control by industrial capital. The terms of the contract often obligate the contractor to supply the means of production, and sometimes give him ownership of the products produced. Production contracts often stipulate the terms of sale of products regarding price, payment methods and delivery conditions [5].

Sales contracts, unlike production contracts, only ensure the sale of products. They do not imply the participation of the contractor in the production process.

Cooperatives occupy a special place in the production and organizational structure of US agriculture. The functions of cooperatives are the marketing of agricultural products, including operations for harvesting, storage, drying, processing, transportation and sales; production, sale and delivery of inputs and materials to farmers; provision of financial services.

Many Eastern European countries have followed the path of concentration of farms and enterprises processing agricultural products by reducing their number and increasing their size and expanding their raw material processing capacity. Only with consolidation can these enterprises withstand competition. Governments encourage cooperation in every possible way through a variety of subsidies. The entire pricing system is essentially regulated indirectly through taxes, benefits, bonuses, sanctions, fines, etc. Enterprises take the most active attention in pricing, making extensive use of existing economic levers.

The US experience in subsidizing agriculture deserves special attention. State budget expenditures on the agricultural sector depend on the economic situation in the country. Thus, during periods of crisis, costs increase sharply, and during periods of stable development, the level of subsidies decreases significantly. Budget funds are used to subsidize programs such as agricultural research, marketing services and the provision of information on prices in markets, lending, land conservation, further use, compensation payments, support for agricultural cooperatives for supply and marketing, food subsidies, subsidies for export, food aid, incl. on the international level.

In modern scientific and technological progress, priority is given to high-tech technologies, biotechnology and computer science, which will determine the development of agriculture in the 21st century, since they can increase the competitiveness of goods on the world market and minimize the negative environmental consequences of chemicalization (massive use of fertilizers and pesticides).

Demand in the national market is formed under the influence of the structure of personal consumption, which is a derivative of the level of monetary income of the population and demographic factors, in particular, the average annual population growth rate. The growth of monetary incomes of the population, changes in the structure of its employment, as well as consumer preferences (an increasing number of Americans and Europeans adhere to a healthy

lifestyle) led to a rationalization of the nutritional structure, in particular, an increase in the consumption of lean meats, especially poultry, vegetable oils, fresh fruits and vegetables while reducing the consumption of beef, animal fats, eggs, sugar.

Despite the difficulties associated with the restructuring of the world economy, it can be assumed that the United States will be able to strengthen its position as the world's largest exporter of agricultural products, since it has lower production costs compared to other countries. The commodity structure of exports will change, the export of wheat and soybeans will stabilize, and the export of meat and fruit will increase. In the future, the US position in the world market of agricultural goods will be practically determined by the development of agricultural science. Japan, Canada and Mexico will remain the main trading partners of the United States. Although the production potential of American agriculture is large, some uncertainty regarding export markets (especially China and the CIS countries) will somewhat limit the growth of agricultural production.

In the USA, state support for agriculture is carried out as follows. The industry that primarily needs government support is determined, as well as the amount of assistance required. Products produced are purchased at fairly high prices so that their producers have an incentive to work with the least number of people and at the lowest cost. Next, low-income groups of the population who are given coupons for the purchase of certain types of products in special stores. Thus, in the United States, two problems are solved at once: supporting agriculture and low-income segments of the population.

State regulation of prices for agricultural products at a relatively high level both in the USA and in the EEC for a long time contributes to accelerated growth of production. However, not all problems of government regulation can be solved using prices. Prices provide income only under average and favorable production conditions. Therefore, in addition to prices, Western countries are increasingly using the mechanism of direct payments and surcharges not related to the price or quantity of products. They are paid per family member, per hectare of crops, per head of livestock and per farm as a whole.

Let's take a closer look at the agricultural policy of the European Union.

The agricultural policy of the European Union is an example of the most successful model of the formation and development of the agricultural economy. Western European agriculture, having overcome post-war devastation in a short period of time, has become the largest food producer with enormous export potential. All this became possible thanks to an effectively developed agricultural policy with tools unified for all countries of the Union. In our opinion, studying the structure of Western European agriculture, the stages of formation and development of agricultural policy in the EU is especially relevant not only for Kazakh conditions, but also within the framework of attempts to create a single food market in the CIS.

The EU agricultural sector isThe main priority and economic mechanism of the Common Agrarian Policy of the European Union is constantly being improved taking into account the comments and proposals of world organizations [6]. The Common Agricultural Policy (CAP) has been in place since 1962 and is financed through the European Agricultural Guidance and Guarantee Fund (EAGGF), which has been in force since July 1964. The CAP is aimed at regulating markets, ensuring economic growth in EU member states and developing agro-industrial production .

The Common Agricultural Policy (CAP) unites countries with different levels of economic development. The main instrument for protecting national producers within the framework of the CAP are non-tariff restrictions.

The EAP is based on the following principles [7]:

- unity of the EU internal market, which presupposes the free movement of agricultural goods without any restrictions, uniform prices for identical agricultural goods, systematization of sanitary, hygienic and veterinary standards, compliance with the principle of free competition;
- priority for goods produced in the EU, which is enshrined in customs policy;

– financial solidarity of member states provides that the costs associated with the implementation of the CAP are paid by all EU members. The current structure of the EAP is represented by two financial blocks [8]: 1) contains tools designed to regulate the market (intervention procurement, a system of production quotas, etc.), and direct payments that provide support and stabilization of producers' incomes.

2) assumes the existence of a program with general financial administration and control.

The Federal Government advocates continuing to pursue the path of strengthening the market orientation of this policy, increasing the competitiveness of agricultural enterprises, as well as sustainable production with rational use of natural resources. Within the framework of the CAP being developed, a number of changes are envisaged to improve the current policy [8].

1. Promoting efficient use of resources and the transition to a climate-resilient agricultural economy.

2. Promoting knowledge transfer and innovation in agriculture.

3. Increasing the competitiveness of all types of business.

4. Promoting food supply chain organization and risk management in agriculture.

5. Restoring, conserving and strengthening agriculture-dependent ecosystems.

6. Promoting social inclusion, poverty reduction and rural economic development.

Ensuring the developed areas, according to the European Commission, is associated with a significant change in a number of CAP instruments without a noticeable reduction in EU budget expenditures for its implementation. [9]. In addition, in the future “financial seven-year plan” of the EU it is proposed to introduce additional areas and forms of organizing expenses for the CAP that meet new conditions within the EU and in the global economy. To provide food assistance to EU citizens in need, payments from the European Social Fund in the amount of about 3 billion euros are planned. Approximately 2.5 billion euros are proposed to be spent on ensuring food safety. It is planned to create a reserve to counter crises in the domestic market (about 4 billion euros), to add an “agricultural part” (about 3 billion euros) to the EU Fund for Adaptation to Globalization. Financing is strictly linked to the main directions of CAP reform. To better coordinate funding from the European Agricultural Fund for Rural Development and other EU structural funds, the creation of a “European Partnership for Innovation in Productivity and Agricultural Sustainability” is planned. Adaptation of the knowledge and practical skills accumulated in the EU in the field of organizational and economic aspects of the implementation of the Common Agrarian Policy to Russian conditions, in our opinion, will make it possible to build our own system of comprehensive measures for the sustainable development of agriculture.

Thus, the study of the mechanisms of the EU common agricultural policy contributes to the search for effective directions for the formation of the Kazakh concept of agricultural policy in accordance with the requirements of the WTO and the specifics of a market economy, which is difficult to enter into a rapidly integrating and globalizing world economy.

References:

1. Бернякова Е.В. Международный опыт государственной помощи сельскому хозяйству. // Вестник Удмуртского университета. -2011-№10.с.10-15.
2. Постникова Л.В., Прокофьева Н.В. Учетно-аналитическое обеспечение государственной помощи в сельскохозяйственных организациях в условиях экономической интеграции: монография. МСХА, 2011.-160с.
3. Кенжебаева З.С., Примжарова К.К., Беймбетова А. Е. Зарубежный опыт государственного регулирования АПК// Евразийский Союз Ученых (ЕСУ) # 5 (14), 2015 101-105 стр
4. Папцов А.Г., Козлова С.В. Стратегический план поддержки сельского хозяйства США // Экономика сельскохозяйственных и перерабатывающих предприятий. -2009.-№6.- С.75-77.
5. Holwerda D., P.T. Voskuil, Ministry of Economic Affairs, Agriculture and Innovation, P.O. Box 20401, 2500 EK The Hague, The Netherlands www.rijksoverheid.nl/ministeries/eleni
6. Общая аграрная политика Евросоюза до 2020г. // Экономика сельского хозяйства России. – 2011. – № 2. – С. 68-73
7. Сельское хозяйство России на перепутье // Экономика сельского хозяйства России. – 2010. – № 8. – С. 84-85.

8. Юркенайте Н. Реформа единой аграрной политики Европейского союза на период после 2013 года // Экономика сельскохозяйственных и перерабатывающих предприятий. – 2012. – № 3. – С. 26-30.
9. Европейский Союз: факты и комментарии / отв. ред. Борко Ю.А. / Ассоциация европейских исследований. – 2012. – Выпуск 66. – С. 15-20 // Режим доступа: <http://www.edcaes.ru>
10. <http://www.edcaes.ru>

Rezyume: *Maqolada agrosanoat majmuasining ishlab chiqarish salohiyatini davlat tomonidan samarali boshqarish va tartibga solish bo'yicha xorijiy davlatlarning tajribasi, shuningdek rivojlangan mamlakatlarda agrosanoat majmuasini davlat tomonidan qo'llab-quvvatlashning turli chora-tadbirlari va shakllari ko'rib chiqiladi, shuningdek, Yevropa Ittifoqining qishloq xo'jaligi siyosatining ishlash tamoyillari, uni takomillashtirish yo'nalishlari va yagona agrar siyosatning xususiyatlari.*

Резюме: *В статье рассматриваются опыт зарубежных стран эффективного государственного регулирования производственным потенциалом агропромышленного комплекса, а также различные меры и формы государственной поддержки агропромышленного комплекса в развитых странах, а также изложены принципы функционирования аграрной политики Евросоюза, направления ее совершенствования, особенности Единой аграрной политики.*

Kalit so'zlar: *agrosanoat kompleksi, agrar siyosat, agrosanoat majmuasini boshqarish usullari, agrosanoat majmuasini davlat tomonidan tartibga solish, agrosanoat majmuasini boshqarish mexanizmi.*

Ключевые слова: *агропромышленный комплекс, аграрная политика, методы управления АПК, государственное регулирования АПК, механизм управления АПК.*

FORMATION OF AN EFFECTIVE MECHANISM FOR MONITORING AND FORECASTING OPERATIONAL RISK IN THE BANKING BUSINESS

Temirkhanov A.U.

Karakalpak State University named after Berdakh

Summary: The article discusses the desire to obtain maximum profit to ensure the continuity of the banking business. Achieving this goal usually limits the expectation of possible losses associated with the presence of risk as a value expression of a probable event leading to financial losses.

Key words: *Tax, bank, risk, bankruptcy, commerce, service sector, monitoring.*

In modern conditions of development of the banking sector, operational risks are becoming an increasingly significant factor in financial losses. At the same time, operational risk is the least studied from a scientific and methodological point of view relative to other banking risks, which is due to the specifics of its occurrence and the complexity of assessing losses from risk events.

Increasing the efficiency of the mechanism for managing operational risks associated with various banking products is important for banks not only from the point of view of losses, but also from the point of view of the risk of loss of business reputation, since minimizing these risks helps to increase the credibility of banks and their reliability rating.

An intuitive and subjective approach to risk forecasting and monitoring, instead of a systematic process, reduces the effectiveness of risk management - bank employees do not strive to record all possible or actually existing problems. Considering that banking operational risks with the development of the range of banking services and information processing technologies are acquiring a complex interconnected form and each case of their implementation can give rise to other types of banking risks and lead to large-scale material losses or even bankruptcy, a completely different approach to creating and development of a mechanism for monitoring and forecasting operational risks.

The above indicates the need for a theoretical modern rethinking of the concept of operational risk as an economic probabilistic category associated with the concept of uncertainty in achieving a financial result, including its interpretation as a set of causes and consequences of the probability of damage, as well as an understanding of the problem of risk - how to form a mechanism to avoid mistakes (risk management) when making decisions involving the genesis of damage.

Therefore, it is necessary:

- development of the conceptual foundations of banking operational risk;
- development of regulatory, legal and methodological foundations for the functioning of the mechanism for monitoring and forecasting operational risk in the banking business;
- analysis of current trends in the manifestation of operational risk in the banking sector;
- determining the factors and subjective motivation for the occurrence of operational risks for the purpose of scientifically based differentiation of them into specific groups and types according to essential classification criteria;
- development of practical recommendations for the formation of an effective mechanism for managing operational risks.

At the same time, the conceptual theoretical and methodological foundations for the formation of regulatory and financial mechanisms for monitoring and forecasting operational risk remain insufficiently studied. In particular, there is no generally accepted definition of operational risk, and there is no uniform approach to the criteria for its classification. The features of the influence of socio-economic motives of bank employees on the occurrence of operational risk remain insufficiently studied from a scientific and methodological point of view. The developed practical recommendations for preventing this type of risk are ineffective, which creates certain

difficulties in creating a modern effective mechanism for managing operational risks in commercial banks. The above allows us to conclude that at the present stage, the problems of operational risk management have not yet been sufficiently resolved and require active attention. Therefore, the formation of an effective mechanism for monitoring and forecasting operational risk in the banking business is one of the priorities in the context of financial globalization, which determined the choice of topic by the author of this dissertation research as a professional auditor in the field of banking risk management.

To achieve this goal, the following tasks were formulated and solved:

- explore the theoretical aspects of operational risk in the banking business;
- reveal methodological aspects and modern approaches - to the formation of a mechanism for monitoring and forecasting operational risk;
- identify modern criteria for classifying operational risks based on sources of occurrence and factors influencing the relationship of operational risk with other types of banking risks;
- identify modern trends in the formation of a mechanism for monitoring and forecasting operational risk based on systematization of the motives for the risk of internal and external fraud;
- analyze trends in the formation of a mechanism for monitoring and forecasting operational risk in global information technologies;
- assess the level of development of infrastructure and tools for identifying, assessing, monitoring and forecasting operational risk as a factor in ensuring the continuity of banking business;
- determine areas for improving the mechanism for monitoring operational risks to reduce their level and cover financial losses;
- develop an algorithm and build a model of a mechanism for monitoring and forecasting operational risk in the banking business based on key risk indicators and a score of predicted losses when calculating the level of capital reserved for operational risk.
- a theoretical concept for the creation and operation of a mechanism for monitoring banking operational risks must be developed, including - its original interpretation; clarification of the conceptual apparatus; goal and tasks; legal regulation of formation; operating principles; criteria for classification of operational risk monitoring; factors that impede the formation of a mechanism for monitoring operational risks in terms of incompetence, cases of fraud and failures in information technology systems; the definition of operational risk as an economic probabilistic category that associates uncertainty in achieving financial results and ensuring the continuity of banking business has been clarified;

The following must be taken into account:

- approaches to the development of a methodology for creating a mechanism for monitoring and forecasting banking operational risks have been systematized; the main problems in the functioning of monitoring and forecasting these risks and the shortcomings of the regulatory framework are identified based on a comparative analysis of the regulatory mechanism for regulating the organization of the operational risk management process in foreign and domestic banking practice;
- a classification of banking operational risks by sources of their occurrence should be developed; the prerequisites and features of the criteria for assessing banking operational risks and their financial consequences have been identified;
- it is substantiated that timely identification of social and economic motivation, directions and consequences of fraud reduces the likelihood of operational risk; a typology of subjects of internal and external fraud has been compiled; mechanisms for monitoring fraud risks have been systematized; a methodological basis for the formation of a unified reporting form for collecting information on fraudulent transactions must be developed;
- features of the formation of a mechanism for monitoring and forecasting operational risks at all stages of preventing, identifying, assessing and minimizing losses due to failures and failures in banking information systems have been identified;

- directions for organizing infrastructure using specific tools of operational risk management have been identified and justified as an effective mechanism for monitoring and forecasting operational risks adequate to the goals of the banking business. A version of the functional description of the risk monitoring process, a model of the mechanism for monitoring and forecasting operational risks based on key risk indicators, and an algorithm for calculating the reserve to cover possible losses from operational risks should be developed.

- a mechanism for managing operational risks, based on determining probable financial losses on a 5-point scale for assessing the level of risk;

- forms of internal management reporting on the facts of identifying and preventing the risk of fraud, providing a brief description of the causes of the risk and the measures taken by the bank necessary to form a risk forecasting mechanism in order to prevent it in the future;

- an algorithm for calculating the size of the capital reserve for possible losses from operational risks using a reserve ratio depending on the size of the bank's assets.

Operational risk is a significant source of financial losses in the banking business. The mechanism for monitoring and forecasting operational risk is the least studied aspect of banking risk management. At the same time, it becomes obvious that the formation of such a mechanism must be dealt with professionally, since the lack of a regulatory framework and effective methods and tools for assessing and minimizing operational risks can lead to catastrophic consequences for the bank associated with financial losses and loss of business reputation and the cessation of banking business.

The main problems in the field of regulation of banking operational risks are: the lack of statistical databases on the relationship between the quantitative characteristics of these risks and predicted and actual losses; lack of methods for assessing operational risks in conditions of immaturity of the market for effective tools for managing these risks.

During the study, foreign experience was studied in the formation of a mechanism for forecasting and monitoring operational risks, which showed that for its effective functioning it is necessary to have a strong legislative framework, a classification of operational risks taking into account the modification of information technology processes, the preparation of relevant internal regulatory documents, and the introduction of measures adequate to potential threats losses of information security products.

Banking risks are closely interrelated; their mutual influence can significantly affect the risk of the banking portfolio as a whole. This creates a need to identify, assess and manage operational risks. In addition to the cause-and-effect relationship between operational, market and credit risks, there is a "cumulative" effect of increasing negative impact. Entering incorrect information leads to errors in managing market risk. Errors in reports, incorrect actions of personnel, failures of information systems greatly increase the initial damage caused as a result of the occurrence of credit or market risk.

To form an effective mechanism for monitoring and forecasting operational risks in commercial banks, it is necessary not only to formulate the basic concepts relating to this process, but also to develop the structure of internal risk management. The need to introduce risk-oriented approaches to corporate risk management is created as the bank develops, when its business becomes more complex: the volume of operations increases, the operating environment becomes more complex. As a result, the adequate organization of business processes and the inextricably linked task of creating a system for identifying, assessing and managing operational risks becomes more important.

Commercial banks are faced with the task of creating such a mechanism for monitoring and forecasting operational risks, which: means a set of measures and procedures, including: formulating goals and objectives; formation of a regulatory mechanism; development of identification methods; measuring and limiting operational risks. This mechanism should function on an integrated basis within individual areas of the banking business, both one individual bank and the banking system as a whole, based on new information technologies.

Building a fraud detection system is an important element of the operational risk management process. To prevent or detect fraud, the most effective measures seem to be those aimed at creating special control bodies in the bank, as well as tools for preliminary, current and subsequent control.

As an additional way to improve the efficiency of the mechanism for monitoring and forecasting operational risks, you can use insurance for these risks. Banks are offered a variety of types of insurance aimed at protecting against operational risks - the risks of losses caused by inadequate, ineffective or faulty processes, fraudulent personnel or system failures, as well as external factors.

One of the important tasks of the mechanism for monitoring and forecasting operational risks is to ensure the continuity of banking business. Solving this problem involves ensuring the stability of the information technology infrastructure, allowing the bank to restore operations after any failures in real time; Banks should develop and implement a plan to ensure business continuity and recovery from interruptions.

Based on the research conducted, a model of a mechanism for monitoring operational risks should be proposed based on the use of a key risk indicator and the establishment of risk appetite and a reasonable division of the operational risk management process into • separate functions.

Tools for constructing a process for collecting data on the implementation of operational risks must be developed and proposed, and sources for collecting data on events that are associated with the manifestation of operational risk must be identified. The proposed methodological framework will make it possible to build a process by which the bank identifies risks, assesses their magnitude, monitors and controls its risk positions. Among the requirements that can be considered as conditions for the stability of the banking system, four basic ones have been identified: adequacy of the capital base of credit institutions to risks, construction of a mechanism for monitoring and forecasting operational risks adequate to threats, improving the quality of supervisory activities and compliance with market discipline.

References:

1. Ашуров М., Файзуллаев Ж. Концепция слабых сигналов и ее влияние на управление рисками на промышленных предприятиях. // «Экономика и финансы», 2011, № 1(181). -С. 14-15.
2. Ашуров М.С., Шакирова Ю.С. Вопросы устойчивого развития промышленных предприятий Узбекистана в условиях риска. // «Проблемы современной науки и образования», 2019, № 4 (137).
3. Иванов А.А., Олейников С.Я., Бочаров С.А. Риск-менеджмент. Учебно-методический комплекс. – М.: Изд. центр ЕАОИ, 2008. –С. 193.
4. Камбаров Ж.Х. Задачи управления рисками на предприятии. // Журнал научных публиканский аспирантов и докторантов, 2016, № 5. -С. 88-89.
5. Альгин А.Н. Риск и его роль в общественной жизни. — М.: Мысль, 1989 г.
6. Арямов А.А.Общая теория риска: юридический, экономический и психологический анализ: монография/ А.А.Арямов.2-е изд., перераб. и доп. — М.:РАП; Волтерс Клувер, 2010 г.

Rezyume: *Maqolada bank faoliyatining uzluksizligini ta'minlash uchun maksimal foyda olish istagi muhokama qilinadi. Ushbu maqsadga erishish odatda moliyaviy yo'qotishlarga olib keladigan ehtimoliy hodisaning qiymat ifodasi sifatida xavf mavjudligi bilan bog'liq mumkin bo'lgan yo'qotishlarni kutishni cheklaydi.*

Резюме: *В статье рассматривается стремление получить максимальную прибыль для обеспечения непрерывности банковского бизнеса. Достижение этой цели обычно ограничивает ожидание возможных потерь, связанных с наличием риска как стоимостного выражения вероятного события, ведущего к финансовым потерям.*

Kalit so'zlar: *tax, bank, risk, bankruptcy, commerce, service sector, monitoring.*

Ключевые слова: *налог, банк, риск, банкротство, коммерция, сфера услуг, мониторинг.*

DIGITALIZATION OF THE ECONOMY: CHALLENGES AND SOLUTIONS

Maratova M.B.

Karakalpak state university named after Berdakh

***Summary:** This article touches on the issue of digitalization of the economy and its challenges. The consequences of introducing innovations and digital technologies into the practical activities of modern organizations are considered. The challenges and positive consequences of economic digitalization are revealed. Analyzed state of the digital economy of Uzbekistan. Factors of economic growth are identified based on changes in production technologies. The features and prospects for digitalization of the economy of the Republic of Uzbekistan are considered, taking into account global trends. It is concluded that digitalization is one of the key factors in the economic growth of the modern economy.*

***Key words:** the factors of the digital economy, influence the development, developing the digital economy, digital technologies, new opportunities, economic growth, improving the standard of living, country's population.*

Introduction.

Today, the main problem of the formation of sustainable economic growth and the successful introduction of digital technologies are the challenges of digitalizing the economy. The digital economy is a system of economic relations that are implemented using digital information computer technologies.

In today's environment, digital organizations have the opportunity to significantly increase the efficiency of their business and their competitiveness.

Today, the economic downturn is causing the need to develop and introduce innovations: mobile technologies, electronic computing, business analytics and social networks. Economic growth and modernization are interdependent. The existing economic situation facilitates investment in modernization. At the same time, emerging markets are increasing the demand for innovation in order to stimulate growth, and developed markets are trying to find ways to reduce spending and stimulate innovation.

The term "**digitalization**" is currently considered in a narrow and broad sense. "In a narrow sense, it is understood that information is converted into digital form, which will lead to lower costs, the emergence of new opportunities, etc. Digitalization is widely considered as a trend of effective global development only if digital transformation meets the following characteristics:

- covers production, business, science, social sphere and ordinary life of citizens;
- accompanied only by effective use of the obtained results;
- its results are available to the users of the converted information, and not only to specialists, but also to ordinary citizens;
- users of digital information have skills to work with it

Thanks to digitalization, a new direction in economics has appeared - digital economics, which "includes mathematical methods and models based on the digital format of information presentation. For example, these are geo-information technologies, modern technologies for the provision of banking services, technologies for ensuring information security "and others.

It follows from this that a positive environment for economic growth and social transformation is created, since digital technologies increase consumer demand for various kinds of products and services, and therefore the volume of sales increases.

The development of digitalization in Uzbekistan has recently been accelerated.

Significant results were achieved by such organizations as Anor Bank, TBS Bank, Yandex. The labor market has also undergone certain transformations. Due to the support of state authorities, infrastructure projects were implemented. As a result, the availability of digital services is

increasing, the Internet, mobile communications, and electronic storage have become significantly widespread.

Currently, digital technologies have been most significantly introduced into the field of information and communication services, transport and trade, payment for goods and services, software development, digital database maintenance, consulting services, education and several others. Also, the financial sector of the economy did not go unnoticed - the banking sector, e-commerce, state authorities and a number of other areas.

"The main components of the digital economy include: e-commerce; electronic banking; electronic payments; online advertising; internet content and other electronic services. " The World Bank has defined the digital economy as a new paradigm for accelerated economic growth.

However, at the same time, the lowest involvement of digitalization in the production sector. According to statistics, about "40% of enterprises do not yet use digital technologies, and only 2% of enterprises not only use digital technologies, but also fully realize their advantages." The digital economy is based on inexhaustible information potential, digital trading platforms, unlimited scale of operating activities and customer focus of the business. Experts associate 20-30% of economic potential with the digitalization of the economy. The challenges of digitalization of the economy increase the level of education and training, serve as an incentive for the effective use of capital and resources. Digital transformation automates business operations for operational efficiency by reducing transaction costs with performance impacts.

Also, the digitalization of the economy has a positive impact on "the formation of a knowledge-based information space, opens up new business opportunities, influencing employment and entrepreneurship, contributes to the formation of systems of regulatory legal, information and consulting, technological and technical assistance and the reflection of threats to the information security of citizens. With regard to the provision of public services, the digital economy contributes to the strengthening of the health and education system while improving the interaction of citizens with the government "

The introduction of digital technologies into the daily activities of organizations allows them to enter the global market and acquire a wider consumer audience. Classic large business structures that do not respond to the needs of modern digitalization in a timely manner may lose their consumer audience, they are threatened with a decrease in business efficiency and loss of competitiveness. When using digital technologies in the activities of organizations in various professional fields, it is advisable to introduce special concepts for collecting, storing and processing data on business operations and clients, which contributes to the formation of digital client databases and increase the efficiency of business processes. The introduction of digital technologies contributes to tougher competition, poses threats to classic market leaders who have not responded to innovative technologies.

The management of organizations should be informed about the challenges that enterprises may face in the environment of global digitalization. Digitalization is progressing under the influence of the technological process and the development of innovations, which pushes management to envisage transformations in the conduct of business and to predict the time interval required for the full implementation of innovations.

Under existing conditions, the challenges of digitalization are:

1. Shaping the digital economy. The internet has sparked a new surge of capitalism that is transforming many aspects of the global market into modern forms of business. Agility, Internet technology, and social media serve as a source of digital movement emerging in developed and developing countries.

2. Business process transformation. As a result of the formation of the digital economy, enterprises in market segments stumbled upon the fact that their business models began to deviate from the conditions of globalization and technology. In the near future, many sectors, including technology, communications, media, banking, trade and medicine, will carry out a number of transformations using the digitalization of the economy.

3. Increased competition. Successful enterprises in developing countries invest heavily in technology, often bypassing colleagues in developed markets. Business leaders in countries with advanced economic structures will face a competitive challenge: aggressive technology companies from developing countries.

4. Customer-centric strategy. Emerging market customers will take center stage. They provide huge opportunities for companies to adapt to their needs.

5. The rapid response of business processes implies a rapid response to the same rapid change in innovative technologies. The regularly changing global market, fueled by new innovations, has accelerated the development of most activities from product development to customer consumption. Business analytics and predictive analysis will currently be required for instant decision-making and for dealing with unforeseen market risks.

6. Reorganization of enterprises. To effectively function in the global digital market, in an environment of tightening competition, competent management of enterprises is removed from hierarchical decision-making and joins an organic network structure.

The principles of the digital economy are transforming the general economic order of countries and regions. The labor market undergoes key transformations, as a result of which the sphere of consumption is changing. Organizations, mastering digital potential, extract competitive advantages, the level of prosperity of citizens increases.

The transition to the digital economy contributes to a significant reduction in production and transaction costs, strengthening the interdependence and integrity of business flows, and increasing business competitiveness. The digitalization of the economy in Uzbekistan will definitely become a source of long-term economic development. Experts explain that it is customary to include e-commerce, an e-government system, the introduction of smart technologies in production processes, the creation of Smart City, Safe City, etc., and the widespread use of Internet of Things technologies in the components of the digital economy.

It is customary to assess the degree of development of the digital economy in the country, which is directly related to the level of development of information and switching technologies (ICT), by various indicators: the share of the digital economy in GDP, the size of investments in the ICT industry, the speed of the Internet, its coverage of the country and accessibility for use by the population, the level of development of e-commerce, the share of public services in the e-government system, the provision of organizations with specialists in the field of ICT, etc. In addition, indicators in international ratings assessing the degree of development in the country of information technologies are important. "In many of these indicators, significant progress has been made in Uzbekistan since 2020"

Promising plans for the development of the digital economy

By presidential decree of October 5, 2020, the Digital Uzbekistan-2030 Strategy was approved, which provides for the implementation of over 280 projects for the digital transformation of regions and sectors of the country's economy in the next two to three years. In the near future, the task is to double the share of digital services in the country's GDP. The digital transformation of the banking sector, including automated management systems and financial technologies, will continue. For the digitalization of agriculture, more than \$600 million will be raised to introduce modern agricultural technologies and innovative solutions.

Conclusions.

Modern digital technologies are widely introduced into the activities of organizations in various professional fields and contribute to improving the efficiency of companies' business and their competitiveness. For example, 3D printing will allow enterprises to sell products that cannot be created on an industrial scale.

The absolute increase in the efficiency of organizations' business is achieved through the introduction of smart IT systems that analyze and control energy consumption, automated monitoring of business processes, creation of digital databases, digital marketing, and the introduction of modern digital technologies into the activities of companies of various applications.

Companies, using digital technologies, can mobile change the operating mode and production processes to optimize the production of final products.

One of the important features of the digital economy is the principle of initializing the economic growth of various professional spheres of production and services. An "intellectual society" through digitalization, guaranteeing a noticeable increase in productivity, can become a significant component of modernization. This is supported by the leading positions of Uzbekistan in international rankings on digital culture and literacy of the population.

Thus, the digital economy is a modern type of economic relations that contributes to improving business efficiency, intensifies competition in the global market, rapidly developing, which, with the growth of digital technologies, will become the leading type of commodity-monetary relations at the world level. The formation and improvement of digital technologies is carried out rapidly, old technologies quickly lose relevance. Therefore, it is at the moment that it is necessary to be included in the global information and technological stream of updates and strive to effectively use them.

References:

1. Decree of the President of the Republic of Uzbekistan, of 05.10.2020 No. UP-6079. "ON APPROVAL OF THE DIGITAL UZBEKISTAN-2030 STRATEGY AND MEASURES FOR ITS EFFECTIVE IMPLEMENTATION"
2. Maratova M.B. (2023). DEVELOPMENT OF THE DIGITAL ECONOMY IN UZBEKISTAN, On the birthday of Academician Charjav Abdirov 90 years have been dedicated to the treatment of wages "Nowadays, I'm still educated Internationalization in the term "Important Practices". scientific-practical conference, volume 2023, December 12, 282p.
3. Maratova M.B. (2023). INTRODUCTION OF NEW BANKING SERVICES IN THE CONDITIONS INNOVATIVE ECONOMY IN UZBEKISTAN, New Uzbekistan Economy, Scientific and Practical Journal No. 7 (9) 2023, November 24, 2023, 297p.
4. Maratova M.B. (2023). PROSPECTS FOR DEVELOPMENT OF BANKING SERVICES IN UZBEKISTAN, PEDAGOGICAL SCIENCES AND TEACHING METHODS, Copenhagen "Science Edition" 17 April 2023

Rezyume: *Ushbu maqolada iqtisodiyotni raqamlashtirish va uning muammolari muhokama qilinadi. Zamonaviy tashkilotlarning amaliy faoliyatiga innovatsiyalar va raqamli texnologiyalarni joriy etish oqibatlari ko'rib chiqiladi. Iqtisodiyotni raqamlashtirishning qiyinchiliklari va ijobiy oqibatlari ochib berildi. Tahlil qilingan O'zbekiston raqamli iqtisodiyotining holati. Iqtisodiy o'sish omillari ishlab chiqarish texnologiyalarining o'zgarishi asosida aniqlanadi. Jahon tendensiyalarini hisobga olgan holda O'zbekiston Respublikasi iqtisodiyotini raqamlashtirishning xususiyatlari va istiqbollari ko'rib chiqildi. Raqamlashtirish zamonaviy iqtisodiyotning iqtisodiy o'sishining asosiy omillaridan biri hisoblanadi, degan xulosaga keldi.*

Резюме: *В данной статье затронута проблематика цифровизации экономики и ее вызовы. Рассмотрены последствия внедрения инноваций и цифровых технологий в практическую деятельность современных организаций. Раскрыты вызовы и положительные последствия цифровизации экономики. Проанализировано состояние цифровой экономики Узбекистана. Определены факторы экономического роста на основе изменения технологий производства. Рассмотрены особенности и перспективы цифровизации экономики Республики Узбекистан с учетом мировых тенденций. Сделан вывод, что цифровизация является одним из ключевых факторов экономического роста современной экономики.*

Kalit so'zlar: *raqamli iqtisodiyotni rivojlantirish, , raqamli texnologiyalar, iqtisodiy o'sish, tamlakat aholisi, yangi imkoniyatlar*

Ключевые слова: *цифровая экономика, цифровые технологии, развитие, повышение уровня жизни, экономический рост, населения страны.*

SPECIALIST STAFFING – DEVELOPMENT AND PROSPECTS OF TOURISM ON THE ISLAND

Suyindikova A.S.

Karakalpak state university named after Berdakh

Summary: In order to improve the level of service to personnel in the field of tourism development in the Aral region, information is presented on the development of new management systems, training in chronic courses in accordance with their requirements, as well as training and retraining suggestions are given.

Key words: tourism, extreme tourism, off-road travel, gastro tourism, ecotourism, archaeological tourism, guide, restaurant, travel agency, service, restaurant.

The ultimate goal of the large-scale reforms being implemented today in all areas is the further development of the economy of our country, ensuring employment of the population, and improving the well-being of our people. According to President Shavkat Mirziyoyev, the tourism industry is one of the important sectors of the economy. It is necessary to further improve this network, effectively using existing capabilities, which is what the time demands. Karakalpakstan is a convenient country for both travel and pilgrimage. Because our ancestors, who are known and famous all over the world, settled forever in our Motherland. There is great international interest in the rich spiritual and cultural heritage left by them. Also, new tourism prospects are opening up in Karakalpakstan, large-scale projects are being implemented in various directions. In particular, in subsequent years such tourist destinations as extreme tourism, horseback riding, camel riding, cycling, off-road travel, gastrotourism, ecotourism, and archaeological tourism become popular.[1] Carry out systematic and consistent reforms in this direction in our country, prepare and retrain qualified specialists in the labor market in the field of tourism for the further development of the industry, improve their skills, and raise the quality of service to an international level. standards is one of the main, pressing tasks today. Karakalpakstan has seen a steady increase in international and domestic tourism in recent years, which in turn is expected to increase the demand for professionals qualified in modern services to serve the industry. In our republic there is a higher educational institution that trains highly educated specialists in this field. In the city of Nukus, personnel for the tourism sector are mainly trained at the faculties of “Economics” (tourism) and “foreign languages” (guide-translation activities) of Karakalpak State University. In recent years, Karakalpak State University has done a lot of work to train highly educated personnel for the promising industry. Taking into account future trends in the development of tourism and the scope of its services in the republic, as well as today’s urgent need for qualified specialists, training of specialists in new bachelor’s and master’s degrees has been launched on the basis of the tourism direction of the educational institution. For example, at first the university did not create a department of tourism education; since the 2018-2019 academic year, students have been admitted to the undergraduate programs “Tourism” and “Tourism” from the 2019-2020 academic year, as well as to the master’s program “Tourism” in 2022-2023 . In recent years, the university has trained the qualified personnel necessary for the industry who work in the tourism sector of the republic. We draw attention to information about young specialists and graduates trained by Karakalpak State University (Table 1).

Table 1

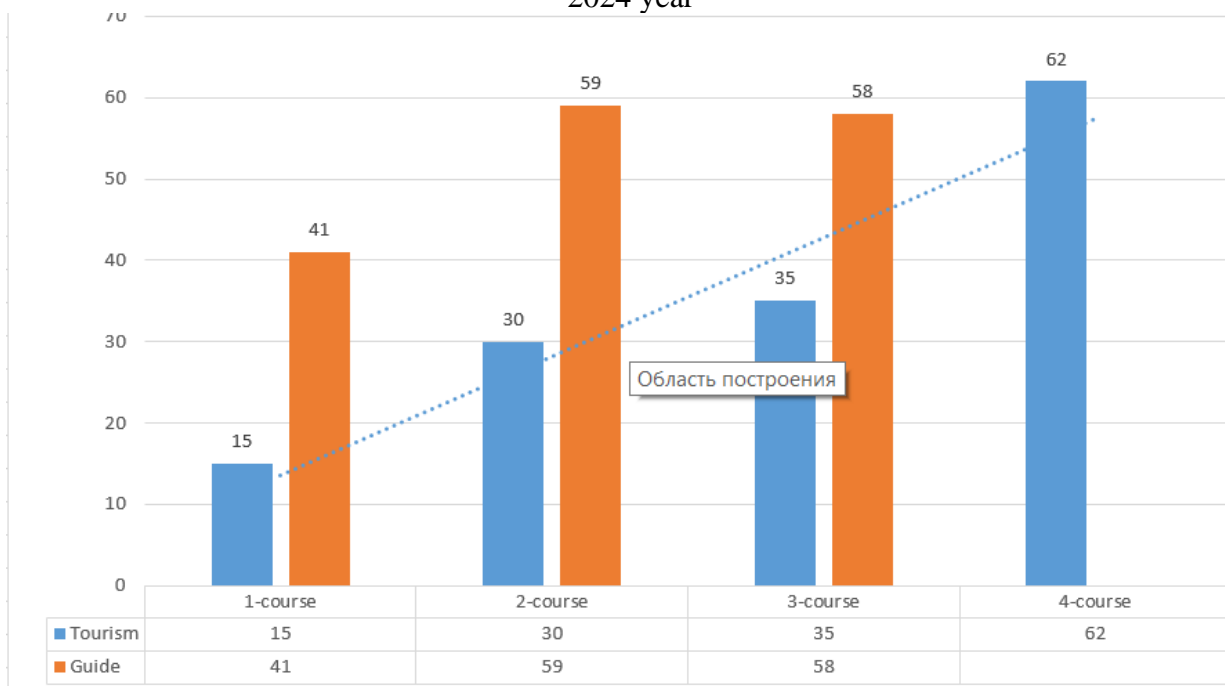
In 2022-2023, the number of graduates of Karakalpak State University in the field of tourism (undergraduates)

№	Speciality	2022-year	2023-year
1	Tourism	48	46
2	Accompanied by a guide	25	48
	Total	73	94

In 2022, 48 students graduated from the university in the field of education “Tourism”, 25 students graduated from the field of “Tourism Guidance and Translation”, and by 2023 – 46 students – in the field of “Tourism”, 48 – in the field of “Tour Guidance” , 48 students, in total 94 students. Most of these graduates go on to work in hotels, tour operators and other tourism destinations in the region. According to data analysis, Karakalpak State University trained 167 highly qualified specialists for the tourism sector in 2022-2023. It is also worth noting that 408 students are currently studying at Karakalpak State University, during the 2023-2024 academic year in the field of tourism. According to the information provided, in the 2023/2024 academic year they will be transferred to enterprises and organizations of the region in order to increase the tourism potential of the region (hotels, tour operator companies, service sector enterprises, etc.) will be sent to workplaces.

Diagram 1

Undergraduate students of Karakalpak State University in the field of tourism in the 2023-2024 year



Information on the number of students studying at Karakalpak State University in the bachelor's degree program in tourism in the 2023-2024 academic year.

In order to train mature professional personnel in the field of tourism, implement important changes in the educational process in all higher educational institutions of our republic, as well as at Karakalpak State University, to increase the number of hours of systematic practice at enterprises and organizations in order to provide students with an excellent education and further consolidate the acquired knowledge in the processes of practical work, and one of our main tasks today is to control the quality of practice, ensuring that seminar (practical) laboratory classes are held in good organized modern laboratories during the educational process (hotel reception, lobby, restaurant and bar, as well as laboratory facilities in the form of sample hotel rooms, etc.). We strive to attract more tourists to Uzbekistan, we do a lot to popularize cultural and historical monuments and unique natural places, we train qualified, competitive personnel capable of organizing and providing high-level services that meet international standards. [2]

As for the service personnel in the field, they do not have theoretical knowledge in their specialty, the level of fluency in English is low, their number is small in some places, and there are problems of shortage.

In order to alleviate this problem, it is necessary to organize specialized courses based on the needs of the region. The reason is that the farther the course is from the place of manufacture, the more likely it is to inconvenience the service providers and cause problems. In this way, the probability of its realization decreases. Therefore, if employees are required to obtain a certificate in their specialty within a specified period of time, it will encourage them to acquire theoretical knowledge. And at the same time, it is necessary to mention that it would be appropriate if the preparation and re-training of our guide-guides according to the types of tourism are carried out. The reason is that our guides serving in our republic are only performing the role of translators. For example, in the fields of archeology and pilgrimage tourism, tourists are not given full information based on the language of those fields. In this case, they leave a negative impression on the tourists and have a negative effect on their desire to come again.

References:

1. Кайпназарова, Г., & Суюндыкова, А. (2023). ОРОЛБЎЙИ МИНТАҚАСИДА ТУРИЗМНИ РИВОЖЛАНТИРИШНИНГ ИННОВАЦИОН ЙЎНАЛИШЛАРИНИ ТАКОМИЛЛАШТИРИШ ЙЎЛЛАРИ. *Journal of Academic Research and Trends in Educational Sciences*, 365-370.
2. Suyindikova Ayzada Sarsenbaevna. Aral boʻyi aymagʻinda turistlik aymaqlardi rawajlanlandirwduʻn monodarejedegi sholkemlesken-ekonomikalıq mexanizmi.// "Journal of science-innovative research in Uzbekistan" Respublika ilimiy jurnal. 2024. № 2.
3. Кораколпок давлат университети маркетинг бўлими ҳисоботлари. 2022й. 2023й.

Rezyume: *Aral boʻyi aymagʻi turizmin rawajlandirwda kadrlardıʻn xızmet kórsetiw dárejesin arttırıw maqsetinde jaʻna basqarıw sistemaların engiziw, qániygeligi boyınsha waqıtlı kurslarda oqıtıw, olardı tayarlaw hám qayta tayarlaw boyınsha mađlıwmatlar kórsetilip, usınıslar berilgen.*

Резюме: *В целях повышения уровня обслуживания персонала в сфере развития туризма в регионе Аральского залива представлены сведения об освоении новых систем управления, обучении на хронических курсах согласно их требованиям, а также подготовке и переподготовке. даны предложения.*

Kalit soʻzlar: *turizm, ekstremal turizm, off-road sayoxat, gastroturizm, ekoturizm, arxeologik turizm, gid, miymanxana, turfirma, servis, restoran.*

Ключевые слова: *туризм, экстремальный туризм, путешествия по бездорожью, гастротуризм, экотуризм, археологический туризм, гид, ресторан, турфирма, сервис, ресторан.*

STUDYING “ISHAN-KALA” IN THE HISTORIOGRAPHY OF KARAKALPAKSTAN

Usenov S.Kh.

Karakalpak State University named after Berdakh

Summary: The article, based on the materials studied, gives the history of the study of “Ishan-Kala” in the historiography of Karakalpakstan. For the first time in historiography, the question of the relationship between power and religion was raised by Ya.M. Dosumov. The works of U. Kh. Shalekenov, despite the ideological shades, contain important information about the confrontation between the colonial authorities and the Muslim clergy in Karakalpakstan. The works of A. Panabergenov also contain a large amount of factual material on the problem under study. The monographs of T. I. Izimbetov philosophically comprehend the issue of religion and politics. The monograph of M. A. Karlybaev is innovative, restoring the picture of the existence and activities of Muslim mektebs and madrassas on the territory of Karakalpakstan on the eve of the bolshevik coup.

Keywords: history, historiography, relationships between power and religion, ideological shades, colonial authorities, Muslim clergy, Muslim mektebs and madrassas

For the first time in historiography, the question of the relationship between power and religion was raised by Ya.M. Dosumov. Studying the process of the “cultural revolution” in Karakalpakstan through the prism of activities in the field of education, Ya.M. Dosumov, naturally, characterized the specific conditions of the region, where it was necessary to “fight the remnants of the Middle Ages and patriarchal-feudal ideology” [1].

In the 30-40s of the twentieth century, generalizing works of statesmen K. Avezov, P. Varlamov, A. Dosnazarov were published in the historical and party literature of Karakalpakstan, which, despite all their declarative nature and the presence of an anniversary character, can be used as a historiographical source. This group also includes works on economic and cultural construction in Karakalpakstan [2]. However, in the 20-30s, the problem of the relationship between power and the religion of Islam was not sufficiently reflected in historiography. This was due, first of all, to the state and level of development of science itself - the shortcomings of qualified historians, the lack of development of the source base [3,65]. Much attention was paid to the archaeological and ethnographic study of the region, the development of the problem of the ethnogenesis of the Karakalpak people, which provide valuable factual material on the history of the spread of Islam.

Based on the data of Girshfeld and Galkin, U. Kh. Shalekenov, rejecting the information of V. I. Vertegov, writes that in 1903 in Khorezm there were 70 religious madrassas and 2313 mektebs, of which 5 madrassas and 873 mektebs were located in the Amudarya department. Noting the activities of the Soviet government in the field of education, U. Kh. Shalekenov emphasizes that the ruling party encountered two obstacles: firstly, the complete illiteracy of the Karakalpak people, and secondly, representatives of the Muslim clergy tried to prevent the widespread dissemination of Soviet schools. Overall, this book was a work of popular science.

Three years later, introducing into scientific circulation the materials of the Central State Historical Archive, the Central State Historical Archive (Moscow), the archives of Kazakhstan, Uzbekistan and Karakalpakstan, supplementing with field data, U.Kh. Shalekenov briefly traces the main paths of development of the national culture of the Karakalpak people from 1917 to 1940, although the first chapter makes a historical excursion into the pre-revolutionary past [4]. Despite the ideological shell of statements such as “Islam served the interests of the exploiting classes, instilled scholasticism, superstition and ignorance,” the book by U. Kh. Shalekenov contains very valuable data on the emergence of holy places - “Kara-Kumishan”, “Ishankala”, “Sultan - Uveis”, “Tokhmakh - ata”. “Shbyli - Ashyk”, “Nazlymkhansulyu”, “Baghdad”, “Aimbetishan”, “Karaoidynbesishany”, supported by legends collected during the work of the Khorezm archaeological and ethnographic expedition. The author’s clarification made during the ethnographic expedition of 1956-1958 deserves attention; on the territory of the Kegeily and

Chimbay districts of Karakalpakstan 8 madrassas were registered: Matmuratakhuna, Embergenakhuna, Kalilaakhuna, Ayakaulie, Aimbetishana, Sherniyazakhuna, Kara-kumishana, Ishankala. Very valuable data are available on the existence of new method (“usulijadid”) mektebs and madrassas on the territory of Karakalpakstan - Kungrad, Chimbay, Turtkul, Khojeyli, Shabbaz, Shurahan in 1912-1920.

U.Kh. Shalekenov introduced into scientific circulation the materials of the meeting of the clergy in January 1926, where it was decided to transfer a special order to the clergy and judges regarding the registration of civil marriages. Information about the murder of women's movement activist Nauryzbayeva was also put into circulation here.

U.Kh. Shalekenov traces the stages of implementation of the decree of the Council of People's Commissars of the RSFSR “On the separation of church from state and school” in Karakalpakstan, which began on January 21, 1919 in the Amudarya department with the organization of new method schools (“tote okyu”). The data introduced by U. Kh. Shalekenov on the dissemination of the charter and propaganda literature of the central spiritual administration “Mukhtasibiata” (Ufa) in Karakalpakstan is very valuable.

Thus, the monograph by U. Kh. Shalekenov, despite the ideological shades, contains important information about the confrontation between the colonial authorities and the Muslim clergy in Karakalpakstan.

The works of A. Panabergenov also contain a large amount of factual material on the problem under study [5]. Regarding the heritage of Karakalpak culture, the author states that “confessional schools in Karakalpakia were breeding grounds for religious obscurantism” [6,44]. This approach did not allow the specialist to determine the role of mektebs and madrassas in the system of public education. The work gives the dynamics of the number of confessional schools for 1908-1913. Analyzing the situation of women and public health through the prism of the definition “religion is the opium of the people,” the author introduced into scientific circulation only negative data about the role of the religion of Islam in society.

Nevertheless, A. Panabergenov introduced a large amount of factual material into scientific circulation when covering the creation of Soviet schools, the census of school-age children, and the compromise of the new government, which allowed the teaching of Muslim doctrine in school. Also of great importance are materials about the women's movement and the maneuvers of the clergy to preserve Sharia law in the 20s. The process of Latinization of the Karakalpak alphabet is covered. Primary materials about the “Topylys” (“Khudzhum”) movement are given. “The red thread that runs through all the events of the cultural revolution,” writes A. Panabergenov in conclusion, “is the leading and organizational role of the regional party organization, which raised the Karakalpak people with a rifle and a primer in their hands to defend the gains of the October Revolution and to storm the decisive heights of science, culture and art.”[7,326].

It has become traditional for historians to turn to the historical past of the Karakalpak people. Ya.M. Dosumov did not escape this fate [8]. Covering the culture of our people in the past, the author notes two antagonistic directions: the reactionary line of tsarism, landowners, merchants, bais, clergy and the progressive line of social democratic groups. “The policy of tsarism in relation to the mektebs was expressed by the formula: “The old Mohammedan school must be left to itself” [9,48]. The author states that if in 1911 there were 516 mektebs in the Amudarya department with 10,901 students (of which 3,182 were girls), then in 1914 there were 433 with 4,212 students (of which 1,128 were girls). Confessional schools, according to Dosumov, instilled religious fanaticism and educated the local population in the spirit of slavish devotion to the existing system.

Thus, in the works of Dosumov we find the most valuable materials on the history of the relationship between power and the religion of Islam, which, unfortunately, were interpreted to suit the ruling ideology.

By the beginning of the 60s, rich concrete historical material had been accumulated, which formed the basis for the first collective monograph of historians of Karakalpakstan [10].

Describing the cultural level of the Ural Cossacks in the village of Zaire, the author of the section of the collective monograph Dosumov did not fail to point out that “sectarians - Old Believers with their religious fanaticism instilled in the population fear of everything new and obedience to the elders.” The order of the Petro Alexandrovsky garrison dated February 24, 1920 was introduced into scientific circulation, where the terms of the peace treaty were set out; one of the most important points was freedom of religion.

One of the authors of the collective monograph G.N. Nepesov, in the section “The joint struggle of Karakalpak, Uzbek and Turkmen workers for the victory of the people’s revolution in the Khiva Khanate,” states the fact of the publication of one of the most important decree of the Khorezm Republic on the establishment of the Administration of Waqf Lands under the Nazirate of Culture and Education. Nepesov, in another section of the collective monograph, also notes a specific feature of the spiritual life, culture and way of life of the peoples of Khiva, which “consisted in their undivided submission to the religious dogmas of Islam: the unequal position of women, the dominance of ishans, mullahs, akhons and other servants of the Muslim religion.”

Covering the history of Karakalpakstan during the period of industrialization and collectivization, the authors of the sections Dosumov and A. Bekimbetov introduced into scientific circulation the data that by the beginning of 1926, “1709 tanaps of crops in the Turtkul region belonged to mosques. There were 130 mosques in the Shabbaz region, which had huge plots of land at their disposal. Only one Kara-kumishan in the Ishan-kala area of the Kegeyli region had 6999 acres of crops taken into account.” The authors emphasized that “the clergy agitated the population of the villages against the measures of the Soviet government, called on the farmers not to enroll in the Koshchi union, not to join the cooperation, and frightened the farmers that they would be resettled in deserted places.” Important court documents from participants in the vengeance for the oppression of the clergy, who were confident that the persecution of the clergy would not go unpunished, were introduced into scientific circulation.”

U.H. Shalekenov in the section “Victory of the Cultural Revolution in Karakalpakstan”, using materials from dissertations and expedition data from J. Urumbaev, R. T. Timasheva, A. Panabergenova, K. Maksetov, I. V. Savitsky, T. Bayandiev, D. Saburova, managed to summarize a huge amount of material about this process in our region, naturally touching on the issue of the relationship between politics and religion. He notes that one of the serious reasons that hindered the development of public education in the region was resistance from ardent opponents of the Soviet school - the clergy [11,194]. A change in the confrontation between the authorities and the ministers of religion has been noted: in response to the creation of the “red yurt” and “red teahouse,” mullahs and ishans go from mosques to villages and engage in propaganda in tents.”

Thus, the first collective work of historians, although not without shortcomings, introducing a huge complex of sources into scientific circulation, showed the process of increasing historical knowledge on the history of their native land, including the history of relations between the Soviet government and the servants of Islam.

Written in accordance with the ideological order of “covering the transition from feudalism to socialism, bypassing capitalism,” S. Tatybaev’s monograph, however, contains a lot of factual material on the history of Karakalpakstan 1917-1941.

The author, referring to the report of the Revolutionary Committee of the Amudarya Region to the government of the Turkestan Autonomous Soviet Socialist Republic in 1920, notes that “the alienation of lands of non-labor farms was not carried out in full, since it was not possible to apply the decrees of the Soviet government in local specific conditions” [12,39].

For the first time in historiography, Tatybaev touched upon the most important campaigns of the new government for the emancipation of women and Sovietization. Tatybaev, summarizing the vast historical material on the history of the transition of the peoples of Karakalpakstan “to socialism, bypassing the capitalist stage of development,” noted: at first the new state needed the services of confessional schools, but did not provide any support (material, legal, monetary) to them.

However, the monograph does not generalize the historical experience of the relationship between religion and politics, it does not show situations when the new society, the state (more precisely, the ruling circles) understood in their own way, interpreted differently and, most importantly, carried out practical actions in the sphere of the relationship between religion Islam and politics. That is why a thorough and objective study of these various interpretations and actions, so democratic and humane they were in fact, did not work in Tatybaev's monograph.

What has been said is not at all a reproach to the author, but rather a misfortune of the historiography of that time, which was closely connected with ideology.

After the publication of "Essays on the History of the Karakalpak Autonomous Soviet Socialist Republic," historians published generalizing monographs [13], which to one degree or another touched upon issues of the relationship between religion and politics. In 1974, a team of historians of Karakalpakstan published the two-volume "History of the Karakalpak Autonomous Soviet Socialist Republic" [14], in the second volume of which the problem under study was reflected in the sections "cultural revolution", "socio-political life", "women's emancipation". The historical contours of current problems in Soviet history were outlined.

A large group of historical literature devoted to the process of "women's emancipation" in Karakalpakstan emphasized that during the deployment of the Topylys (Khujum) campaign, the Muslim clergy opposed the policies of the Soviet government. In its activities against atheistic propaganda among the population, it resorted to preaching eternity and immutability, the family structure, and the position of women in everyday life [15].

In the monographs of T. I. Izimbetov, the question "Islam and modernity" is philosophically comprehended [16]. A scientist who follows modern world politics and observes the active role of the religious factor in it answers the questions: how tightly are religion and politics intertwined today, what are the objective and subjective foundations of this symbiosis, and how long will this coexistence last?

Having the same objects and carriers, religion and politics inevitably intersect; both history and modernity convincingly show that this is how it was and how it is. This idea runs through the monographs and sociological studies of Zh. B. Bazarbaev [17].

S. A. Abaev, in historical and philosophical terms, illuminated the political, socio-economic and ideological prerequisites for the invasion of atheism in Karakalpakstan, the specifics of the process of confrontation between Islam and anti-religious propaganda, and the activities of the organization of the Union of Militant Atheists in the republic [18].

Thus, an analysis of the political, historical and philosophical literature on the problem under study indicates that the specificity of research on our topic was dictated by the choice of research topics, especially dependent on official ideology.

The monograph by M. A. Karlybaev is innovative, restoring the picture of the existence and activities of Muslim mektebs and madrassas on the territory of Karakalpakstan on the eve of the Bolshevik coup [19].

M. Karlybaev tried to carry out similar work, turning, first of all, to archival sources that were not in demand at the time, extracting factual material from previous historiography, rethinking the historical processes in Karakalpakstan from the point of view of the ideology of national independence through the prism of the intertwining of politics and the religion of Islam.

The given list of ishans who lived in the Amudarya department at the beginning of the twentieth century is of great importance. Private education on the eve of the October coup in the Amu Darya department testified to the desire of the national intelligentsia for enlightenment.

In short, M. Karlybaev's research significantly changed our view of the Muslim education system and its role in the political and cultural sectors of life in Karakalpakstan at the beginning of the twentieth century.

The publication of Sh. Babashev's monograph on victims of repression in Karakalpakstan was of great importance [20]. The third chapter of the monograph specifically examines the fate of Muslim religious figures who were subjected to repression in the 20-50s of the twentieth century.

Having read the book by Sh. B. Babashev, we come to the conclusion that it is important to take a sober and realistic approach to the problem of the relationship between religion and politics, to avoid, when meeting in the sphere of politics with religion, any haste, and an unreasonable desire to quickly get rid of the annoying combination.

Thus, an analysis of the available literature on the problem indicates the presence of a rich complex of documentary sources, memoirs, and journalism. The relevance of studying the relationship between religion and politics is also due to the fact that the high appreciation of science is bizarrely combined with the wide spread of superstitions and modern myths.

References:

1. Досумов Я.М. Очерки по истории просвещения народов Средней Азии (по материалам ККАССР). Автореф. дис.... канд. ист. наук. Москва, 1939.
2. Авезов К., Варламов П. Кара-Калпакстан в десятилетие Казахстана. Алма-Ата, 1930; Досназаров А. Десятилетие Каракалпакской АССР // Революционный Восток, Москва. 1934.-№ 6.-С.173-180; Московкин Н. Каракалпакская АССР. Москва, 1932; Хозяйственное и культурное строительство Каракалпакской АССР. Турткуль, 1936.
3. Утепов К.Т. Великий Октябрь, становление и развитие исторической науки в Каракалпакстане. 1917-1987 гг.- Нукус: Каракалпакстан. 1988.
4. Шалекенов У.Х. Очерки по истории культуры Советской Кара-Калпакии (1917-1940 гг.). Нукус: Каракалпакгосиздат, 1960.
5. Панабергенов А. Культурная революция в Кара-Калпакии в 1917-1937 годах. Автореф. дисс. ... канд.ист.наук. Ташкент. 1958; Его же. Партийная организация Каракалпакии в борьбе за осуществление культурной революции (1917-1941 гг.). Нукус-Самарканд: Каракалпакия, 1969.
6. Панабергенов А. Партийная организация Каракалпакии в борьбе за осуществление культурной революции (1917-1941 гг.).
7. Панабергенов А. Партийная организация Каракалпакии в борьбе за осуществление культурной революции (1917-1941 гг.).
8. Досумов Я.М. Каракалпакстанда совет властынын орнатылыуы. Нукус: ККМБ, 1957; Его же. Победа Октябрьской революции в Каракалпакии. Ташкент: Изд-во АН УзССР, 1958; Его же. Очерки истории Кара-Калпакской АССР. 1917-1927.- Ташкент: Изд-во АН УзССР, 1960; Его же. Каракалпакия в годы гражданской войны. 1918-1920 гг. Нукус: Каракалпакстан. 1975.
9. Досумов Я.М. Очерки истории Кара-Калпакской АССР. 1917-1927.-Ташкент, 1960.
10. Очерки истории Каракалпакской АССР с древнейших времен до наших дней.. - Ташкент: Наука, 1963-1964.- Т.1-2.
11. Очерки истории Каракалпакской АССР...Т.2.
12. Татыбаев С.У. Исторический опыт построения социализма в Каракалпакии (1917-1941 гг.).- Нукус: Каракалпакия. 1971.
13. Каракалпакия в период победы социализма и коммунистического строительства.- Ташкент, 1969; Осуществление ленинской программы построения социализма в Каракалпакии.-Ташкент. 1971.
14. История Каракалпакской АССР. Т.2. От победы Великой Октябрьской социалистической революции до наших дней. Ташкент: Фан, 1974.
15. Биккулова З.М. Борьба партийной организации Каракалпакии за раскрепощение женщин и вовлечение их в социалистическое строительство. 1917-1929 гг. Автореф. дисс. ... канд. ист. наук. Ташкент, 1963; Калбаева Р.Ш. Женщины Советской Каракалпакии в коммунистическом строительстве.-Нукус, 1972; Кетебаева Б.К. Куяшлы Каракалпакстан хаял-кызлары. Нукус: Каракалпакстан. 1975; Алланиязов Т.К. Партийное руководство раскрепощением женщин Каракалпакии //Худжум - значит наступление.-Ташкент: Узбекистан. 1987.-С.90-106. Первый съезд женщин Узбекистана. Стеногр. отчет. Ташкент, 1959; Первый съезд женщин Каракалпакии. Стеногр. отчет. Нукус. 1961; Второй съезд женщин Узбекистана. Стеногр. отчет. Ташкент, 1962
16. Изимбетов Т. Ислам и современность.-Нукус, 1963; Его же. Дастурлер, урп-эдлетлерхэмтурмыс.- Нукус. 1975; Его же. Атеизм, дин хэм социаллык турмыс. Нукус. 1981; Его же. Ислам дининин генезисихэм эволюциясы. Нукус. 1985; Его же. Ислам дининин капитализм тусында модернизацияланыуы. Нукус. 1987; Его же. Ислам дининин социализм тусында модернизацияланыуынын себеplerихэм мэниси. Нукус. 1988;
17. Базарбаев Ж.Б. Секуляризация населения социалистической Каракалпакии. Нукус. 1973; Его же. Опыт социологического изучения атеизма и религии. Нукус. 1977.
18. Абаев С.А. Атеизм в Каракалпакстане: Опыт и проблемы. Ташкент, 1987.
19. Карлыбаев М. А. Медресе в Каракалпакии XIX - начала XX веков. Нукус: Билим, 2002.

20.Бабашев Ш. Каракалпакстан Республикасы тарихий хындагы сиясий курбанлар (Тарихий мыздын жазылмаган бетлери). Нокис: Каракалпакстан, 2003.

Rezyume: Ushbu maqolada o'rganilgan materiallar asosida Qoraqalpog'iston tarixshunosligida "Ishan-qal'a"ning o'rganish tarixi berilgan. Tarixshunoslikda birinchi marta hokimiyat va din o'rtasidagi munosabat masalasini Ya. M. Do'sumov ko'tardi. U. X. Shalekenov asarlarida mafkuraviy soyalarga qaramay, Qoraqalpog'istonda mustamlakachi hokimiyat va musulmon ruhoniylari o'rtasidagi qarama-qarshilik haqida muhim ma'lumotlar bor. A. Panabergenov asarlarida ham o'rganilayotgan muammoga oid ko'plab faktik materiallar mavjud. T. I. Izimbetovning monografiyalarida din va siyosat masalasi falsafiy tushuniladi. M. A. Karliboyevning monografiyasi innovatsion bo'lib, bolsheviklar to'ntarishi arafasida Qoraqalpog'iston hududida musulmon maktablari va madrasalarining mavjudligi va faoliyati manzarasini tiklaydi.

Резюме: В статье на основе изученных материалов дается история изучения «Ишанкалы» в историографии Каракалпакстана. Впервые в историографии вопрос о взаимоотношении власти и религии затрагивал Я.М.Досумов. Труды У. Х. Шалекенова несмотря на идеологические оттенки, содержит важные сведения о противостоянии колониальных властей и мусульманского духовенства в Каракалпакстане. В работах А. Панабергена также имеется большой фактологический материал по изучаемой проблеме. В монографиях Т. И. Изимбетова философски осмыслен вопрос религии и политики. Новаторским является монография М. А. Карлыбаева, восстановившая картину существования и деятельности, мусульманских мектебов и медресе на территории Каракалпакстана накануне большевистского переворота

Kalit so'zlar: tarix, tarixshunoslik, hokimiyat va din o'rtasidagi munosabatlar, mafkuraviy soylar, mustamlaka hokimiyatlari, musulmon ruhoniylari, musulmon maktab va madrasalari

Ключевые слова: история, историография, взаимоотношения власти и религии, идеологические оттенки, колониальные власти, мусульманское духовенство, мусульманские мектебы и медресе

UDK 347.4

THE PHENOMENON OF INTERNET MEMES IN MODERN LINGUISTIC DISCOURSE

Bekmuratova U.A., Yusupova A.A.

Karakalpak State University name after Berdakh

Summary: *As part of this study, Internet memes in Russian and English, published on the Internet and such social networks as Instagram and Reddit, were reviewed and analyzed. Based on the above, an attempt has been made to systematically describe Internet memes and their types.*

Key words: *Internet meme, creolized text, phenomenon, unit of cultural information, virtual.*

In the modern world, digital technologies have become an integral part of human life, and all information on the Internet spreads at incredible speed and covers a wide range of users. Thus, the Internet space is a very interesting platform for scientific research in the field of humanities, such as cultural studies, sociology, philosophy, as well as linguistics, and provides significant material for discussions. Thus, specialists show great interest in Internet communications, studying it in the context of various aspects. An interesting phenomenon that deserves attention are creolized comic Internet memes, and their use has become a kind of “trend”.

The term "meme" was first used by the British biologist R. Dawkins in 1976, when his book “The Selfish Gene” was published. From the Greek root “mīmēma” (“similarity”), R. Dawkins shortens the word to “meme”, similar to the word “gene”, which has a laconic sound, and defines this concept as a cultural unit transmitted from one person to another. As examples of memes, the scientist cites “melodies, ideas, buzzwords and expressions, ways of cooking stew or building arches ...”, as well as “... memes spread in the same sense, passing from one brain to another through a process that, in a broad sense, can be called imitation. If a scientist hears or read about an interesting idea, he communicates it to his colleagues and students. He mentions it in his articles and lectures. If an idea is picked up, it is said to spread, being transmitted from one brain to another.” [2]. From this we can conclude that memes existed long before we began to actively use them in communication.

Within the framework of modern Internet discourse, this topic began to be studied relatively recently. The most in-depth analysis and research of this topic was carried out by Shchurina Yu.V., Izgarsheva A.V. Kanashina S.V., Sheremetova V.S., etc. Thus, Shchurina Yu.V. defines a meme as a certain “idea, image, object of culture (usually intangible), which is adopted by many members of the community” [7].

In a broad sense, an Internet meme is a unit of cultural information that is distributed directly on the Internet and most often has a communicative function. Internet memes can be words, catchphrases, fragments of songs, melodies, films, games, pictures, individual characters or real personalities, however, anything that can be “replicated” and distributed virtually. By their nature, Internet memes serve to enhance expression and more accurately convey the idea in digital communication; they are often comic in nature and are a unique reaction to sociocultural phenomena.

At first glance, it seems that one of the main properties of this phenomenon is “virality,” but it is worth distinguishing a meme from viral content, since a virus spreads unchanged, while a meme tends to change depending on the situation and the style of the meme creator. For example, one of the sensational TV shows of Russian cinema in 2023, «Слово пацана. Кровь на асфальте» (The Boy’s Word. Blood on the Asphalt,) the name of the show, individual phrases of the characters and fragments of which have become a meme. We can observe how users change the name of the series at the lexical and grammatical level to describe their life situation in such options as «Слово малыша. Молоко на асфальте» (*The baby’s word. Milk on the asphalt*)

(young mothers on maternity leave); «Слово котана. Корм на асфальте» (*The word of the cat. Food on the asphalt*) (cat lovers), etc.

A linguistic approach to the study of this phenomenon involves defining a meme as a creolized text [4], consisting of two components, the first of which is a verbal (writing, speech), and the second a non-verbal (non-linguistic sign system) sign. The information “capacity” of non-verbal means in the structure of the text is often higher than that of verbal ones [1]. This is due to the fact that the visual-nonverbal component is perceived more actively than the textual-verbal one, since the iconic sign (image), often, compared to the text, is larger in both semantic and visual terms. In particular, this concept in the linguistic environment is used along with such synonymous designations as semiotically complicated texts, isoverbal complex and isoverb, polycode texts, video verbal texts. The functioning mechanisms of an Internet meme as a cultural and linguistic phenomenon differ from traditional polycode texts [3]. S. A. Shomova in her work defines the features of Internet memes that distinguish them:

- two-part structure of an Internet meme;
- the ability of an Internet meme to replicate in the media space;
- the predominantly ironic nature of most Internet memes;
- intertextuality;
- fundamental interactivity of the Internet meme;
- the close and not fully studied connection of the Internet meme with the collective unconscious: “a meme is an effective way to simultaneously break through the protective barrier in the minds of a large number of people” [6];
- the dual nature of the Internet meme [6].

Despite the fact that most memes are entertaining in nature, most of them, especially satirical ones, embody the so-called “philosophy of problems” that resonate with people: family, work, financial issues, etc. It is due to its comic effect that a particular meme becomes popular on the Internet. As an example, the most common Internet memes are presented below in Figures 1 and 2.



Figure 1. Meme “Screaming girl with a cat”.

Currently, the number of Internet memes is so large that some memes are very quickly forgotten and disappear, these are the so-called “one-day memes,” and there are also memes that do not lose their functionality for years. They tend to be reborn a new and acquire new meaning each time. “Screaming girl with a cat” is one of these Internet memes. This meme has been

considered popular since 2019 and “has moved from the category of an ordinary picture to the category of art,” users say. The specificity of the meme is that this “argue” can be imposed and adapted to any situation and cultural characteristics. The use of play on words (in Russian in this case) is often observed, as shown in Figure 1: the girl perceives the name of the hair salon as «Карамель» (*Caramel*) and desperately asserts this, and the cat, in turn, with an imperturbable look, perceives the word as «Каратель» (*Punisher*). As we can see, the controversy is caused by the grapheme T, which is printed in a lowercase letter and is misleading in that it has the same shape as the Latin small letter M.

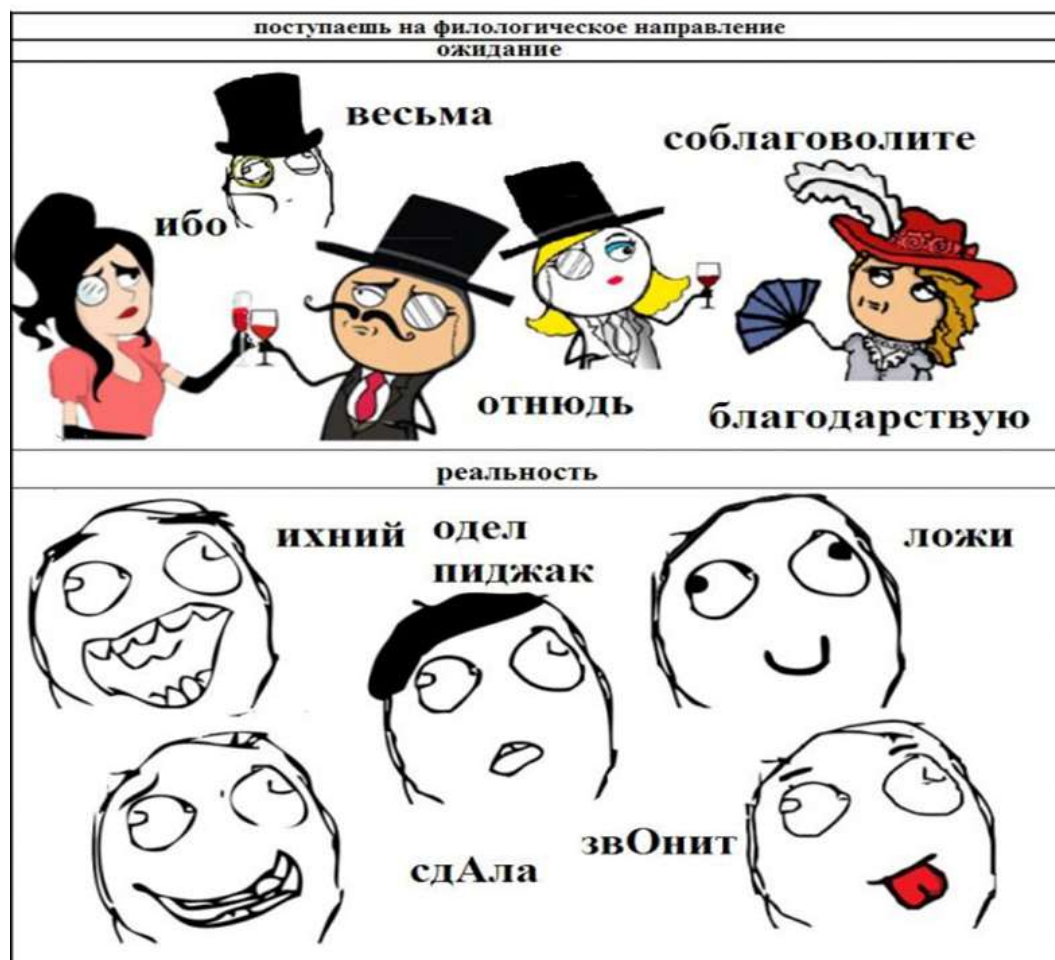


Figure 2. Memes from the series “Expectation – Reality”.

Considering memes as one of the main types of units of cultural information, researchers distinguish several types of Internet memes that are particularly popular. These include memes that contain the idea of “expectation - reality”. In parallel with this name, there are such options as “How I think I look... – How I actually look...” “How I look in my thoughts... – How I really look...”, “What was promised... – What showed up...”, “Before – after”, “How it looks – how it feels” etc. Various comic plots are played out according to this template. For example, Figure 2 describes a situation of expectation and reality in the form of a FFFFUUU comic, where in the plot we see that the creator of the meme expects that from entering the philological department a high style of speech among the people around him, with the use of words such as for example, *ибо* (*for*), *весьма* (*very*), *соблаговолите* (*if you please*), *отнюдь* (*by no means*) and *благодарствую* (*thank you*), but in reality we see how the norms of the literary language are violated with the use of vernacular *ихний* (norm – *их*) - theirs, *ложи* (norm - *клади*) - put, *одел* (norm - *надел*) *пиджак* – put on a jacket, and violation of stressed positions in the words *сдала* (norm - *сдала́*) - passed, *звонит* (norm - *звони́т*) – calls.

Such memes carry in their content one of the artistic techniques “the effect of disappointed expectations”, which is used both in literature, in cinema and in Internet memes. From a psychological point of view, this effect contains a very significant basis: a person is adapted to make predictions about future events that are based on past experience, constancy and repeatability. This “advanced reflection of reality” is characteristic of human consciousness. When the sequence of events is disrupted, that is, the “expected” suddenly becomes “unexpected,” special interest is aroused and the psychological effect of the plot increases. In memes, this scenario is not reproduced through a long narrative and a full development of the plot, similar to films and books, but the beginning and resolution of the plot are located on the same plane. This is what contains the comic effect. In addition to the above, this type of Internet meme contains another of the strongest literary devices of contrast. Thus, due to the visualization of two oppositional scenes in the form of two pictures, the comic effect is fully revealed.

According to their target audience, memes can be intended for both everyone and a specific circle of people. According to this criterion, memes are distinguished as universal and separate. This classification is proposed by Saidova Z.E., meaning by universal memes those that can be understood by a speaker of any language and culture, as well as a representative of any age or social group. Examples of such memes include “Pepe the Frog”, “Think about it”, “Troll face”, etc.) Separate memes include the so-called narrowly targeted and situational memes. Such memes lend themselves to understanding and evaluation of certain groups of people, such as professional (memes for philologists, linguists, teachers, doctors), social (memes about students) and cultural affiliation, etc. Speaking about situational memes, we emphasize those memes that arose as a reaction for a certain cultural and historical event and did not receive a global resonance and became familiar to a narrow circle of people, residents of a particular geographical region, etc. [5].

Also, according to the classification of Shchurina Yu.V., Internet memes can be divided into the following categories [7]:

Text meme: a word or phrase. This type of meme contains a word or phrase that was left by users in the form of comments under a post or expressed by “media” persons (*Махаться будешь со мной?* (Are you going to fight with me?); *This awkward moment when...*; «*Think about it*» ...*Будь как Петя!*; (*Be like Petya!*) etc.). Also can be distinguished so-called «*Язык падонков/Падонкаффский*» (Bastard Language/Padonkaffsky) or «*Олбанский язык*» (Albany Language), which is Internet slang. Here there is a deliberate violation of the spelling norms of the Russian language, but the phonetically almost correct principle of spelling is preserved. These memes are considered one of the earliest memes in the Russian-speaking Internet environment. The table below shows examples. On the left are words from this slang, in the middle - the grammatically correct spelling of words in Russian, on the right - translation of words into English:

<i>Превед</i>	Привет	Hi
<i>Медвед</i>	Медведь	Bear
<i>Дратути!</i>	Здравствуйте!	Hello
<i>Узбагойся</i>	Успокойся	Calm down
<i>Красавчег</i>	Красавчик	Handsome
<i>Штои</i>	Что ж	Well
<i>Аффтар жжот</i>	Автор жжёт	The author is burning

Meme picture. Images of “cute cats”, individual characters expressing one or another emotion, most often serve as the basis for this format of memes (*Bender the Cat; Doge; Harold Hiding the Pain; Pepe the Frog; Ждун (Zhduun); Stoned Fox* etc.). Meme pictures also include “macros” – reaction pictures that are stock photographs, stills from films, and gifs. It should be noted that the plot of macros carries certain semantics at the non-verbal level. So, for example, one can understand Harold's reaction, with a forced smile, but hiding the pain, without any verbal

component. Such pictures are often used to express one's attitude towards a situation. Currently, macros are widely used as “stickers” in the Telegram messenger.

Video meme. Basically, video memes are posted on user pages and become widespread during online communication. With the advent of Reels on Instagram, Shorts on YouTube and Tik Tok this type of Internet meme has become especially popular. This type of meme is different in that it can be replayed for viewing (*Nicolas Cage and Pedro Pascal in the car; Black cat listens; Surprise, surprise; Children sing Turn Around; Crunchy cat; Directed by Robert B. Weide*, etc.). It's not uncommon for memes to move from the category of video to the category of pictures. For example, Bender the Cat, a pet that meows and nods at the same time, in the original video persistently asks its owner for food. Initially considered a video meme, but it can also be found on the Internet in jpg format.

A creolized meme consisting of a text and a visual part. Being a type of creolized text, this type of meme is especially interesting. They are based on comic Internet genres such as comics, advice, demotivators, etc.[8]. For example, *Филологическая дева (Philological Maiden); Наташ, ты спишь? (Natasha, are you sleeping?); Expectation - reality; Жаль, что не все поймут... (It's a pity that not everyone will understand); «Вы продоёте рыбов?» (“Will you sell the fish?”); How do you like that, Elon Musk?* etc.)



Figure 3. Meme “How do you like it, Elon Musk?” (the inscription “electronic journal” on a paper journal)

Figure 3 shows one of the famous Internet memes, which was invented by users of the Russian-speaking Internet «*Как тебе такое, Илон Маск?*» (*How do you like that, Elon Musk?*), in the form of a demotivator. The meaning of the meme is to demonstrate a so-called “life hack” or a strange invention, combined with the appeal “How do you like that, Elon Musk?”, as if the creator of the meme is challenging the American engineer Elon Musk. The comic effect is caused by the absurdity of the inventions.

It should be emphasized that Internet memes are one of the widely used components in online communication. However, quite often memes leak from digital format into live speech, attracting the attention of linguistic researchers. Thus, researchers define Internet memes as one of the types of speech genres, which are characterized by a humorous nature, brevity and at the same time capacity of content, two-part structure and the ability to change in the media space. Taking

into account all these features, we can assume that the phenomenon of Internet memes will be the object of study of both individual and related sciences.

References:

1. Анисимова Е. Е. Лингвистика текста и межкультурная коммуникация (на материале креолизованных текстов). – М.: Academia, 2003. – 128 с
2. Докинз Р. Эгоистичный ген. М. : Мир, 1993
3. Изгаршева А. В. Интернет-мем как медиатекст: лингвистический аспект // Вестник Московского государственного областного университета. Серия: Лингвистика. 2020. № 5. С. 86–101. DOI: 10.18384/2310-712X-2020-5-86-101
4. Лысенко Е.Н. Интернет-мемы в коммуникации молодежи // Вестник СПбГУ. Социология. 2017. Т. 10. Вып. 4. С. 410–424. <https://doi.org/10.21638/11701/spbu12.2017.403>
5. Саидова З.Э. Мем как универсальный феномен Интернет-культуры (на материале русского, английского и чеченского языков) // Филологические науки. Вопросы теории и практики (входит в перечень ВАК). Тамбов: Грамота, 2017. № 1. Ч. 2. С. 175-178.
6. Шомова С. А. Мемы как они есть: учеб. пособие. М.: Аспект Пресс, 2018. 136 с.
7. Щурина Ю.В. Интернет-мемы как феномен интернет-коммуникации // Научный диалог. 2012. Вып. №3: Филология. С. 160–172
8. Щурина Ю.В. Интернет-мемы: Проблема типологии // Вестник Череповецкого государственного университета 2014 • № 6: Филологические науки. С. 85-89

Rezyume: *Ushbu tadqiqot doirasida internetda, Instagram va Reddit kabi ijtimoiy tarmoqlarda chop etilgan rus va ingliz tillarida internet-memlar ko'rib chiqildi va tahlil qilindi. Yuqoridagilarga asoslanib, Internet memlari va ularning turlarini tizimli ravishda tavsiflashga harakat qilindi.*

Резюме: *В рамках данного исследования были рассмотрены и проанализированы Интернет-мемы на русском и на английском языках, опубликованных на просторах «рунета» и таких социальных сетей как Instagram и Reddit. Опираясь на вышеуказанное, предпринята попытка системного описания Интернет-мемов и их видов.*

Kalit so'zlar: *Internet mem, kreolizatsiyalangan matn, fenomen, madaniy axborot birligi, virtual.*

Ключевые слова: *Интернет-мем, креолизованный текст, феномен, единица культурной информации, виртуальный.*

THE BASIC PROBLEMS OF TRANSLATION

Qalniyazova R.I.

Law college of the Republic of Karakalpakstan

Summary: *The aim of professional translation is to acquaint the reader with the original work of fiction; educational translation as a linguistic subject at the special institute and at school is one of the methods of more conscious and profound study of the foreign language by the way of showing up in the English text lexical, grammar and stylistic peculiarities of the English language. Before speaking of the basic principles of translating process the concept of the term “faithfulness of translation” should be determined.*

Key words: *translation, lexical meaning, synonyms, international words, neologisms, antonymic translation.*

The difference between educational and professional translation is as follows:

The translation is considered to be faithful when the content of the book, its stylistic peculiarities are rendered by the linguistic means of the native language. It means that very often we have to use such linguistic categories of the native language, which formally don't coincide with those of the English language but have the same emotional and psychological effect on the Russian reader.

The process of educational translation presents 4 stages:

First of all the text should be thoroughly understood. It means that the student should be acquainted with the whole book, should have some knowledge of the history of literature and mode of life of the people from whose language the translation is being done. The student should realize the stylistic functions of lexical and grammar and phonetic phenomena which are used to express the content of the text. Then the work on the choice of corresponding means of expression in the native language should be done.

The last stage is a work on the Russian or Uzbek text.

The choice of the word is one of the most difficult problems of translation, which is closely connected with the following problems.

THE LOGICAL MEANING OF THE WORD.

Any grammatical phenomena or stylistic peculiarities do not always coincide with those of the foreign language as well as the meaning of these separate words, which are lexical equivalents. The main meaning of the English word “table” coincides with that of the Russian language. But the Russian “стол” has one additional meaning: “питание” “пансион” means while in English we have the special words to express the idea: “board”, “room and board”. At the same time English “table” has the additional meaning to “таблица”. Table стол board таблица питание room and board пансион

INDEPENDENT AND CONNECTED MEANING OF WORD.

The logical meaning of the word may be both independent and connected with other words. The latter can be understood in the given combination of words.

A color bar - цветной /ярко окрашенный/ барьер was seen in the distance.

There exist a color bar (расовая дискриминация) in the South Africa.

EMOTIVE MEANING OF THE WORD

A lot of words may acquire emotive meaning and the same word in different sentences may be rendered by different words.

China is a large country (страна)

We are ready to die for our country (родина)

While translating one should take into consideration on that in different languages the words which are lexical equivalent smatteries quite different associations.

For Russians “зима” means snow and frost, for Englishmen – fog and cold wind.

“Она ходит павой перед ним”- Дело Артамоновых.

For Russians “пава” arouses the idea of something beautiful, stately, majestic, proud /a sama - то величава, выступает будто павы -Пушкин /.

For Englishmen “peahen” has nothing incommon with the sea sociations. That’s why it’s quite correct to translate the sentence as follows:

“She poses proudly before him / to pose - позировать/

THE MEANING OF THE WORD AND ITS USE.

The meaning of the word shouldn’t be mixed with its use. Sometimes even a monosemantic word canbe combined with a lot of words and is rendered in Russian by different words:

A young man- Молодой человек

A young child- Маленький ребёнок

Young in a crime- Неопытный преступник

The night is young - Началась ночь

Department of justice- Министерство юстиции

Ministry of defense- Министерство Обороны

Board of trade- Министерство торговли

Admiralty- Морское министерство

the first Lord of Admiralty- Военно- Морской министр

Chancellor -Министр финансов

War office- Военное Министерство

A bad headache - Сильная головная боль

A bad mistake- Грубая ошибка

A bad weather- Плохая погода

A bad debt -Невозвращённый долг

A bad accident- Тяжёлый / несчастный/ случай

A bad wound -Тяжёлая рана

CONTEXT

The word in the sentence may acquire so-called contextual meaning. It may be not constant, as a rule we can’t find the contextual meaning of the word in the dictionary. But it always has something in common with the main meaning of the word.

“In the atomic war common and children will be first hostage.” The dictionary gives only one meaning of the given word “заложник”, but in the given sentence the word acquires a new meaning: “жертва”. It’s a great difficulty to find out the contextual meaning of the word as the dictionary only gives hint show to search for the necessary word in our native town language.

The majority of the words are known to be polysemantic and the context becomes especially important while translating polysemantic words as translating in different languages is quite different.

While translating one should remember hemay use the words not included in the dictionary because it’s impossible to include in the dictionary all the correct meanings of the word, which it may acquire in the context.

“He was developing grammatical nerves” - У него развивалось грамматическое чутьё.

We can find a lot of meanings of the word “nerves” “нервы, сила, мужество, хладнокровие, дерзость, нахальство” but in our text It is rendered as “чутьё”.

The student are to make out that thoughts, reflections should be translated not by separate words. So it’s quite possible and natural either to introduce some words and even:

I lit my candle at the watchman’s/ Dickens/-Н зажёл свою свечу от фонаря ночного сторожа.

Sentences or omit them if one can manage without them.

References:

1. Barkhudarov L.S. Language and Translation. M. 1975.

2. Shvaytser A.D. Translation and Linguistics. M.1973.

3. Levitskaya T.R, Fiterman A.M. The problems of translation on the material of the contemporary English language. M.1974.

Rezyume: Professional tarjimaning maqsadi o'quvchini badiiy adabiyotning asl asari bilan tanishtirish; maxsus institut va maktabda tilshunoslik predmeti sifatida o'quv tarjimasi ingliz tili matnida ingliz tilining leksik, grammatik va uslubiy xususiyatlarini namoyon etish yo'li bilan chet tilini yanada ongli va chuqurroq o'rganish usullaridan biridir. Tarjima jarayonining asosiy tamoyillari haqida gapirishdan oldin "tarjimaning sodiqligi" atamasi tushunchasini aniqlash kerak.

Резюме: Цель профессионального перевода – познакомить читателя с оригинальным художественным произведением; Учебный перевод как лингвистический предмет в специальном институте и в школе является одним из методов более осознанного и углубленного изучения иностранного языка путем выявления в английском тексте лексических, грамматических и стилистических особенностей английского языка. Прежде чем говорить об основных принципах переводческого процесса, следует определить понятие термина «правдивость перевода».

Kalit so'zlar: tarjima, leksik ma'no, sinonimlar, xalqaro so'zlar, neologizmlar, antonimik tarjima .

Ключевые слова: перевод, лексическое значение, синонимы, международные слова, неологизмы, антонимический перевод.

FEATURES OF FRAUD AND PROPERTY DAMAGE BY DECEPTION OR BREACH OF TRUST

Nuratdinova I.M.

Republic Of Karakalpakstan legal technical " mass legal Sciences "
head of Department

Summary: *It is related to the need to understand the provision of property damage in the Criminal Code of the Republic of Uzbekistan. Article 170 of the Criminal Code of the Republic of Uzbekistan and improving the practice of its application. Political, social, economic and legal reforms implemented in the Republic of Uzbekistan are aimed at stabilizing life in society. All historical experience shows that the implementation of social changes is always associated with an increase in crime, which is naturally accompanied by the need to develop and apply appropriate measures to combat this phenomenon.*

Key words: *assignment; mastering; property crimes; the subject of the crime; criminal responsibility, robbery, cheating.*

As social relations develop, the system of relations in society becomes more complex and manifests itself in different ways. Social relations, in turn, arise in social, economic, political, cultural and educational spheres and connect the nature of people. Social relations directly affect the worldview and culture of thinking of a person, while economic relations are considered a material guarantee of human existence. As economic relations develop, the way of life, standard of living, and the power of the state in various aspects develop and improve. Therefore, it is impossible to implement many tasks and functions of the state without developing economic relations. Therefore, countries define the legal norms that protect the basis of the economy among the most basic norms in their legislation. Among them, Articles 53-55 of the Constitution of the Republic of Uzbekistan stipulate the equality of forms of property, the inviolability of private property, the owner's use of his property according to his will, and the fact that forms of property are under state protection. The concept of inviolability of property is also expressed in the 12th table law of Ancient Rome.² In the 17th article of the Declaration "On the Rights of Man and Citizen" adopted in France in 1789, "property is an inviolable and sacred right, from which no one can be deprived, except when clearly required by a legally established public necessity, and this right can be limited or deprived under the condition of fair and prior compensation.

Each state, giving a direct legal meaning to the equality of property forms, takes a sharp fight against any socially dangerous act directed against it. Robbery crimes directed against property are one of the most dangerous aspects directed against the economic basis of society. Therefore, in many countries, including our republic, strict measures are taken against the crime of robbery against property, especially the crime of misappropriation of someone else's property or robbery through *rastrata*. In this regard, our president Sh.M. Mirziyoyev's opinion that "...another task before us is to eliminate all the obstacles and restrictions that hinder the development of private property and entrepreneurship" ¹³ is extremely reasonable.

The Criminal Code of the Republic of Uzbekistan, which was adopted in 1994 and entered into force on April 1, 1995, differs significantly from the previous Criminal Code. The latter is explained by the need to re-evaluate the extent of criminalization and punishment of acts, taking into account these changes in society, as well as the desire to increase the effectiveness of criminal-legal means of combating crime. The structure and dynamics of crimes in the pre-reform period differ sharply in terms of level, and the task of ensuring reliable protection of property rights is now included among the national priorities. In our opinion, it is necessary to prove to the citizens of the Republic of Uzbekistan that the current state power is capable of reliably ensuring their property security, based on the interests of the democratic changes being implemented.

The Constitution of the Republic of Uzbekistan strengthens and guarantees equal protection of private and state forms of property. This provision is reflected in the Civil Code of the Republic of Uzbekistan. The novelties of this legislation allow owners to use their property for economic activities not prohibited by law, oblige law enforcement agencies to take the measures provided for by law to effectively protect all forms of property from criminal attacks.

Currently, malicious and violent crimes against property are increasing sharply in the criminal structure, one of them is "causing property damage by deception or abuse of trust" (Article 170 of the Criminal Code of the Republic of Uzbekistan).

The direct object of the crime is another's property, that is, property relations arising from various contractual and other obligations. Regardless of the form of ownership, any property can be the object of a crime.

The object of the crime can be any property, regardless of the form of property.

From the objective point of view, the crime consists of causing considerable damage to the owner by deception or abuse of trust, without the appearance of robbery.

Fraud means the owner of the property or the person entrusted with the property willingly and willingly giving it to the fraudster, misrepresentation of any fact by the guilty person in order to mislead the victim, or concealing the truth or knowingly providing false information. understood. It should be noted that unless it is proved that any misrepresentation or concealment of the truth was done intentionally and there is no method of deception, the act cannot be considered as fraud. The crime specified in this article is similar to fraud in a number of features. In committing the crime under analysis, the offender uses deception and abuse of trust to achieve his goal, as in the crime of fraud, but differs from fraud in the mechanism by which the offender illegally obtains property benefits. If in fraud, as in other forms of robbery, the acquisition of property from the owner and its illegal transfer to the benefit of the perpetrator or other persons is committed, property is not acquired in the case of property damage by deception or breach of trust. . In this crime, there is no sign of looting, such as taking the property of one or another owner from his personal fund, that is, there is no decrease in the available mass of property belonging to the owner or in the hands of another legal owner. Usually, the guilty person obtains the property benefit not by seizing another's property, but by not paying the required amount.

The crime under analysis is material in nature and is considered to have been completed from the moment of significant damage to the owner or owner of the property.

In this case, it should be noted that "causing material damage" is an evaluative concept. The investigator, investigator, as well as the judge must decide the amount and size of the damage in each specific case.

Substantial damages mean damages ranging from thirty to one hundred times the minimum wage.

If damage is caused in the amount of less than thirty times the minimum monthly salary, the criminal structure provided for in Article 170 of the Criminal Code does not exist.

From the subjective side, the crime is committed knowingly and with the right intention for the purpose of greed.

The culprit realizes that he is deceiving the owner or the legal owner of the property by giving false information or hiding existing evidence, and he sees that the victim will suffer property damage through this act and wants to cause this damage.

According to Article 170, Part 1 of the Criminal Code, the subject of a crime is a person who has reached the age of 16 and is not considered an official or materially responsible person.

For the commission of this crime, the official shall be held responsible for crimes against the management order. When officials commit criminal acts using their official position, their actions are qualified as abuse of official position or bribery.

According to the structure of the legislation, the composition of the crime is material. The act is considered complete from the moment of damage.

It is necessary to distinguish between fraud and breach of trust, because in each individual case it is necessary to determine what method the culprit chose to cause property damage. It largely determines the level of social danger of the committed crime and is important for the individualization of punishment.

References:

1. Sh.M. Mirziyoyev "We will resolutely continue the path of national development and raise it to a new level" 1-T Tashkent "Uzbekistan" 2017. p. 68;
2. Constitution of the Republic of Uzbekistan -T. "Uzbekistan", 2023// [http:// constitution.uz/uz](http://constitution.uz/uz);
3. Criminal Procedure Code of the Republic of Uzbekistan// <https://www.lex.uz/acts/111460>;
4. Criminal Code of the Republic of Uzbekistan // [https:// www.lex.uz/acts/111453](https://www.lex.uz/acts/111453);
5. Civil Code of the Republic of Uzbekistan. T.: "Justice"-2018;
6. Code of Administrative Responsibility of the Republic of Uzbekistan. T.: "Justice"-2018;
7. M.H. Rustamboyev. Criminal law (General part). T.: "Teacher"-2003;
8. M.H. Rustamboyev. Criminal law (Special part). T.: "Teacher"-2003.

Rezyume: *O'zbekiston Respublikasi Jinoyat kodeksidagi mulkiy zarar etkazish qoidasini tushunish zarurati bilan bog'liq. O'zbekiston Respublikasi Jinoyat kodeksining 170-moddasi va uni qo'llash amaliyotini takomillashtirish. O'zbekiston Respublikasida amalga oshirilayotgan siyosiy, ijtimoiy, iqtisodiy va huquqiy islohotlar jamiyatda hayotni barqarorlashtirishga qaratilgan. Barcha tarixiy tajriba shuni ko'rsatadiki, ijtimoiy o'zgarishlarni amalga oshirish har doim jinoyatchilikning ko'payishi bilan bog'liq bo'lib, bu tabiiy ravishda ushbu hodisaga qarshi kurashish uchun tegishli choralarni ishlab chiqish va qo'llash zarurati bilan birga keladi.*

Резюме: *Это связано с необходимостью понимания положения имущественного вреда в Уголовном кодексе Республики Узбекистан. Статья 170 УК Республики Узбекистан и совершенствование практики ее применения. Политические, социальные, экономические и правовые реформы, реализуемые в Республике Узбекистан, направлены на стабилизацию жизни в обществе. Весь исторический опыт показывает, что осуществление социальных изменений всегда связано с ростом преступности, что, естественно, сопровождается необходимостью разработки и применения соответствующих мер борьбы с этим явлением.*

Kalit so'zlar: *vazifa; o'zlashtirish; mulkiy jinoyatlar; jinoyat predmeti; jinoiy javobgarlik, talonchilik, firibgarlik.*

Ключевые слова: *задание; мастеринг; преступления против собственности; предмет преступления; уголовная ответственность, грабеж, мошенничество.*

PEDAGOGICAL CONDITIONS FOR DEVELOPING STUDENTS' COMMUNICATIVE SKILLS USING RHETORIC

Pakhratdinov S.

Karakalpak State university named after Berdakh

Summary: In this article, the formation of students' communicative skills with the help of rhetoric, the materials used in creative modern methods and the activities of the teacher are analyzed from the framework of modern pedagogical science. The role and role of students' communicative skills and rhetoric in providing quality education has been extensively analyzed.

Key words: *Reform, education, rhetoric, system, competence, development, technology, convention, model, methodology, e-learning, student, communicative.*

A number of positive changes are taking place in the life of the society in the current conditions of global civilizational development. In the world, modern technologies of developing communicative competence of students of higher educational institutions based on rhetorical tools are being applied to the educational process. Systematic work is being carried out on the implementation of innovative directions of competitive personnel training based on the competence approach, variable forms of teaching, mechanisms for the development of didactic-methodical training of students' communicative competences based on rhetorical tools. The conducted theoretical research made it possible to scientifically reveal the essence and content of integrative-communicative training in students. In this regard, important theoretical and practical tasks related to pedagogical conditions were determined to develop communicative readiness of a young person for the most successful and effective work as a future specialist and to ensure the full implementation of rhetorical provision in the future.

In the concept of "pedagogical conditions", we took into account the existence of objective and subjective factors necessary to ensure the most effective functioning of all components of the educational process at the university. The scientific works of V.I.Andreev, E.V.Bondarevskaya, V.G.Gayfullin, A.V.Mudrik, V.A.Slastenin and others are related to the problems of developing conditions and tools that ensure the professional development and self-development of a person dedicated.

Analyzing the above, as well as other works, we tried to determine the main pedagogical conditions for the professional and personal development of university students, taking into account the whole set of conceptual pedagogical foundations:

1. Difficulty, complexity of tasks and tasks, as well as the gradual growth of the problem, in this regard, organizing such activities of students to the limit of their strength and abilities;
2. The use of active methods and forms of education that fill the educational process with personal meaning for each student and thereby "lay the groundwork" for his self-development;
3. Constantly actualizing the problem of individual development of students, realizing their direct participation in the general educational process and later revealing to him various solutions specific to this process;
4. Creating conditions for success in the course of students' activities;
5. Show the importance of the type of activity in which a person seeks to understand himself as much as possible;
6. to provide an educational space dominated by the joint creativity and dialogic interaction of the subjects of the educational process;
7. Development of the professional mentality of a young future specialist;
8. Provide pedagogical support to students in understanding the essence of communicative competence and the methods of its implementation;
9. Provide a special approach to each student, taking into account his individual abilities, by determining the professional growth prospects;

10. Timely provision of psychological, as well as scientific and methodological support in the process of professional and personal development of students;

11. Provision of timely psychological, as well as scientific and methodological support in the process of professional and personal development of students;

12. Developing a psychological diagnosis of the future specialist's readiness for professional and communicative activities in the chosen specialty;

13. Organization of personal communication activities for the entire period of study at a higher education institution;

Development of the student's reflexive-evaluation abilities and skills.

Participating in one or another creative activity, a person gradually develops an awareness of himself as an intense activity, a transforming system and, in general, as an innovator in the process of realizing his "self-concept". The democratization and modernization of the educational process is understood by us as a dual factor of educating a spiritually aspiring and active person in self-development, constantly seeking to understand his professional and social self-situation. In this regard, in addition to the above-mentioned pedagogical conditions, it is appropriate to take into account the following:

acceptance of readiness for professional communicative activity as a priority direction and criterion of the effectiveness of the educational process at the university;

- the use of educational technologies related to the increasingly complex system of tasks, situations, trainings that determine the experience of communicative activity, the formation of its reflexive and self-educating components;

- introduction of a system of concepts and concepts aimed at reflection of future specialists in the sphere of professional qualities of a person, self-design, self-development into the content of training;

-to reveal the specific features of the content and procedural features of the preparation of the future specialist at each stage of the formation of his communicative competence;

- individualization and adaptation of educational technologies at all stages of higher education based on the diagnosis of students' communicative potential;

- to give the student a holistic idea of the future profession and its role, as well as updating personal functions by young people in connection with the specific requirements of professional activity;

- creating educational situations that make the development of communicative competence relevant.

This pedagogical activity can be expressed as follows:

a) presentation of material in the form of issues that are important for the student;

b) actualization of conflicts between professional activity and the possibilities and requirements of the activity imposed on the individual among students;

c) identification of professionally important personal characteristics and functions, encouraging the processes of self-evaluation, self-analysis and self-design among students;

d) creating conditions for subject-subject relations for students.

From the above set of pedagogical conditions determined on the basis of the theoretical analysis of the available psychological and pedagogical literature, we had to decide and choose the one that fully corresponds to the features and characteristics of the organization of the educational process at the university. We can make a decision about choosing a strategic direction for the development of communicative competence in young people only by studying the content of the necessary conditions for effective pedagogical management of this process and the ways of optimizing these conditions.

The experience of theoretical research and our practice and observations on the development of the student's personality in the educational process of experimental fields allowed us to be sure of the possibility of pedagogical management of the process of developing students' communicative competence. Defining these conditions, in our opinion, means finding integrated solutions to the

problem of educating future specialists in a creative humanistic attitude to professional activity, in which it is necessary to determine consistent pedagogical conditions for development, to determine communicative competences among students, as well as to confirm and describe the conformity of the specified conditions.

We are convinced that a person's attitude to his life (including professional life) is primarily based on the reality of his ideas about himself and the world around him. These ideas largely depend on the personal direction of the young person. As one of the most important didactic conditions for the formation of students' communicative competence, the results of our research show that it is their readiness to perform their professional activities at a new, high-quality level.

References:

1. Andreev V.I. Dialektika vospitaniya i samovospitaniya tvorcheskoy lichnosti - Izdatelstvo Kazanskogo universiteta, 1988. - 236 p.
2. Andreev V.I. Business rhetoric: practical course of public speaking and oratorical mastership. - M., 1995. - 206 p.
3. Demidova M.G. Podgotovka studentov pedagogicheskogo vuza k informatsionno - kommunikativnomu vzaimodeystviyu s uchashchimisya. - Diss. ... sugar ped. science - Odessa, 1992.
4. Baranov SP. Sushchnost procesa obucheniya. - M., 1981. - 143 p.
5. Benikov D.S. O nauchnykh osnovakh oratorskogo iskusstva. - Kiev, 1977.
6. Abdiev B.T. Development of students' communicative competence in quality education. Science and Society of Nukus State Pedagogical Institute named after Ajiniyaz.- Nukus: NDPI 2023-y #2 3-4

Rezyume: *Ushbu maqolada talabalarning kommunikativ malakalarini ritorika yordamida shakllantirish, va kreativ zamonaviy uslublarda qullanilgan materiallarning va ta'lim beruvchining faoliyati zamonaviy pedagogik fan doirasidan tahlil qilingan. Sifatli ta'lim berishda talabalarda kommunikativ malakalari hamda ritorikaning o'rni va roli to'g'risida keng tahlil etilgan.*

Резюме: *В данной статье в рамках современной педагогической науки анализируется формирование коммуникативных умений учащихся с помощью риторики, материалов, используемых в творческих современных методах и деятельности учителя. Всесторонне проанализирована роль и роль коммуникативных навыков и риторики учащихся в обеспечении качественного образования.*

Kalit so'zlar: *Islohot, ta'lim, ritorika tizim, kompetentlik, rivojlantirish, texnologiya, konventsia, ijodiy, model, metodika, talaba, kommunikativ.*

Ключевые слова: *Реформа, образование, риторика система, компетенция, развитие, технология, конвенция, модель, методика, студент, коммуникативный.*

**INNOVATIVE APPROACHES TO ENHANCE TEACHING EFFECTIVENESS: A
COMPREHENSIVE REVIEW**

Xojaxmetova S.

Law college of the Republic of Karakalpakstan

***Summary:** This scientific article explores various innovative approaches aimed at enhancing the effectiveness of teaching methodologies. As education evolves in response to the dynamic needs of learners and advances in technology, educators are continually seeking new strategies to engage students and promote meaningful learning outcomes. This comprehensive review discusses evidence-based practices and emerging trends in teaching, emphasizing the importance of pedagogical flexibility and adaptability to diverse learning styles.*

***Key words:** Teaching effectiveness, Innovative pedagogical approaches, Active learning, Technology integration, Personalized learning, Professional development, Assessment methods, Educational technology, Flipped classrooms*

Education is a cornerstone of societal progress, and effective teaching plays a pivotal role in shaping the intellectual and personal development of learners. Traditional teaching methods, while foundational, are being complemented and, in some cases, replaced by innovative approaches that leverage the latest insights from educational research and technology.

Pedagogical Innovations:

a. Active Learning Strategies:

Active learning methods, such as flipped classrooms, collaborative projects, and problem-based learning, encourage student engagement and critical thinking. Research indicates that these approaches promote deeper understanding and long-term retention of knowledge.

b. Technology Integration:

The integration of technology in the classroom enhances access to information, facilitates interactive learning experiences, and prepares students for the digital age. Virtual reality, online simulations, and educational apps are among the tools reshaping the educational landscape. [1.109]

c. Personalized Learning:

Recognizing the diverse learning needs of students, personalized learning approaches tailor instruction to individual abilities and preferences. Adaptive learning platforms, data analytics, and differentiated instruction contribute to a more personalized and effective educational experience.

Teacher Professional Development: To implement these innovative teaching strategies effectively, ongoing professional development is essential. Teachers need support in acquiring new skills, staying updated on educational research, and exchanging best practices with their peers. Collaborative learning communities and mentorship programs can foster continuous improvement.

Assessing Learning Outcomes: The assessment of learning outcomes is critical to gauging the success of teaching methodologies. Beyond traditional exams, educators are exploring alternative assessment methods, such as project-based assessments, portfolios, and real-world applications, to provide a more holistic view of student achievement.

Challenges and Considerations: Despite the benefits, challenges exist in adopting innovative teaching methods. Resistance to change, resource constraints, and the need for adequate training can hinder the widespread implementation of these approaches. Addressing these challenges requires a collaborative effort from educational institutions, policymakers, and educators. [2.19]

In conclusion, this comprehensive review underscores the importance of embracing innovative teaching approaches to meet the evolving needs of learners. By incorporating active learning strategies, integrating technology, and personalizing instruction, educators can create dynamic and engaging learning environments that foster academic success and prepare students for the challenges of the future. Continued research, collaboration, and professional development are essential components of a successful transition toward more effective teaching methodologies.

Future Directions: As education continues to evolve, it is crucial to anticipate future trends and challenges. Emerging technologies, such as artificial intelligence and augmented reality, hold great promise for transforming the educational landscape. Research in cognitive neuroscience and psychology also provides valuable insights into optimizing teaching methods based on a deeper understanding of how the brain learns.

Global Perspectives on Teaching: The effectiveness of teaching is not only influenced by pedagogical approaches but also by cultural and socio-economic factors. Understanding diverse perspectives on education worldwide can enrich teaching practices by incorporating global best practices and fostering cross-cultural collaboration among educators. [3.82]

Community Engagement and Parental Involvement: Recognizing the integral role of communities and parents in a child's education is essential. Collaborative efforts involving schools, communities, and parents can contribute to a more holistic educational experience. Partnerships with local businesses, community organizations, and parents can enhance students' exposure to real-world applications of knowledge.

References:

1. Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23)
2. Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies. U.S. Department of Education.
3. Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1)

Rezyume: Ushbu ilmiy maqolada o'qitish metodologiyasining samaradorligini oshirishga qaratilgan turli xil innovatsion yondashuvlar o'rganiladi. Ta'lim o'quvchilarning dinamik ehtiyojlari va texnologiya yutuqlariga javoban rivojlanar ekan, o'qituvchilar doimiy ravishda talabalarni jalb qilish va mazmunli ta'lim natijalarini rag'batlantirish uchun yangi strategiyalarni qidirmoqdalar. Ushbu keng qamrovli sharhda dalillarga asoslangan amaliyotlar va o'qitishdagi yangi tendentsiyalar muhokama qilinadi, pedagogik moslashuvchanlik va turli xil o'quv uslublari moslashish muhimligini ta'kidlaydi.

Резюме: В данной научной статье исследуются различные инновационные подходы, направленные на повышение эффективности методик обучения. Поскольку образование развивается в ответ на динамичные потребности учащихся и достижения в области технологий, преподаватели постоянно ищут новые стратегии для вовлечения учащихся и достижения значимых результатов обучения. В этом комплексном обзоре обсуждаются научно обоснованные практики и новые тенденции в преподавании, подчеркивая важность педагогической гибкости и способности адаптироваться к различным стилям обучения.

Kalit so'zlar: Ta'lim samaradorligi, Innovatsion pedagogik yondashuvlar, Faol ta'lim, Texnologiya integratsiyasi, Shaxsiylashtirilgan ta'lim, Kasbiy rivojlanish, Baholash usullari, Ta'lim texnologiyasi

Ключевые слова: Эффективность преподавания, Инновационные педагогические подходы, Активное обучение, Интеграция технологий, Персонализированное обучение, Профессиональное развитие, Методы оценки, Образовательные технологии, Перевернутые классы.

**DEVELOPMENT OF COMMUNICATIVE COMPETENCE OF STUDENTS IN THE
STUDY OF HUMANITIES**

Pakhratdinov S.

Karakalpak State university named after Berdakh

Summary: In this article, the formation of students' communicative competence and skills with the help of humanitarian sciences, and the activities of the teacher and the materials used in creative modern methods, are analyzed from the framework of modern pedagogical science. The place and role of humanities and the communicative competence and skills of students in providing quality education have been widely analyzed.

Key words: Reform, education, rhetoric, system, competence, development, technology, convention, model, methodology, e-learning, student, communicative.

Today, in providing quality education in our country, in recent years, we have based ourselves on the following theoretical principles in the development of the technology of improving the educational processes based on innovative digital technologies, preparing qualified competitive personnel at the level of world standards, and developing the communicative competence of students through rhetoric.

The concept of "pedagogical technology", in our opinion, deserves special attention. This concept cannot be said to be completely new in General Pedagogy. This term was used for the first time in the works of A.S. Makarenko. In "The Pedagogical Poem" he wrote that our pedagogical production is never built on the basis of technological logic, but always on the logic of moral preaching. Therefore, we do not have all important departments of production: technological process, accounting of operations, design work, use of devices, standardization, control, tolerance. This concept was also among other pedagogues.

At the same time, it can be said that this concept was unexpected and unusual for the majority of teachers, teachers of higher education institutions. Until now, according to the opinion of most teachers, "technology (pedagogical)" is considered to be derived from the terminology of "production", "factory". Let's consider this concept.

Technology (from the Greek words: - craft and teaching, science) - a set of methods of obtaining and processing raw materials, materials, semi-finished products; various industrial and construction sectors, including quality control and assembly, construction and adjustment of the quantity of manufactured products to the specified parameters, its cost, labor productivity. Any technology is based on the requirements of completeness, integrity, independence, efficiency, optimal interaction of all its constituent elements, using the most advanced high-tech achievements. Technology is procedural, and making changes to any of its constituent elements leads to its overall change.

The difference between pedagogical technologies and fields of material-technological or engineering activity depends on the specific characteristics of the educational subject. In particular, the field of pedagogical activity cannot be characterized by a specific subject area, a specific set of functions, separation of professional actions from self-communication, experience. The operational aspect of pedagogical activity cannot be separated from its personal and subjective parameters. The subjectivity, delay, variability of the result does not allow to ensure the same level of predictability and guarantee as in engineering and technical fields.

Around the world, there is a serious debate about the concept of educational technology, which is not based on a clear, universally accepted definition. Researchers say that the main features (criteria) of the technological logic of education are its consistency, conceptuality, scientific integrativeness, guarantee of the result, reproducibility, efficiency, quality of teaching, motivation, novelty, algorithmicity, information, acceptability, ability to repeat and transfer to new conditions, etc.

Currently, there are more than twenty scientific interpretations of the term "pedagogical technology" around the world. As an existing definition, you can suggest the following definition. Teaching technology is a pedagogical activity that implements a scientifically based project of the didactic process and has higher efficiency, reliability and guarantee of the result than it is carried out by traditional teaching methods.

The development and mass use of pedagogical technologies dates back to the early 60s. Pedagogical technologies in scientific research of foreign countries B. Blum, D. Bruner, G. Grace, J. B. Carroll, V. Also associated with the names of Coscarelli, D. Hamblin and others.

It should be noted that there is little work on the scientific analysis of non-traditional pedagogical technologies for person-centered education. For example, the works of A.S.Granitskaya, V.K.Dyachenko, V.N.Zaitseva, Yu.N.Kuliutkina, V.V.Kotova, L.S.Levina, I.B.Pervin and others are natural communication in educational activities dedicated to the use of technology.

The problem of improving the knowledge assessment system Sh.A.Amonashvili, I.A.Akhgamyanova, V.M.Polonsky, V.A.Karakovskii, Ya.A.Grekov, E.I Rogov, V.D.Moroz, M.I. It was studied in the scientific works of Mikhaleva, A.I.Sukachev, V.L.Riss and others.

If, without relying on stereotypes, the joint activities of teachers and students aimed at mobilizing the intellectual, moral, volitional and physical forces to achieve the goals of education, upbringing and development are carried out energetically and purposefully, the educational activity becomes creative and truly active.

The transition from school to university represents a very important period in the life of young people. K. D. Ushinsky wrote: "We consider the period from 16 to 22-23 years of age to be the most decisive in a person's life. Here the period of formation of a sequence of individual ideas ends, and the rest is largely united into a single network, which is wide enough to give one or another direction a decisive advantage in the way of thinking of a person and his character.

It is known that the transition from studying in secondary schools to studying at a university is characterized by a sharp change in the conditions under which cognitive activity takes place. Learning activity is always related to changes in the conditions in which this process takes place. All these changes in a certain way affect the mental state of students and ultimately affect the development of the educational process, in some cases it improves the quality of education, and sometimes it worsens it.

The pedagogical technology offered by us is implemented in the process of teaching students and consists of several stages.

At the first stage, the tasks of the motivational-target block were solved, namely:

- 1) to create psychological conditions that affect the process of forming a system of theoretical knowledge about the characteristics and essence of the constructive and projective communicative activity of the specialty in students due to the means and methods of psychological influence;
- 2) achievement of stimulating and motivational goals related to the acquisition of knowledge and skills in the field of constructive and projective communicative activity.

The second stage, the intellectual-content block tasks of the implementation of the experimental technique were solved:

- 1) introducing students to the theoretical foundations of design and construction;
- 2) reveal the theoretical and practical foundations of the formation of gnostic, design, constructive, communicative and organizational skills.

The experimental methodical model of development of students' communicative competences is aimed at making its design tasks more complicated when 50% to 70% of the learning time is given to students to work independently in the modern conditions of organizing the educational process. After all, this is related to a radical restructuring of the curriculum, especially the content of the lessons. This problem is closely related to the selection and design of the content of lectures, seminars and laboratory-practical trainings, the search for and improvement of new

forms and methods of teaching, and determines the need for a holistic educational and methodological provision of the educational process. Here, first of all, it is necessary to understand the role of independent work in the formation of a dynamic personality that quickly adapts to the working conditions of a specialist, in the development of his cognitive activity, in self-development and improvement. The independent work of students should be based on the principles of individualization, differentiation and practical orientation, and only in this case can one expect an effective final result from it.

References:

1. Sternin N.A. Practical rhetoric. - Voronezh, 1996. - 141 p.
2. Tarasov E.G., Shkolnik L.S. Sotsialno-symbolic regulation behavior sobesednika. //National-cultural specifics of speech behavior. - M., 1977. - 108 p.
3. Kokhtev N.N. Rhetoric: uchebnoe posobie. - M., 1994. - 206 p.
4. Ivanova SF. The art of dialogue, speech or rhetoric. - Perm, 1992.-204 p.
5. Gurvich S.S. Basic rhetoric. - Kiev, 1988. - 247 p.
6. Abдиев Berdakh. PROBLEMS OF DEVELOPING COMMUNICATIVE COMPETENCE OF STUDENTS. International Journal of Education, Social Science & Humanities.Finland Academic Research Science Publishers ISSN: 2945-4492 (online) Volume-11| Issue-4| 2023 Published:|22-04-2023|: 700-704
7. Abдиев B.T. Development of students' communicative competence in quality education. Science and Society of Nukus State Pedagogical Institute named after Ajiniyaz.- Nukus: NDPI 2023-y #2 3-4

Rezyume: *Ushbu maqolada talabalarning kommunikativ kompetentsiyasi va malakalarini gumanitar fanlar yordamida shakllantirish, va kreativ zamonaviy uslublarda qullanilgan materiallarning va ta'lim beruvchining faoliyati, zamonaviy pedagogik fan doirasidan tahlil qilingan. Sifatli ta'lim berishda talabalarning kommunikativ kompetentsiyasi va malakalari hamda gumanitar fanlarning o' rni va roli to 'g'risida keng tahlil etilgan.*

Резюме. *В данной статье в рамках современной педагогической науки анализируется формирование коммуникативной компетентности и умений учащихся с помощью гуманитарных наук, а деятельность учителя и материалы, используемые в творческих современных методах. Широко проанализированы место и роль гуманитарных наук, коммуникативных компетенций и навыков учащихся в обеспечении качественного образования.*

Kalit so'zlar: *Islohot, ta'lim, ritorika tizim, kompetentlik, rivojlantirish, texnologiya, konventsiya, ijodiy, model, metodika, talaba, kommunikativ.*

Ключевые слова: *Реформа, образование, риторика система, компетенция, развитие, технология, конвенция, модель, методика, студент, коммуникативный.*

EVALUATION OF THE ECONOMIC ACTIVITY OF THE DEVELOPMENT OF SMALL BUSINESS ENTITIES IN RURAL AREAS.

Aliyeva G.A.

Karakalpakstan Institute of Agriculture and Agrotechnology

Summary: In the article business in rural areas in order to manage the environment, develop the market infrastructure, improve the financial and banking system, and analyze and present suggestions and conclusions.

Key words: business, entrepreneurship, farmers and peasant farms, gross domestic product, animal husbandry, macroeconomics, market, economic growth.

Business in rural areas in the context of economic liberalization in order to manage the environment, develop small business, entrepreneurship, form a class of owners, create a competitive environment, develop market infrastructure, improve the functioning of the financial and banking system, liberalize the currency system and market, fundamentally revise the entire system of organizing foreign economic activities, and finally, as a result of the implementation of measures to strengthen incentives for attracting investments, a socio-economic environment is being created that will ensure economic growth in the near future.

As a result of the policies implemented in Uzbekistan, in the first stage of reforms, the economic decline compared to 1990 was not as severe as in other CIS countries. The gross domestic product in 1995 decreased by only 18.2 percent compared to 1990. In other CIS countries, which adopted a strict monetary approach as the basis of macroeconomic stabilization policy, the volume of GDP() decreased by 40-60%, including 48% in Russia, up to 55% in Kazakhstan and Ukraine, and more than 2 times in Moldova[1]. The annual growth of the republic's gross domestic product was 1.7% in 1996, 4.0% in 2000, 7.0% in 2005, 8.5% in 2010, 9.5% in 2015, and 7.6% in 2017. During these years, the inflation rate also decreased. Average annual inflation was 64.3% in 1996, 28.2% in 2000, 7.8% in 2005, 6.8-5.8% in 2010 and 2017[2]. Small business and private entrepreneurship, which is an important condition for economic growth, entered a period of constant development. The share of small business in the GDP was only 1.5% in 1991, 31.5% in 2000, and 52.8% as of January 1, 2022. Agricultural reform is one of the priorities of the economic reforms implemented in the Republic of Uzbekistan. The reason is that the sector contributes more than 24% of the gross domestic product, 37% of those employed in the social economy and 60% of the population live in rural areas[3]. The main aspects of the agricultural reform were as follows: the issue of land ownership was fundamentally resolved. The Law of the Republic of Uzbekistan "On Land"[4] was adopted. The Constitution of the Republic of Uzbekistan stipulates that land cannot be sold as private property, but can be transferred under the terms of a long-term lease. In solving the issue of attitude to the land, it is important to develop measures to restore the sense of mastery of the farmer.

Table 1

The number of farms in the Republic of Karakalpakstan[4]

show	year								
	2010	2012	2014	2016	2018	2020	2021	2022	2023
Number of farm	9378	9408	3684	5569	6919	6115	9950	10019	10088
From which: in livestock burning in the	957	926	452	620	1126	1224	8925	8987	9056
Burning of sorghum	8412	8421	3183	4806	5520	4574	1025	1032	1032

It was organized on the basis of the orders set by the state on the basis of cotton and grain cultivation on the part of farms. With the expansion of its activities, farms began to be established in accordance with the development of other industries. Due to the fact that various agricultural crops were cultivated by the established farms and achieved high results, the status of farms in relation to other economic entities expanded and became a large product-growing entity. As a result, it can be seen from the data of Table 1 below that its weight has increased in the production of agricultural products. In recent years, compared to 2010, the number of farms has increased to 3263, of which: 3838, and livestock production has increased by 267 in 2020 compared to 2010. This reduction was mainly due to the closure of livestock farms and the division of farms into farms.

In January-December 2021, the share of small business in GDP was 56.4%. As of January 1, 2022, the number of small business entities was 14.0 units per 1000 inhabitants. In January-December 2021, 4,308 new small enterprises and micro-enterprises (excluding farms) were established, which was 97.0 percent compared to the same period last year. The most newly established small enterprises and micro-enterprises are 1457 in trade, 966 in agriculture, forestry and fishing, 788 in industry, 276 in construction, 213 in accommodation and food, transportation 56.4 percent of the gross regional product in January-December 2021 (58.1 percent in January-December 2020) was produced by small business entities established in 132 and in storage.

Trade (31.8%), agriculture, forestry and fisheries (16.1%), industry (16.0%) of all registered in the trade network of small enterprises and micro-enterprises), construction (11.8%), accommodation and food services (6.8%) and transport and storage (4.4%) and information and communication (1.7%) economic activities. 'registered. As of January 1, 2021, the number of family enterprises registered according to the organizational and legal form is 2,050, which is the indicator is 349 or 20.5% compared to the same period last year it can be seen that it has increased. Working family the number of enterprises is 1,932, this figure is the same as last year it can be seen that it has increased by 330 or 20.5%.

Newly established family in January-December 2021 the number of enterprises is 495, this figure is the same as last year compared to 75.9.

As of January 1, 2022, the number of small business entities per 1,000 inhabitants in cities and districts is the highest: 24.7 units in Nukus district, 19.6 units in Moynaq district, 19.4 units in Bozatov district, 18.1 units in Karaozak district, 17.8 units in Nukus city, 17.6 units in Qonlikol district, 15.5 units in Tortkol district, 15.3 units in Shumanay district, 14.8 in Takhtakopir district units, 14.0 units in Kegeyli district, 12.7 units in Ellikkala district, 12.5 units in Beruniy district, 11.4 units in Kungirotdistrict, 11.3 units in Chimboy district, 10.4 units in Khojayli district unit, it was 9.7 units in Amudarya district. In Takhyatosh district, this indicator was the lowest and corresponded to 9.3 units.

In conclusion, implementation of irrigation and melioration works to increase the productivity and effective use of the land of small business farms in the village; placement and specialization of crops on farms based on the natural climatic conditions of all regions and the specific characteristics of land areas; selection of crop varieties with high productivity in farms, fight against diseases and pests of crops; stimulation of labor resources (increasing the material benefit of labor resources with an increase in labor productivity); production of non-agricultural products in multi-branch farms and provision of preferential loans for them, state support for them; increasing their export potential by establishing the production of ecologically clean agricultural and non-agricultural products in farms; organization of mutual economic relations of farms with service enterprises based on the market mechanism; in order to ensure that farms have personal agricultural machinery and agricultural machines, to further improve leasing relations based on market requirements and to allocate preferential loans; to create an environment of competition between enterprises supplying resources in order to create the opportunity to use all production resources in farms; organization of the use of mineral fertilizers on the farm and development of a system for the use of local fertilizers; to further improve the work of training and retraining centers

to ensure that farm managers have knowledge and skills about the market, agrotechnics of growing agricultural crops and agricultural economics, and It is necessary to develop measures to control the service. Further formation of the class of owners who own long-term leased land, the results of their labor and production tools in the agriculture of our republic; strengthening the export potential of farms by increasing the production of high-quality and environmentally friendly products; strengthening the socio-economic environment in rural areas; creating conditions for organizers, entrepreneurs and businessmen to fully demonstrate their abilities in agriculture; based on effective use of land, it consists in increasing soil productivity and reducing production costs.

References:

1. Умурзоков У. П., Тошбоев А. Ж. Кичик бизнес ва тadbirkorлик Т.: "Сано-стандарт", 2014. - 480бет
2. Stat.uz malumotlari asosida islab chiqilgan
3. Qoraqalpog'iston Statistika boshqarmasi malumatlari
4. Lex.uz
5. Toshboev A.J. Kichik biznesni boshqarish. TIMI. 2014. - 415bet

Rezyume: *Maqolada atrof-muhitni boshqarish, bozor infratuzilmasini rivojlantirish, moliya va bank tizimini takomillashtirish maqsadida qishloqda tadbirkorlik faoliyatiga bag'ishlangan hamda tahlil va taklif va xulosalar berilgan.*

Резюме: *В статье ведется бизнес на селе в целях управления окружающей средой, развития рыночной инфраструктуры, совершенствования финансово-банковской системы, а также проанализированы и представлены предложения и выводы.*

Kalit so'zlar: *biznes, tadbirkorlik, fermer va dehqon xo'jaliklari, yalpi ichki mahsulot, chorvachilik, makroiqtisodiyot, bozor, iqtisodiy o'sish.*

Ключевые слова: *бизнес, предпринимательство, фермеры и крестьянские хозяйства, валовой внутренний продукт, животноводство, макроэкономика, рынок, экономический рост.*

EFFICIENCY OF AGRICULTURAL INSTITUTIONS OF DIFFERENT FORM

Reimbaeva Z.

Karakalpak State University named after Berdakh

Summary: *The article analyzes the results of increasing the efficiency of agricultural institutions of various forms based on the priorities of economic reforms in agriculture, and also develops proposals and recommendations for the development of agriculture in our country.*

Keywords: *agriculture, reform, institute, strategy, program, solution, production, economic growth, industry, land, resources, modernization, diversification, property.*

Introduction

Currently, many scientific studies aimed at finding a practical solution to the existing problems in the field of agriculture are being carried out in the world. Spending more resources on implementing the achievements of scientific and technical development in rural areas, increasing the efficiency of using these resources, primarily land and water, using agricultural resources primarily for food purposes, increasing the efficiency of agricultural production and Development of appropriate institutions (structures) and creation of legal foundations for this, issues of improving the well-being of the population employed in this field are among the priority areas of research in this regard.

Intensive work on the intensive development of agriculture in the regions is also being carried out in Uzbekistan, and big goals are being set for the future. Including "increasing the income of farmers and farmers by at least 2 times through the intensive development of agriculture on a scientific basis, bringing the annual growth of agriculture to at least 5 percent, increasing the regional economy by 1.4-1.6 times through the proportional development of regions" tasks are defined. In the implementation of these tasks, in the regions of our country, including the Republic of Karakalpakstan, we must form mutual relations for the efficient operation of agricultural entities based on market mechanisms, identify institutions that develop agriculture, and create an institutional environment for them to work in accordance with market conditions. , it is important to develop by improving and harmonizing the standards of ownership and contractual relations.

PF-60 dated January 28, 2022 of the President of the Republic of Uzbekistan "On the development strategy of New Uzbekistan for 2022-2026", PF-5009 dated February 26, 2021 " Decree of the Republic of Uzbekistan "On measures to implement the tasks set in the strategy for the development of agriculture for 2020-2030 in 2021" dated November 12, 2020 No. PQ-4889 "2020 - On measures for comprehensive socio-economic development of the Republic of Karakalpakstan in 2023", PQ-4709 of May 11, 2020 "Addition on the specialization of the republic's territories for the production of agricultural products This dissertation research serves to a certain extent in the implementation of the tasks defined in the decisions of "On Measures" and other regulatory legal documents related to this field.

Analysis and results

It is known that the means of structural changes in the field of ownership in our country was the process of expropriation and privatization. It was carried out step by step, on the basis of previously established principles by means of state management, and the results were analyzed, and based on new conclusions, the issues of the next stage were resolved. Ultimately, the task of ensuring that the farmer actually owns the property and the results of his labor was set, and the foundation of multi-unit ownership was laid.

If we observe the last 11-year period, the cultivated area devoted to agriculture has increased by 9 percent. Including cereals and legumes from 2,033 hectares (2010) to 15,600 hectares (2021), i.e. by 7.7 times, the area allocated to potatoes increased by 1.4 times, vegetables by 3.8 times, potatoes by 6.7 times, and fruits and vegetables by 6.7 times. vegetables - increased by 1.3 times. If we look at the changes in the cultivated area devoted to cotton, during 2010-2018, the cultivated

area decreased by 45%, but cooperation in the cotton sector [1] and cluster system [2] as a result of the introduction of land area for cotton cultivation started to be allocated to clusters. This caused a sharp increase in the area of cotton land (Table 2.1).

Table 2.1

The dynamics of changes in the cultivated area allocated to agricultural enterprises in the Republic of Karakalpakstan during 2010-2021, to²²

Indicators	2010 year	2015 year	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year	2021 compared to 2010, times
Cereals and legumes (in initial weight)	2033	3544	3957	3678	2847	5074	8476	15600	7.7
Cotton raw materials (in calculated weight)	708	544	340	305	320	639	7541	23136	32.7
Potatoes	87	125	56	69	107	95	95	125	1.4
Vegetables	146	328	425	274	286	455	403	560	3.8
Kaleyards	81	228	295	294	231	298	410	545	6.7
Fruits and berries	724	1097	1141	869	812	753	936	924	1.3

The change in cultivated area directly affected the volume of agricultural production. In particular, during the analyzed years, grain crops in the region increased from 3,845 tons (2010) to 19,492 tons (2021), i.e. by 5.1 times, potatoes by 5.8 times, vegetables by 4.3 times, rice by 5, 5 times, fruits and berries - 4.5 times, cotton production increased almost 100 times (Table 2.2).

But we can see a difference in the rate of growth of production in the rate of growth of cultivated areas (except cereals and rice). This is directly related to changes in crop productivity. In particular, in 2010-2021, the yield of grain crops decreased by 20%, although by 2020 until productivity increased regularly and By 2020, it was 28.4 ts.ha. This indicates that the harvest was 1.5 times more than in 2010. By 2021, the yield of grain crops will be 14.3 tons, almost twice compared to 2020, and decreased by 15% compared to 2010. This can be explained by the fact that the area devoted to grain crops has decreased and most of the fertile land has been given over to fruit and vegetable cultivation.

The same situation was observed in vegetables and fruits. That is, in 2010-2019, the productivity of these types of crops increased, but in the next two years, it chronically decreased, and by 2021, it almost doubled.

Table 2.2

Dynamics of production of agricultural products in agricultural enterprises in the Republic of Karakalpakstan during 2010-2021, tons²³

Indicators	2010	2015	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year	2021 compared to 2010, times
Cereal crops	3845	7721.04	8494	8818	7259	11777	15808	19492	5.1
Cotton	977	804.2	654	612.8	693	814.4	24286	94529	96.8

²²Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

²³Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

Potatoes	92	2001	572	582	740	823	1059	537	5.8
Vegetables	1580	9717	12353	3355	3172	5317	7371	6829	4.3
Kaleyards	614	2227	2066	2077	1816	2878	4056	3386	5.5
Fruits and berries	2335.5	7106	7867	5514	5764	6503	8498	10436	4.5

This happened due to unfavorable weather and climate (Table 2.3). However, the yields of cotton, potatoes, fruits and berries have increased in line with the change in cultivated area and production volume. Now let's analyze the livestock industry. The data of table 2.4 below shows that the tendency of decrease in the number of all livestock was observed in the Republic of Karakalpakstan in 2010-2021. However, if we compare the figure for 2021 with the figure for 2017, we can see that the number of all livestock has increased.

Table 2.3

The dynamics of the yield of agricultural crops at agricultural enterprises in the Republic of Karakalpakstan during 2010-2021, tons²⁴

Indicators	2010	2015 year	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year	2021 compared to 2010, times
Cereal crops	18.9	21.8	21.7	24.6	26.2	24.6	28.4	14.3	0.8
Cotton	13.8	14.8	19.2	20.1	21.7	12.7	32.2	40.3	2.9
Potatoes	10.6	105.6	96.2	63.5	60	78.4	64.2	39.1	3.7
Vegetables	68.1	201.5	200	93.4	89	97.2	75.1	46.7	0.7
Kaleyards	75.8	98.1	64.7	57.8	79.2	97.9	84.5	49.6	0.7
Fruits and berries	32.3	92.5	90.3	87.7	91.2	102.6	105.7	133.6	4.1

That is, the Action Strategy adopted in 2017 [3] and the state programs adopted every five years for its implementation, as well as the consistent and extensive activities and activities carried out in the regions within the framework of these programs, have borne fruit. At present, agrarian reforms have reached the next new stage, the most important goals to be implemented in the next 5 years have been defined in the development strategy of New Uzbekistan, and representatives of the agrarian sector and official organizations are working diligently to achieve these goals. is doing analyzing the production volume of livestock products, meat (in live weight) increased from 1,281 tons (2010) to 1,308 tons (2021), i.e. 2 percent, and milk increased from 626 tons to 4,213.0 tons during this period. (6.7 percent), eggs - increased from 9505 thousand to 46038 thousand. Such positive results are being achieved by the attention paid to the livestock industry by our government. In particular, by the decision of the President of the Republic of Uzbekistan dated January 29, 2020 PQ-4576 The Republican Council for the Development of Animal Husbandry and its Branches was established, and it is responsible for "promoting mutual cooperation of state and economic management bodies, local government bodies, livestock processing industry enterprises and business entities engaged in animal husbandry in the area of animal husbandry.

Table 2.4

The dynamics of the number of livestock in agricultural enterprises in the Republic of Karakalpakstan during 2010-2021, head²⁵

	2010 year	2015 year	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year	2021 compared

²⁴Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

²⁵Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

									to 2010, %
Live-stocks	19000	15320	15443	8472	8630	10094	12885	15833	83.3
Including: cows	5611	4205	4225	2544	2578	3558	5420	5495	97.9
Sheep and goats	151292	104002	76499	11259	14439	18962	20858	23721	15.7
Horses	2010	1687	1057	289	366	600	708	663	33.0
Camels	907	598	422	53	340	335	223	190	20.9

Provision, development of the livestock products processing industry, including launching new capacities and solving issues related to the expansion of product types" [4] priority tasks such as. It should be noted that the number of old sheep has decreased sharply, and the amount of wool and Karakal skins has decreased accordingly. But in 2018-2021, production volumes of these products increased. In particular, during this period, the volume of meat production increased from 588.7 tons to 1308 tons, i.e. 2.2 times, milk - almost 1.5 times, eggs - almost 2 times, wool - more than 2 times, Karakalpakistan - 4, 1 times, the cocoon increased by almost 3 times (Table 2.5). These changes led to changes in the structure of agriculture. It can be seen that the agricultural sector is leading in the Republic of Karakalpakstan. As of the end of 2021, 85 percent of this area belongs to agricultural products, and 15 percent to livestock products.

If we look over the years, agricultural products increased by 8.5 percent, while livestock products decreased by the same amount. As we mentioned above, measures have been taken to widely implement the cluster system and forms of cooperation in the agrarian sector of our republic. As a result, about 500 clusters and cooperatives were established in fruit and vegetable growing, grain growing and livestock breeding. As a result, despite the negative impact of the pandemic, 1 billion dollars worth of fruits and vegetables were exported" [5].

Below are the performance indicators of agroclusters operating in the Republic of Karakalpakstan. The analysis of these indicators showed that the number of agroclusters in the region has increased dramatically. If only 3 agroclusters were operating in 2018, by 2021 their number will be 70, which has increased more than 20 times.

Table 2.5

The dynamics of production volume of livestock products in agricultural enterprises in the Republic of Karakalpakstan during 2010-2021²⁶

Indicators	2010 year	2015 year	2016 year	2017 year	2018 year	2019 year	2020 year	2021 year	2021 compared to 2010, % (times)
Meat (in live weight), tons	1282	797	1009	782.9	588.7	771	912	1308	102.0%
Milk, tons	626	4010	4211	3172.5	2856	3174	4075.4	4213	6.7 times
Eggs, a thousand pieces	9505	8978	5515	5688.1	24493	32868	38586.2	46038	4.8 times
Wool, tons	208	115	125	12.8	14.5	19	17	31	14.9%
Black leather, tons	16131	3518	3216	922	171	337	722	703	4.4%

²⁶Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

Cocoon, ton	24.9	118.5	96.2	60.24	96.47	269.06	259.61	280.3	11.2 times
-------------	------	-------	------	-------	-------	--------	--------	-------	------------

The land area allocated to them increased by 18% in 2021 compared to 2020. Also, the number of subjects included in the cluster (farms producing agricultural and livestock products) increased from 587 (2018) to 2675 (2021), i.e. by 4.6 times. and the number of selling (including exporting) subjects increased from 2 (2018) to 165 (2021) (Table 2.6).

Table 2.6

Efficiency of agroclusters in the Republic of Karakalpakstan²⁷

Indicators	2018	2019 year	2020 year	2021 year	Times in 2021 compared to 2018
Number, one.	3	8	22	70	23.3
Cultivated area, ha (attached land area, ha)	20840	31036	47122	100366	4.8
From this:					
In the cluster, ga	-	-	8724	10302	1.2
Land area in farms, ha	20840	31036	42078	89844	4.3
Combined farms - the number of producers of agricultural and livestock products	587	633	1001	2675	4.6
Number of member enterprises - entities that process, provide services and sell (including exporters) agricultural products	2	3	4	165	82.5
Production volume of agricultural products, tons	40494	68567	104538	251912	6.2
Sales volume of agricultural products, million soms	58410	279640	1290742	3207360	54.9
Including export volume, million soms	19180	149727	96350	250509	13.1
Total cost, mln. soum	55537	339114	4587047	15329487	276.0
Total income, mln. soum	58410	374995	5072939	17090530	292.6
Net profit, mln. soum	2874	35881	485892	1761043	612.8
Production efficiency, %	5.2	10.6	10.6	11.5	2.2

If we analyze the production indicators, during 2018-2021, the production volume of agricultural products increased by 6.2 times and amounted to 251912 tons. In 2021, the products produced by agroclusters were sold in the amount of 3,207,360 million soums, including exports in the amount of 250,509 million soums. This amount is 54.9 and 13.1 times more than in 2018, respectively. As the production and sales volumes increased, the cost and revenue components also increased significantly (by 276.0 and 292.6 times, respectively). But all this caused the net profit to increase by 612.8 times.

If we observe the level of profitability, in 2018-2020, this indicator has an increasing trend (from 5.2 percent to 11.5 percent), and by 2021, the level of profitability has decreased sharply. In general, as a result of institutional changes in the Republic of Karakalpakstan, we can observe that the general economic activity of enterprises belonging to this category has improved with the appearance of enterprises in the form of clusters and cooperatives. The development of such

²⁷Compiled by the author based on the information of the Department of Agriculture of the Republic of Karakalpakstan

enterprises serves not only to provide employment to the rural population, but also to increase their standard of living.

Conclusion

1. As a result of the reforms and measures implemented in the Republic of Karakalpakstan, the production volume of grain crops increased by 5.1 times, potatoes - by 5.8 times, vegetables - by 4.3 times, sugarcane - by 5.5 times, fruits and berries - by 4 times, cotton - 100 times, meat production volume - 2.2 times, milk - almost 1.5 times, eggs - almost 2 times, wool - more than 2 times, Karakal skin - 4.1 times, cocoon - increased by almost 3 times. This was achieved thanks to the establishment of agroclusters and cooperatives, a new institution. In particular, in 2018-2021, the gross agricultural product increased by 6.2 times and amounted to 251,912 tons. In 2021, the products produced by agroclusters were sold in the amount of 3,207,360 million soums, including exports in the amount of 250,509 million soums.

2. In 2021, compared to 2000, the farms of the Republic of Karakalpakstan produced 1.78 times more vegetables, 2.02 times more fruits and berries, and 2.91 times more potatoes. Also, the growth rate of meat production was 3.68 times, milk - 3.20 times, eggs - 6.55 times, wool - 4.92 times, black leather - 7.24 times. Although the volume of cocoon production decreased compared to 2010, cocoon production increased by 1.13 times compared to 2019.

3. The number of agricultural holdings in the Republic of Karakalpakstan increased from 167,188 (1991) to 277,188 (2021), i.e. by 1.66 times. As a result, in 2021, 59,910 tons of potatoes, 182,843 tons of vegetables, 78,211 tons of fruit products, and 27,293 tons of fruits and berries were grown by the working farms of the Republic of Karakalpakstan. It is 2.84 compared to 2010; 2.62; 2.26; 2.61 times more. Also, the volume of meat production increased by 1.95 times, milk - by 2.22 times, eggs - by 8.81 times, wool - by 2.02 times, Karakal leather - by 1.53 times.

References:

1. Decision PQ-4633 of March 6, 2020 of the President of the Republic of Uzbekistan "On measures for the widespread introduction of market principles in the cotton industry"; Resolution No. 398 of June 22, 2020 of the Cabinet of Ministers of the Republic of Uzbekistan "On measures to organize the activities of cotton raw material cultivation and processing cooperatives".
2. Decree of the President of the Republic of Uzbekistan No. PF-14 dated November 16, 2021 "On measures to regulate the activities of cotton-textile clusters"; Resolution No. 733 of December 4, 2021 of the Cabinet of Ministers of the Republic of Uzbekistan "On approval of the regulation on the procedure for organizing the activities of cotton-textile clusters"
3. Decree of the President of the Republic of Uzbekistan No. PF-4947 of February 7, 2017 "On the Strategy of Actions for the Further Development of the Republic of Uzbekistan"
4. Resolution PQ-4576 dated January 29, 2020 of the President of the Republic of Uzbekistan "On additional measures of state support for the livestock sector".
5. December 29, 2020 Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis. <https://president.uz/uz/lists/view/4057>
6. Inyatov, A. R., Tleuov, N. R., & Kaipnazarova, G. Kh. (2018). Some problems of effective implementation of information technologies in enterprises. Lawyer, (8), 32-35.
7. Inyatov, A. R., & Tleuov, N. T. (2017). The current state of activity of food industry enterprises in the Republic of Karakalpakstan. in Current ecological state of the natural environment and scientific and practical aspects of rational environmental management (pp. 1929-1932).
8. Inyatov, A. R., & Arzuova, Sh. A. (2006). Problems of accessibility and quality of higher education. Current problems of modern science, (5), 66-67.
9. Inyatov, A. R. (2001). Social and environmental patterns of development of housing construction in agriculture. Achievements of science and technology of agro-industrial complex, (4), 33-34.

Rezyume: *Maqolada qishloq xo`jaligida iqtisodiy islohotlarning ustuvor yo`nalishlaridan kelib chiqqan xolda turli xil shakldagi qishloq xo`jaligi institutlari faoliyati samaradorligini oshirish bo`yicha islohotlar natijalari tahlil etilgan hamda mamlakatimiz qishloq xo`jaligini rivojlantirishga oid taklif va tavsiyalar ishlab chiqilgan..*

Резюме: В статье проанализированы результаты повышения эффективности деятельности сельскохозяйственных институтов различных форм на основе приоритетов экономических реформ в сельском хозяйстве, а также разработаны предложения и рекомендации по развитию сельского хозяйства в нашей стране.

Kalit so'zlar: qishloq xo`jaligi, islohot, institut, strategiya, dastur, qaror, ishlab chiqarish, iqtisodiy o`shish, sanoat, yer, resurs, modernizatsiya, diversifikatsiya, mulk.

Ключевые слова: сельское хозяйство, реформа, институт, стратегия, программа, решение, производство, экономический рост, промышленность, земля, ресурсы, модернизация, диверсификация, собственность.

THE FIRST SCIENTIST WOMAN RESEARCHING THE HISTORY OF KARAKALPAK MUSIC (DEDICATED TO TAJIGUL ADAMBAYEVA'S 90TH BIRTHDAY)

Allaniyazov B.K.

Nukus branch of Uzbekistan State Conservatory

Summary: The article is dedicated to the first female scientist who studied the history of Karakalpak music, her life and work. In recent years, the scientist's creative works have served as important information for the purpose of in-depth study of our musical heritage in the education of youth within the framework of the state program for the development of modern music education.

Key words: folklore, piano, music, musician, creativity, researcher, historian, contemporary, composer, musicologist.

Tazhigul Adambaeva is honoured cultural worker of Karakalpakstan, the laureate of the state award named after Berdakh. She is well-known among the people as a representative of the music culture of the Republic of Karakalpakstan, a publicist, a candidate of arts sciences, a music critic, who came out as the first woman popular in music. She is a member of the community of composers and melodists of Karakalpakstan and Uzbekistan (1968).

Tazhigul Adambaeva was born on May 20, 1934 in the city of Turtkul in the family of a peasant. T. Adambaeva became an orphan before reaching school age, so she studied and was grown up in an orphanage. Tazhigul Adambaeva's interest in music began at the age of 6-7.

"The first music college (school of education) in Karakalpakstan was opened in 1935 in the city of Turkul, which was the capital of our republic at that time. The young composer Victor Shafrannikov, who studied at the Moscow Conservatory, and the cellist Nikolai Ilyich Yagodin came to teach here. However, the school was closed in 1937 and became a children's music school because there were no young people who had knowledge about notes"²⁸.

During the war, T. Adambaeva was brought up in an orphanage and studied at that musical school in Turtkul. In 1943, together with 5 talented students from Karakalpakstan, she was admitted to the republican music boarding school named after R. Gliere in Tashkent, and in 1950, without exams, she entered the history-theory department of the Tashkent State Conservatory in order to improve her piano skills. Here, she took lessons by her first masters T.S. Vizgo, Y.B. Pecker, Yu.G.Konn and in 1955 she successfully graduated from the Conservatory. After graduating from the Conservatory, Tazhigul Adambaeva began her first career as a teacher of piano music and music theory at the children's music school in Nukus.

Since 1956, she has worked as an artistic manager in the radio committee. Here, T. Adambaeva's became familiar with the bakhshi and jiraws and rich cultural heritage of the Karakalpak people which helped her master the themes of music history. Since 1959, T. Adambaeva has been working in the department of recognition of art at the Institute of History, Language and Literature named after N. Davkaraev of the Karakalpakstan Department of the Academy of Sciences of Uzbekistan. The music scientist started her musical research by studying the historical works of T. A. Zhdanko and Baskakov, taking inspiration from the scientists of philology N. Davkaraev, K. Ayimbetov, I. Sagitov and M. Nurmukhamedov.

T. Adambaeva's next steps were to learn deeply the works of scientists who made research about Central Asian music and with the aim to learn the data related to the art of Karakalpak music she studied the works of A.Eyxgorn, A.Zataevich, V.Belyaev, A.Jubanov, V.Vinogradov, B.Erzakovich, Ya.Pekker, T.Vizgo, I.Akbarov, F.Karamatov. She was in close connection with some of them and expanded her scientific experience. She began to study the meaning and history of Karakalpak classical and modern music. During the scientific study of Karakalpak music, T. Adambaeva defined that there was very little written information about the art of music, and that

²⁸ A. Zhuzimbetov. Karakalpak culture newspaper, October 30, 2021. № 43-44 (907-908)

there were no special studies of musicologists in these areas. She collected Karakalpak national songs, with the goal of publishing them, deeply studied the history of music and tried to master it.

For more than 40 years T. Adambaeva traveled the country between cities, villages and districts in order to record folk songs on magnetic tape, recording the treasure of folk songs. During that time, she collected historical information about the performers of songs, bakshi and jiraws, put them in a certain order, and participated in the creation of the scientific documents.

The first success of a music scientist T. Adambaeva was in 1967, when she defended her dissertation work on the topic of "Musical culture of the Karakalpak people" in the city of Alma-Ata and received the scientific degree of candidate of fine arts sciences. In 1968, she was admitted to the Uzbek Composers Association.

From 1984 to 1992, she worked as the head of the Karakalpakstan Composers' Community. In 1993, she was elected as the responsible secretary of the composers' Community. She published her work under the title "Karakalpak music before revolution" in publishing house "Karakalpakstan" in 1976 which she collected and researched during those years. In this research, she provided a broad historical and theoretical understanding of the division and structure of folk songs into genres, the creativity of folk composers, and the fact that Karakalpak music is closely related to the music of other related peoples. The scientific work of T. Adambaeva can fully meet the scientific requirements of the present time in terms of its deep theoretical content, raised issues, and theoretical structure. The musicologists of the following generation K. Utegenov, A. Malikov, X. Qurbanov, G. Kamalova and young musicians of Uzbekistan State Conservatory, Nukus Department use her research works and serve in the development of Karakalpak music art. The reason is that by scientifically defining the secrets and infinite beauty of Karakalpak people's traditions and oral music, we can reveal the progress of the continuous development of modern Karakalpak music and bring the scientific and theoretical basis of musicologists to the people in a native language which requires skill and knowledge, we can see the development of the art of music day by day. Tazhigul Adambaeva was able to overcome this arduous path with patience and faith with her own knowledge. In order to come to this scientific conclusion, the author developed her scientific opinion on each issue, relying on the "Karakalpak folk songs" collections of V. Shafrannikov and A. Halimov, the reports of musicologists, folk wisdom information, national music, folklore and historical information. While creating Karakalpak folk music, she also made certain scientific works on the history of Karakalpak music. We can see this from the beginning of the 20th century in the book "History of Karakalpak Soviet Music", published in 1985 by the "Karakalpakstan" publishing house. Articles and monographic essays describing each era have been written on the subject of that period. This is the implementation of the fruitful efforts of our musicologists and scientists to bring the results of the "History of Karakalpak Soviet Music" and the creativity of composers to the modern art of music. The monographic essay talks about the problems related to Karakalpak music in recent years after the war. Based on such a scientific effort, our young composers have the task of giving deep thought to their music, skillfully enriching the musical content, describing its heroic images, and encouraging musical intonation and rhythms.

T. Adambaeva studied the songs and choirs, musical dramas, note examples and stage images of the composers Zh. Shamuratov, A. Khalimov, A. Sultanov, H. Turdikulov, A. Khairatdinov, and was able to achieve good reviews and make conclusions. Portraits and essays written by music researcher T. Adambaeva about the life and work of our professional composers can provide useful and interesting information for both music lovers and professional critics. Along with the discovery of real news in some of these orchestral monographs, thanks to the orchestral skill of the composers of national color, the aesthetic ability of the people is reached to a degree appropriate to the demands of the time. It has a wide range of issues and opinions with a deep content. Today, a musicologist is able to fully describe each composer's unique direction, his musical style, and his skillful achievements with the help of each choice of training, and today she is gaining the reputation of music art lovers. T. Adambaeva is a tribute to the people's respect for her music research and performance. The research works of T. Adambayeva are closely connected

with Zh. Shamuratov's compositional work and the musical performance methods of Sueu, Karazhan, Shernazar and Zhuman bakshis from Kally Ayyumbetov's book "People's Wisdom". In his book written in 1985, we can see that musical drama and comedies are described with the help of clear examples and discussions.

According to this genre, V. Shafrannikov's achievement is scientifically assessed by the scientist. The play "Alpamis" is a play that has risen to the level of a professional musical drama in terms of strengthening the role of musical images, traditional overture and orchestra in mass folk scenes. T. Adambaeva could open the way for significant scientific research, enrich the world of artistic images of young musicologists arousing their interest to Alimzhan Khalimov's wide-ranging creative life, A. Sultanov's "Azhiniyaz" lyrics collection, mass compositions and music of T. Turdikulov and A. Khairatdinov, symphonic works of N. Mukhameddinov, G. Demesinov and M. Zhiemuratov, D. Zhanabaeva and F. Amaniazov's chamber music and S. Palwanov and K. Zaretdinov's choral music, and discover the ideal content and aesthetic beauty of literary images and scientific music. Only a capable researcher of musical art who has gained experience in scientific operation, rich in deep intellect, and her studies titled "Karakalpak music on the verge of revolution" and "Karakalpak Soviet music history" are among the first fundamental moments achieved in the field of music culture.

T. Adambaeva's many scientific achievements in the field of musicology, in addition to appreciating the great achievements of Karakalpak music, provide effective services in the aesthetic education of young artists in the direction of composers, in scientific research works, in performing arts. T. Adambaeva's scientific works, articles on the dissemination of musical art and musical cultural achievements to the masses, were published in books and encyclopedias in Uzbekistan, Kazakhstan, and Moscow. In 1978, T. Adambaeva led the 6th Bakhsi Zhyrav and Sazende from Karakalpakstan at the selection of people's talents in Moscow and achieved success. Among the composers, she was the music editor of the collections of selected works "Let's sing together, children" by A. Khairatdinov, H. Turdikulov's "My beautiful land", "Our life is nice". We have full faith that she will take a place in the pages of history forever as the first scientist in the art of music, who left an indelible mark by teaching and training young scientific musicologists, young composers and music researchers.

References:

1. Q. Ayimbetov "Xalq danaligi" Nókis "Qaraqalpaqstan" 1988
2. T. Adambaeva "Revalyuciyaga shekemgi qaraqalpaq muzika tariyxı" "Qaralpaqstan" baspasi Nókis-19763.
3. A. Erejpev "Baqsı jırawlar tiykari" "Bilim" 2018
4. Allaniyazov B. MUSIQA FANINI O'QITISHDA ZAMONAVIY PEDAGOGIK TEXNOLOGIYALARDAN FOYDALANISH. Евразийский журнал социальных наук, философии и культуры. 2024 Feb 5;4(2):21-24.
5. Алланиязов Б. ЛЮДИ ИСКУССТВА (КОМПОЗИТОР, ДИРИЖЁР И ПЕДАГОГ). Гуманітарний простір науки: досвід та перспективи. 2018 Jan 23:72.
6. PROCESSES OF REALIZATION OF KARAKALPAK FOLKLORE IN SYMPHONIC MUSIC OF 30-80 YEARS OF XX-CENTURY
J Charshemov - Web of Teachers: Inderscience Research, 2024 Related articles

Rezyume: *Ushbu maqolada qoraqalpoq musiqa tarixi bo'yicha tadqiqot olib borgan birinchi olim ayol, uning hayoti va ijodiy ishlari haqida so'z boradi. So'nggi yillari davlat dasturida zamonaviy musiqa ta'limini rivojlantirish bo'yicha yoshlar tarbiyasida musiqiy meroslarimizni chuqur o'rganish maqsadida olimaning ijodiy ishlari muxim ma'lumot bo'lib xizmat qiladi.*

Резюме: *В данной статье рассказывается о первой женщине-ученом, которая проводила исследования по истории каракалпакской музыки, ее жизни и творчеству. В последние годы творческие работы ученого служат важной информацией для целей*

углубленного изучения нашего музыкального наследия в воспитании молодежи в рамках государственной программы развития современного музыкального образования.

Kalit so‘zlar: folklor, fortepiano, musiqa, sozanda, ijod, olim, tárixiy, zamonaviy, kompozitor, musiqashunos.

Ключевые слова: фольклор, фортепиано, музыка, музыкант, творчество, исследователь, историк, современник, композитор, музыковед.

KARAKALPAKSTAN TOWARDS GREEN ECONOMY AND SUSTAINABLE DEVELOPMENT GOALS

Kalmuratov B., Nurmanbetov A.

Karakalpak State University named after Berdakh

Summary: *The Sustainable development goals are the outlines to achieve a better and more sustainable future for all. They address the global challenges we face today, known as SDG 12, is a global initiative that emphasizes responsible consumption and production. It is important that Uzbekistan responds to all these goals, but in this article we show some actions to achieve SDG 12, particularly in Karakalpakstan.*

Key words: *Green economy, Clean Energy, Sustainable development goals, Responsible consumption and production, recycling*

The Sustainable development goal 12 focuses on ensuring responsible consumption and production patterns. This goal recognizes the critical need to address the environmental impacts of our consumption habits and production processes. By promoting efficient resource utilization, reducing waste, and minimizing the negative effects on the environment, SDG 12 aims to create a more sustainable and resilient future for all. The purpose of this research is to reveal the works how deal with plastic reduction and renewable energy in Karakalpakstan.

A broad use of plastic goods everyday life and brings many facilities for people. But plastic waste has become a pervasive problem, polluting various ecosystems such as soil, waterways, and streets. Shockingly, Dick Vethaak, an ecotoxicologist at Vrije Universiteit Amsterdam in the Netherlands have even found traces of plastic particles in human blood²⁹. Furthermore, countless animals suffer accidental deaths due to ingesting plastic waste. To address this issue, several measures can be taken. Firstly, governments should establish regulations governing the production, disposal, and recycling of plastic.

It's worth mentioning that steps are already being taken to tackle this issue. For instance, in Kungrad district of Karakalpakstan, the production of paving stones using plastic waste has commenced, along with the manufacturing of ropes in Muynak district of Karakalpakstan. These initiatives mark important strides toward reducing plastic pollution and promoting sustainable practices.

The following plastics are suitable for recycling, depending on their use once they have been recycled:

Polyethylene terephthalate (PET), which has unique properties such as lightness, high flexibility, resistance to extreme temperatures or to steam and various gases. It is also transparent, which makes it ideal for food preservation and marketing. It is the most widely used type of plastic in the world.

Polyvinyl chloride (PVC), which is rigid and hard. As such, it is mainly used to package materials and ensure their protection. It contains a toxic substance called nonylphenol.

High-density polyethylene (PE-HD), which is characterized by good moisture resistance and, like PVC, is quite strong. It is widely used in the sanitary sector and in beverage factories.

Polypropylene (PP), which is quite flexible yet tough. It is used to produce disposable material or, for example, to make kitchen utensils.

Polystyrene (PS), which is highly moldable. As a result, it is used to make packaging foam or in industries such as electronics.

Low-density polyethylene (LDPE), which is very flexible and withstands heat quite well. It is the essential element for producing bags for the food industry. One of the problems it suffers from is that it contains some toxic substances, such as aldehydes, ketones or carboxylics.

²⁹ A.D. Vethaak, J. Legler Microplastics and human health. Science, 371(No 6530) 2021

The dynamics of waste plastic recycling in Karakalpakstan, tons

Types of plastic recycling	2018	2019	2020	2021	2022
Polyethylene terephthalate (PET)	412	528	576	610	720
Polyvinyl chloride (PVC)	-	-	-	-	-
High-density polyethylene(PE-HD),	-	-	-	-	-
Polypropylene (PP)	358	478	502	550	624
Low-density polyethylene (LDPE),	305	346	398	414	438
TOTAL:	1 075	1 352	1 476	1 574	1 782

One of its key facets revolves around renewable energy. As the world grapples with the urgent need to reduce carbon emissions and mitigate climate change, our response to SDG 12 regarding renewable energy in Karakalpakstan, in collaboration with foreign investors from the United Arab Emirates, China, and France, is making significant efforts towards transitioning to green energy. We are witnessing transformations where our medical and educational institutions are actively participating. These buildings are becoming symbols of this change, with solar panels appearing on their rooftops. Meanwhile, our streets are being illuminated by the energy of sunlight, making our roads safer and more environmentally friendly. This collaboration with investors from different parts of the world brings us technologies and resources to shift towards more sustainable energy sources.

It's not just a commitment to Sustainable Development Goal 12; it's our collective aspiration to improve our world. Together, we are crafting a cleaner and greener future where energy is not only power but also responsibility. We are the architects of our future, and with renewable energy, we're building a nation that thrives, sustains, and flourishes.

As a conclusion of the realms of Sustainable development goals in Karakalpakstan: Reducing plastic waste and embracing renewable energy is not just our response to a global challenge; it's our legacy for future generations. These showed to us how our country respond to SDG 12 from globally to minimally.

Worldwide communities are beginning to enact regulations to control plastic production and promote recycling. In our region, we see promising initiatives like the use of plastic waste in paving stones, rope manufacturing and solar panels on a buildings solar-powered street lighting being tangible evidence of our progress to sustainable practices. This is not the end; it's just the beginning of a brighter, cleaner, and greener future.

References:

1. The 17 Sustainable development goals, UN, 2015
2. Development strategy of the new Uzbekistan, 2022
3. Uzbekistan-2030 Strategy, 2023
4. A.D. Vethaak, J. Legler Microplastics and human health. Science, 2021

Rezuyme: *Barqaror rivojlanish maqsadlari - bu butun yer yuzi uchun yaxshiroq va barqaror kelajakka erishishning asosiy yo'nalishlari. Ular bugungi kunda insoniyat duch kelayotgan global muammolarni hal qilishga qaratilgan. Barqaror rivojlanish maqsadlari №12 deb nomlanuvchi bu global tashabbus bo'lib, ma'suliyatli iste'mol va ishlab chiqarishga urg'u beradi. Yangi O'zbekiston barcha barqaror rivojlanish maqsadlariga erishishga intilayotgani juda muhim, ammo biz ushbu maqolada Qoraqalpog'istonda 12-sonli Barqaror rivojlanish maqsadiga erishish bo'yicha ba'zi jihatlar va harakatlarni ko'rib chiqamiz.*

Резюме: *Цели устойчивого развития – это контуры достижения лучшего и более устойчивого будущего для всей планеты. Они направлены для решения глобальных проблем,*

с которыми человечество сталкивается сегодня. Известные как цели устойчивого развития №12, это глобальная инициатива, которая подчеркивает ответственное потребление и производство. Очень важно, что новый Узбекистан стремится к достижению всех целей устойчивого развития, но в данной статье мы рассматриваем некоторые аспекты и действия для достижения Цели устойчивого развития №12 в Каракалпакстане.

Kalit so'zlar: *Yashil iqtisodiyot, qayta tiklanadigan energiya, Barqaror rivojlanish maqsadlari, Mas'uliyatli iste'mol va ishlab chiqarish, plastmassani qayta ishlash*

Ключевые слова: *Зеленая экономика, возобновляемые источники энергии, Цели устойчивого развития, Ответственное потребление и производство, переработка пластика*

THE HISTORICAL HERITAGE OF SCIENTISTS AND THINKERS OF THE MEDIEVAL EAST, ITS ROLE AND SIGNIFICANCE FOR MODERN CIVILIZATION

Reymov R.M.

Karakalpak State University named after Berdakh

Summary: *This article analyzes the historical heritage of scientists and thinkers of the medieval East, its role and significance for modern civilization.*

Key words: *History, medieval East, civilization, Mamun Academy, Eastern Renaissance, Temur and the Timurids.*

The history of the medieval East shows that the rapid rise of culture and education, medicine, literature, art and architecture, the emergence of scientific schools, the influx and generation of talents were mainly determined by such factors as the rapid development of the economy, agriculture and urban management, a high level of craftsmanship and trade, building roads and opening new caravan routes and, above all, maintaining relative stability.

The developed culture, in particular, of the Central Asian peoples is evidenced by ancient monuments of Bactrian, Sogdian, Orkhon, Khorezmian writing, wall painting and culture, architecture and much more. Created from the 11th to the 12th centuries, the Khorezm state covered a significant part of Asia, uniting the lands of neighboring peoples, from India to the Persian Gulf.

It is difficult to overestimate the enormous, irreplaceable role of the Great Silk Road (II century BC - XV century AD) as an international transport artery of antiquity, connecting countries and regions such as China, India and Central Asia, the Middle East, and the Mediterranean. This route provided not only trade relations, but also information dialogue between continents and countries, served as a conduit for the rapid spread of new technologies and innovations (production of silk, porcelain, gunpowder, paper and much more), agricultural crops and agricultural technologies, as well as cultural values, thereby creating conditions for intercivilizational and technological exchange.

A special role was played by the mutual enrichment of peoples of different countries with scientific knowledge and achievements. Along the routes of the Great Silk Road to Europe and back to Asia, information about the activities of scientists and thinkers of the East and West was received, practical access to the works, ideas and discoveries of such great scientists of antiquity as Socrates, Plato, Aristotle, Ptolemy and others was formed.

As is known, in accordance with the traditions of those times, enlightened thinkers and philosophers, scientists and poets, as a rule, found shelter and patronage in the palaces of rulers and sultans.

Among them is a widely known galaxy of scientists who successfully worked in the 9th-11th centuries in the Mamun Academy created in Khiva and the "House of Wisdom" ("Bayt al-Hikmah") in Baghdad, as well as in the 15th century in the school of Ulugbek in Samarkand.

According to academic researchers, the East, in particular the region of Central Asia, was the source of two powerful surges of scientific and cultural growth in the 11th-12th centuries and the 14th-15th centuries, which are rightfully recognized by the world scientific community as the era of the Eastern Renaissance, which had its beneficial impact on Renaissance processes in other regions of the world.

At the same time, as many researchers note, if the result of the Renaissance in Europe was the creation of great works of literature, art and architectural masterpieces, new discoveries in medicine and human knowledge, then the specificity of the Eastern Renaissance was, first of all, in the development of natural and exact sciences - mathematics, astronomy, physics, chemistry, geodesy, pharmacology, medicine, as well as history, philosophy and literature. [1]

When we talk about the great scientific discoveries of the early period of the medieval East, one of the first to mention is the name of Muhammad ibn Musa al-Khwarizmi, who made an

invaluable contribution to modern mathematics, trigonometry and geography. He was the first to justify and introduce into use the decimal positional number system, the zero sign and polar coordinates, which became turning points in the development of mathematics and astronomy.

Al-Khorezmi created algebra as a science, developed clear rules for presenting scientific information and treatises, and was the author of many works on astronomy, geography and climate theory. The merits of al-Khorezmi in the development of world science are generally recognized; his name and works, alone among scientists of the medieval East, are immortalized in modern scientific terms such as “algorithm” and “algebra”. [2]

Written back in the 9th century, the fundamental work of Ahmad al-Fergani “The Book of the Elements of Astronomy” contained the first information about the structure of the world, the size of the Earth, evidence of its sphericity, and until the 17th century it was used in European universities as the main textbook on astronomy, serving as a scientific basis for Columbus, Magellan and other travelers of the Age of Discovery. One of the significant practical achievements of al-Fergani was the development of the theory of the astrolabe - the main astronomical instrument of the Middle Ages, and the creation of a structure on the Nile River known as the “nilometer”, which functioned as the main instrument for determining the water level of the river for many centuries.

Another outstanding scientist, Abu Nasr ibn Iraq, who is considered the founder of spherical trigonometry, is known for his discoveries in mathematics and astronomy. He is rightly called the “second Ptolemy.”

It is difficult to fully appreciate the genius of the works created by the outstanding encyclopedist Abu Rayhon Beruni. Of more than 150 scientific works of Beruni, only 31 works have survived to this day, but even the fragmentary information that we have shows the multifaceted legacy that he left. [3]

Beruni was the first to propose an original theory of the seas and the construction of the spherical globe of the Earth, calculated the earth's radius, explained the presence of a vacuum, predicted (500 years before Columbus) the existence of a continent beyond the Pacific and Atlantic oceans, was the first to develop a classification of minerals and the theory of their origin, and laid the foundations of the science of geodesy. It is no coincidence that historians of natural history around the world call the 11th century the “century of Beruni.”

Descendants especially admire the life and work of Abu Ali ibn Sino, who in the West is called Avicenna, who rightfully earned the title of “the most famous philosopher and encyclopedist of the Islamic world and one of the greatest thinkers of mankind.” Beginning scientific research at age 16, he wrote more than 450 essays, primarily in the fields of medicine and philosophy, but also on logic, chemistry, physics, astronomy, mathematics, music, literature and linguistics.

His works were admired by Leonardo da Vinci, Michelangelo, Francis Bacon and many other generations of scientists.

We proudly acknowledge that with his invaluable fundamental work - “The Canon of Medical Science”, the most famous book in the history of medicine, Ibn Sino determined the main directions of development of medical disciplines for many centuries to come and actually laid the foundation for the basic methods of practical medicine and pharmacology, which have not lost their relevance today. It is no coincidence that this book was one of the first published in Europe in the 15th century, and it was used to teach medicine at leading European universities for almost 500 years.

A classic example of the highest level of scientific dialogue, deep rethinking and development of the philosophical views of antiquity by our great thinkers is the correspondence between Ibn Sino and Beruni regarding Aristotle’s “Book of Heaven” that has survived to this day.

The merits of Beruni, Ibn Sino, and other outstanding scientists and thinkers who worked in Khorezm at the turn of the 10th-11th centuries are not limited only to the scope of their scientific works and discoveries, but also include such an important issue as the formation of a scientific

school - the Khorezm Mamun Academy, which left a deep mark on the intellectual history of mankind.

Contemporaries called the 10th century encyclopedist Abu Nasr Farobi “the Aristotle of the East” for the universality of his knowledge. He enriched many sciences, developed the philosophical views of scientists from different countries, and wrote over 160 works. [4]

The most famous of them are “The Lay on Substance”, “The Book on the Origin of Sciences”, “On the Meaning of Reason” and others. A significant part of Farobi’s scientific works has been translated into many European and Oriental languages and is still the subject of in-depth research.

The galaxy of outstanding scientists and thinkers of the medieval East would be incomplete if we did not mention the so-called era of Temur and his descendants of the Temurids, where the name of Mirzo Ulugbek continues to sparkle like a bright star, as well as his numerous associates and students, such as Kazizoda Rumi, Ali Kushchi and many others.

It is well known that the grandson of Amir Temur Mirzo Ulugbek, who was the ruler of Samarkand for more than 40 years, became famous as a great astronomer whose name rightfully stands next to the names of such geniuses as Copernicus, Giordano Bruno, Galileo and others.

The set of astronomical tables compiled by Ulugbek in the 15th century contained the description and location of 1018 stars, becoming the first new catalog of astronomical measurements in 16 centuries.

His colleague al-Kashi was the first to introduce decimal fractions into use, and developed methods of successive approximations and finding roots of arbitrary powers.

You can learn more about the Ulugbek Observatory during a visit to the Ulugbek Museum, located on one of the high hills surrounding Samarkand.

A huge, inexhaustible storehouse of wisdom and humanistic knowledge of the surrounding world is the creative heritage of such great philosophers, poets and educators as Abu Abdullah Rudaki, Firdousi, Nizami Ganjavi, Saadi, Hafiz Shirazi, Jami, Alisher Navoi, Babur, and many others, which is truly is a treasury of world significance. [5]

The author of the first ever “Dictionary of Turkic Languages” was Mahmud Kashgari, who accompanied his work with a magnificent collection of Turkic proverbs and poems, which in the full sense of the word are gold mines of the lexicon. Kashgari is considered the first researcher of the language, culture, ethnography, and folklore of the Turkic peoples.

During his lifetime, Mahmoud Zamakhshari, a linguist, literary critic, geographer and philosopher, who is recognized as the founder of Arabic grammar, became widely famous. He was also the creator of the first multilingual dictionary in history - Arabic-Perso-Turkic.

And of course, we all must pay tribute to the galaxy of great historians of the medieval East, whose works are invaluable evidence of the events of those times - primarily such as Ahmad ibn Arabshah, Nizamiddin Shami, Sharafiddin Ali Yazdi, Hafiz-i Abru, Khondamir, Abdurazzak Samarkandi , and others.

Today, after almost a thousand years, we continue to admire the genius, versatility of interests and encyclopedic knowledge of scientists and thinkers of the medieval East. Unfortunately, due to various cataclysms, wars, and natural disasters experienced by humanity, only a thousandth of their great heritage has reached us. Now it is difficult to imagine that in certain periods of history, when ignorance and obscurantism prevailed, scientists were persecuted and persecuted, and the lives of many of them ended tragically.

At the same time, as facts testify, the first victims of confrontations, clashes and conflicts between people were the sources of knowledge - priceless manuscripts and books. We know well that the largest library in the ancient world, the Alexandria Library, the unique library of Mirzo Ulugbek, was so irretrievably lost. Unfortunately, this sad list goes on.

But, despite all the difficulties and severe trials, scientists and thinkers remained faithful to their scientific duty, the ideals of humanism and enlightenment.

And today we have every reason to say that their life, devoted to the service of science, and their achievements, which are now admired by all enlightened humanity, are, without a doubt, a real spiritual feat, before which we all bow our heads.

References:

1. Хайруллаев М.М. Культурное наследие и история философской мысли. – Т.: Узбекистон, 1985. – 262 с.
2. Хайруллаев М.М. Ўрта Осиёда илк ўйғониш даври маданияти. – Т.: Фан, 1994. – 80 б.
3. Бериуни А. Памятники минувших поколений. Избранные произведения. Т. 1. – Т.: Фан. – 1957. – 486 с.
4. Аль-Фароби. Социально-этические трактаты. – Алма-ата: Наука, 1973. – 136 с.
5. Арипов М. Гуманизм Алишера Навои. – Ташкент: Ўзбекистон, 1991. – 223 с.

Rezyume: *Ushbu maqolada o‘rta asr Sharqi olimlari va mutafakkirlarining tarixiy merosi, uning zamonaviy sivilizatsiya uchun tutgan o‘rni va ahamiyati tahlil qilinadi.*

Резюме: *В данной статье анализируется историческое наследие ученых и мыслителей средневекового Востока, его роль и значение для современной цивилизации.*

Kalit so‘zlar: *Tarix, o‘rta asr Sharqi, sivilizatsiya, Ma‘mun akademiyasi, Sharq Uyg‘onish davri, Temur va temuriylar.*

Ключевые слова: *История, среневековый Восток, цивилизация, академия Маъмун, Восточный Ренессанс, Темур и Темуриды.*

GENRES OF TRAVEL JOURNALISM, SPECIFIC AND DIFFERENT ASPECTS

Dauletbaeva D.D.

Karakalpak State University named after Berdakh

Summary: *The article examined the main genres of Travel Journalism, their characteristics and possibilities of application. The definitions given by various scientists to genres have been analyzed.*

Keywords: *Travel essay, travel (diary) notes, review, reportage, conversation, recommendation (guide material), film-travelogue, travel reportage, travel-show.*

Travel journalism materials combine the features of informational, analytical and artistic and journalistic genres. It is also worth remembering the important functions that the material should perform in the first place: to inform and give pleasure from reading or viewing. So these are functions such as informational and recreational [1]. Travel journalism is distinguished by the variety of forms of textual and graphic information and the breadth of topics covered. Genre diversity allows a journalist to choose which genre he wants to work in, since there are no strict restrictions on travel journalism [2].

Travel journalism texts can be divided into the following genre categories:

- Travel essay;
- Travel (diary) notes;
- Review;
- Reportage;
- Reference;
- Conversation;
- Recommendation (guide material) [3].

These genres in travel journalism are presented in a classic version. But it is worth noting that in Internet formats, these genres may undergo some changes.

According to A.A.Tertychny, a travel essay is a description of certain events, incidents, meetings with different people that the author encounters during his creative journey (trips, business trips, etc.) [4]. Working in the genre of a travel essay, the journalist acts as a narrator, allowing readers to feel all the difficulties of the journey and thereby become a participant in their creative journey. The essay is always based on some kind of creative idea, which subordinates the narrative [5].

Travel essay - due to its large volume and long production time, it is not particularly popular and is not used in modern blogs and mini-blogs (which are characterized by efficiency in providing information). This genre is most similar to a literary work. And therefore it can be published either in blogs that involve posting a large amount of information, or on some electronic resources specializing in literature [6].

A diary note is defined by the following speech characteristics: monologue, a tendency to use all types of speech, and first-person narration. The author tells the story that happened during the journey to the audience as friends, addressing everyone and everyone individually at the same time. After analyzing the texts, we found that in most cases the verbs of the past tense are used, a little less often than the present, to create the effect of a reportage. Such texts are common in the Internet space, as they have no volume restrictions. They can be written both briefly (from 150-200 characters long, this type of material will relate to the format of the post) and voluminously (more than 1000 characters long).

The genre of the review involves the coverage of public events and their analysis. This genre belongs to the analytical ones. The subject will be social and political events important for the domestic or foreign policy of the country. This form will be used rather in specialized blogs, the author of which is an expert on these issues.

The most popular genre of presenting such information is reportage. According to the classification of A.V.Kolesnichenko, a reportage is an eyewitness story written in such a way as to allow the reader to feel at the scene of the event. The main thing in the reportage is the effect of presence, when the reader seems to see, hear and perceive what is happening together with the journalist [7].

German scientist Michael Haller believes that "the task of a traveling journalist is to overcome the distance in order to make the distant and alien close. This distant and alien thing manifests itself through the journalist's experiences, which he wants to share". Travel reporting differs from other genres by a more active author's position and a pronounced presence effect. The distinctive characteristics are relevance, social significance, dynamism and clarity of presentation. [5].

The best travel journalist in the world in 2003, Orhan Djemal, emphasizes that reporting implies a clearly defined task: "If you go to Thailand as a reporter, then you do not describe everything you see. You always have a task, for example, to write about Thai boxing. All your movements, meetings, contacts should be subordinated to this task. In this case, you are writing about the sweepstakes, about athletes, about the business that accompanies Thai boxing" [8].

The reportage presupposes the presence of the author and the creation of the material at the "place of events". In the material, the narration and description are presented in real time. The verb forms of the present tense are used for this purpose. When using this approach in the presentation of material in video messages or audio blogs, blitz surveys, small interviews on the streets and the use of the Internet as an additional source of information for the audience are possible. Also, the report is best suited for online broadcasting.

The reference is a list, enumeration, or rating. The reference material can be found on any resource. References are divided into two types depending on the number of facts: containing one fact or containing several facts. So, references can include materials where the author develops his own rating of places, or in which the author lists facts about any one place. The reference can also be presented as a small post under a photo on a mobile resource. Often such material can be found, for example, on the Instagram platform.

Conversation involves a dialogue and is least common on the Internet. This genre is usually used in video or audio blogs. Sometimes, such materials are published in text form. But the conversation genre is rarely used on mobile media platforms (such as, for example, Instagram), as it is quite voluminous and is aimed more at text than media content.

According to A.A.Tertychny, a recommendation is an analytical genre, the basis of the content of which is prescriptive program information [4]. In practice, in travel texts, it is implemented in materials similar in purpose to travel guides. The recommendation is purely practical in nature, acting as an advisor to the traveler's reader.

It should be noted that in their pure form, these genres are not so common. Usually, elements of different genres are found in a journalistic text. The new, hybrid forms combine the features of a travel essay and a reportage, as well as elements of practical information for travelers.

A recommendation is advice to a tourist. Here the author acts as an expert who has the right to direct his audience. In such material, imperative verbs are often used, which create the tone of the advice material. In such material, the author's opinion is clearly traced. His position can cause the audience to have negative emotions towards the subject of the narrative, although in fact this may not be the case. That is why, working in this genre, a travel journalist should be careful and try to cover the entire range of opinions about the subject of the narrative. It is important to remember that often a negative review is born due to an emotional outburst caused by an unpleasant accident.

Also, materials of this nature are popular among the so-called mini-bloggers who work on mobile platforms. This genre can be found, for example, in InstaStory, where the text is located on the photo.

In addition to the genres we have highlighted above, Zarembo Darya wrote the genre of travel - in his article on the genres of Travel journalism that is also useful in today's media.

However, the interests of publicists and readers of the modern magazine are most fully reflected in the new multifaceted genre of travel. In the "journey", as in the travel essay, the author uses such techniques as landscape fragment, portrait sketches and inclusion of microtexts of the author's "I". However, unlike a travel essay, in "travels" the information is presented very briefly and exhaustively [5].

Graphic materials are an important component of any genre: maps, photographs, infographics, etc. They make any material clearer, more colorful and more interesting. Therefore, it is possible to distinguish such genres as photo reportage — this is a series of photographs that can create an idea of a particular city, country, etc. And travel photography is a genre of photography, the subject of which is the impressions of a traveler, as well as what he observes during the journey: cultural and ethnic characteristics of peoples, people and their characters, historical monuments and attractions, etc.

The Association of Photographers of the USA defines travel photography as "a photograph that expresses a sense of time and place, captures the area and its inhabitants, culture in its natural state and has no geographical boundaries" [5]. The founder of professional travel photography abroad is the magazine National Geographic. High-quality images have made this magazine very popular, the world-famous photograph "Afghan Girl" is the most recognizable cover of the magazine.

Television travel journalism can also be divided into several genres:

- travelogue film. The journey film originated as a genre in the 1910s. In it, the audience was shown foreign landscapes, residents, tourist attractions, etc. The emphasis in the travelogue is on places and meetings experienced by the author himself and classified by him as worthy for portrayal in the film. The travelogue captures the journey through the eyes of the author's traveler.

- a travel documentary. In most cases, it shows the "reality" – places and people without the intrusion of the author, the picture of what is happening as such. The travel documentary is a kind of presentation of foreign countries and their inhabitants and attracts a large audience of different ages.

- travel report. It refers to a thematic type of reporting that performs a cultural, educational and socio-pedagogical function, exploring life in its various manifestations. The journalist is at the same time an inquisitive tourist (at the site) and partly a guide (for the audience), without replacing, however, those who work on the shooting site constantly and can give deeper and more interesting information.

- travel essay. In a television travelogue, events and facts are not just recorded, but comprehended from the author's point of view, evaluated, interpreted in the light of his ideological and artistic position.

- travel show. The genre of light entertainment journalism, which has been gaining popularity in Russia in recent years. As a rule, due to the specific format of travel shows, they are not analytical and the belonging of this category to professional journalism can be disputed.

Conclusion, travel journalism can be represented by a variety of genres. For the most part, these are hybrid genres that combine individual features of a reportage, an interview, an essay, recommendations, etc.

References:

1. Л.О.Сергеевна, Т.А.Влаимировна *Жанры и форматы travel-журналистики в Интернете. Южно-Уральский государственный университет, 2017*
2. Д.Н.Зарембо *Жанры трэвел-журналистики. «Академия педагогических идей «НОВАЦИЯ». Студенческий научный вестник. – 2017. – № 08 (август).*
3. Л.О.Сергеевна, Т.А.Влаимировна *Жанры и форматы travel-журналистики в Интернете. Южно-Уральский государственный университет, 2017*
4. А.А. Тертычный *Жанры периодической печати.*- М.: Аспект Пресс, 2000
5. А.В. Муха *Содержательная и жанровая специфика трэвел-журналистики в зависимости от видов СМИ/ Муха А.В. Федосеева Н.И.: [Электронный ресурс]. URL: <http://journal.mrsu.ru/wp-content/uploads/2015/07/muxa>*

fedoseeva_statya.pdf

6. Л.О.Сергеевна, Т.А.Влаимировна *Жанры и форматы travel-журналистики в Интернете. Южно-Уральский государственный университет, 2017*

7. А.В. Колесниченко *Прикладная журналистика.*- М.: Изда-во ун-та, 2008

8. Джемаль О.Г. *Мастерская travel-репортажа: [Электронный ресурс]. URL: <http://cloudwatcher.ru/konkursy/08/veter-v-lico/1163>*

Rezyume: *Maqolada sayohat jurnalistikasining asosiy janrlari, ularning xususiyatlari va qo'llash imkoniyatlari ko'rib chiqildi. Turli olimlarning janrlarga bergan ta'riflari tahlil qilindi.*

Резюме: *В статье рассмотрены основные жанры тревел-журналистики, их характеристики и возможности применения. Проанализированы определения, данные различными учеными жанрам.*

Kalit so'zlar: *yo'l ocherki; sayohat (kundalik) eslatmalari, sharh, reportaj, ma'lumotnoma, suhbat, tavsiya (sayohat qo'llanmasi), film-travelog, sayohat reportaj, trevel-shou.*

Ключевые слова: *Путевой очерк, путевые (дневниковые) заметки, обозрение, репортаж, справка, беседа, рекомендация (путеводитель), фильм-тревеллог, репортаж о путешествии, тревел-шоу.*

EXPLORING THE METHODOLOGY FOR STUDYING THE INFLUENCE OF GADGET TECHNOLOGIES ON CHILDREN'S SPEECH DEVELOPMENT

Esnazarova Z.O.

*Nukus State Pedagogical Institute named after Ajiniyaz, Faculty of Preschool Education,
Department of Preschool Education and Defectology*

Summary: *In today's digital age, children are growing up surrounded by various gadget technologies, from smartphones and tablets to interactive toys and educational apps. While these devices offer numerous benefits, concerns have been raised about their potential impact on children's speech development. Understanding the influence of gadget technologies on children's speech requires a comprehensive methodology that considers various factors contributing to language acquisition and usage in the digital era.*

Key words: *literacy, dynamic nature, grammatical competence, longitude methods, socio-emotional, language acquisition.*

It is fact that speech development in children is a complex process influenced by various factors such as genetics, environment, social interactions, and exposure to language stimuli. During the formative years, children learn language through interactions with caregivers, peers, and their environment. These interactions play a crucial role in vocabulary acquisition, grammar development, and overall language proficiency. In addition to that, speech development is a remarkable journey that begins shortly after birth and continues throughout childhood, shaping the way individuals communicate and interact with the world around them. This developmental process encompasses various stages, each characterized by distinct milestones and critical periods. Understanding speech development involves exploring the intricate interplay between biological, cognitive, social, and environmental factors that influence language acquisition and usage.

Let's begin with the early stage of speech development like: Infants are born with an innate ability to perceive and produce sounds. In the early months of life, they engage in prelinguistic vocalizations, such as cooing and babbling, which lay the foundation for speech development. Furthermore, Caregiver-infant interactions play a pivotal role during this stage, as babies learn to associate sounds with objects, actions, and emotions through joint attention and responsive communication.

As children transition into the toddler years, they experience rapid growth in vocabulary size and semantic understanding. They begin to acquire words through a process of social learning, where they link sounds or gestures with specific meanings based on contextual cues and repetition. The acquisition of nouns typically precedes that of verbs and adjectives, reflecting children's early focus on concrete objects and actions in their environment.

Around the age of two, children start to combine words to form simple sentences and express basic concepts. This marks the onset of syntactic development, as they gradually acquire grammatical structures and language rules through exposure to spoken language. Over time, children demonstrate increasing proficiency in sentence construction, including the use of tense markers, pronouns, and word order patterns.

Speech development extends beyond linguistic competence to encompass pragmatic skills, which involve the effective use of language in social contexts. Through social interactions with family members, peers, and caregivers, children learn turn-taking, topic maintenance, and conversational repair strategies, enhancing their ability to engage in meaningful exchanges and establish rapport with others.

Literacy and Language Literacy

As children enter school age, they transition from oral language development to literacy acquisition, which involves decoding written symbols, understanding text structures, and interpreting written messages. Literacy skills build upon the foundation of oral language

proficiency, with reading and writing activities providing opportunities for vocabulary enrichment, comprehension development, and critical thinking.

It is important to recognize that speech development unfolds at different rates and trajectories among individual children, influenced by factors such as genetic predispositions, neurological differences, environmental stimulation, and socio-cultural background. It is undeniable that some children may experience delays or difficulties in speech and language acquisition, requiring early intervention and support from speech-language pathologists, educators, and other professionals.

In one word, understanding speech development entails recognizing its dynamic nature and multifaceted components, from phonological awareness and vocabulary acquisition to grammatical competence and socio-pragmatic skills. By studying the complexities of speech development, researchers and practitioners can gain insights into the mechanisms underlying language learning and devise strategies to promote optimal communication outcomes for children across diverse contexts and developmental profiles.

Taking into consideration, the role of gadget technologies impacts on speech development. Gadget technologies have become an integral part of children's lives, offering interactive experiences, educational content, and entertainment. However, excessive screen time and passive consumption of media can potentially hinder speech development by reducing opportunities for meaningful verbal interactions and face-to-face communication. Additionally, the content and quality of language exposure through gadgets can vary widely, impacting children's language acquisition differently. The role of gadget technologies in the development of children is a topic of significant interest and concern in today's society. Gadget technologies, including smartphones, tablets, computers, and interactive toys, have become ubiquitous in children's lives, presenting both opportunities and challenges for their development across various domains, including cognitive, socio-emotional, and physical development.

Not only gadgets impact on speech development, but also on cognitive Development:

Gadget technologies offer access to a wealth of educational content, interactive games, and learning apps designed to stimulate children's cognitive skills, including problem-solving, memory, and spatial reasoning. Interactive and engaging digital experiences can enhance children's cognitive engagement and promote the acquisition of new knowledge and skills in areas such as mathematics, language arts, and science. However, excessive screen time and passive consumption of media may have negative implications for cognitive development, potentially leading to attention difficulties, decreased concentration, and delays in critical thinking skills.

Furthermore, Socio-Emotional Development is considered to be important part of speech development. There are some reasons followings:

Gadget technologies can serve as tools for social connection, allowing children to communicate, collaborate, and interact with peers and family members through messaging apps, video calls, and social media platforms.

Digital platforms provide opportunities for children to develop social skills, empathy, and perspective-taking by engaging in virtual communities, sharing experiences, and navigating online interactions.

On the other hand, concerns have been raised about the potential impact of excessive screen time on socio-emotional development, including diminished face-to-face communication skills, reduced empathy, and increased risk of cyberbullying and online harassment.

It is known that Physical Development is also taken its role on the speech performance. Gadget technologies offer sedentary forms of entertainment and play, which may contribute to a decline in physical activity levels and increased risk of sedentary behavior-related health issues, such as obesity and musculoskeletal problems.

Screen time displacement, where children spend less time engaging in outdoor play and physical exercise due to increased screen use, can have adverse effects on motor development, coordination, and overall physical health. Encouraging balanced screen time habits and promoting

opportunities for active play and movement are essential for supporting children's physical development and well-being in the digital age.

The most important thing is parental mediation and guidance:

Parents play a crucial role in shaping children's experiences with gadget technologies and mitigating potential risks associated with excessive screen time. Establishing clear guidelines and boundaries for screen use, setting limits on screen time duration, and promoting healthy digital habits are important aspects of parental mediation.

Engaging in co-viewing and co-playing activities, where parents actively participate in children's digital experiences and provide scaffolding and guidance, can enhance the educational value of gadget technologies while fostering positive parent-child interactions.

In another word, the role of gadget technologies in children's development is multifaceted, encompassing both opportunities and challenges across cognitive, socio-emotional, and physical domains. By understanding the potential impacts of gadget use on children's development and implementing strategies for responsible and balanced screen time, parents, educators, and policymakers can help support healthy development and positive outcomes for children in the digital age.

Methodology for Studying the Influence:

1. Longitudinal Studies: Long-term studies tracking children's language development from infancy to early childhood can provide insights into the long-term effects of gadget technologies. By collecting data at multiple time points, researchers can analyze trends in language acquisition, screen time exposure, and communication patterns.

2. Observational Research: Observational studies conducted in naturalistic settings, such as homes, preschools, and daycare centers, allow researchers to observe children's interactions with gadgets and their verbal communication with peers and caregivers. Observational research provides valuable qualitative data on how gadget use influences language behaviors and social interactions.

3. Experimental Designs: Experimental studies can help establish causal relationships between gadget use and speech development by manipulating variables such as screen time duration, content type, and interactive features. Randomized controlled trials (RCTs) and quasi-experimental designs can assess the impact of specific interventions or restrictions on children's language outcomes.

4. Language Assessment Tools: Standardized language assessment tools, such as language proficiency tests and developmental milestones checklists, can be used to measure children's speech and language skills objectively. These assessments provide quantitative data on vocabulary size, grammatical complexity, and expressive language abilities, allowing researchers to compare language outcomes across different groups of children.

5. Parental Surveys and Interviews: Surveys and interviews with parents can provide valuable insights into family dynamics, parental attitudes towards gadget use, and perceived effects on children's speech development. Understanding parental perspectives allows researchers to contextualize children's screen time habits and identify potential moderators or mediators of the gadget-language relationship.

In conclusion, Studying the influence of gadget technologies on children's speech development requires a multidisciplinary approach that integrates insights from psychology, linguistics, education, and technology. By employing a variety of methodologies, researchers can gain a comprehensive understanding of how gadget use shapes language acquisition, communication patterns, and social interactions in early childhood. Ultimately, this knowledge can inform evidence-based guidelines for promoting healthy screen habits and supporting language development in children in the digital age.

References:

1. Anderson, D. R., & Subrahmanyam, K. (2017). Digital Screen Media and Cognitive Development. *Pediatrics*, 140(Supplement 2), S57-S61.
2. American Academy of Pediatrics. (2016). Media and Young Minds. *Pediatrics*, 138(5), e20162591.

3. Carson, V., Hunter, S., Kuzik, N., Gray, C. E., Poitras, V. J., Chaput, J. P., & ... Tremblay, M. S. (2016). Systematic review of sedentary behaviour and health indicators in school-aged children and youth: an update. *Applied Physiology, Nutrition and Metabolism*, 41(6), S240-S265.
4. Christakis, D. A., Gilkerson, J., Richards, J. A., Zimmerman, F. J., Garrison, M. M., Xu, D., & ... Ypanel, U. (2018).
5. Audible Television and Decreased Adult Words, Infant Vocalizations, and Conversational Turns. *Archives of Pediatrics & Adolescent Medicine*, 162(5), 411.
6. Livingstone, S. (2020). Children and the Internet. *Annual Review of Sociology*, 46(1), 29-51.
7. Livingstone, S., & Bulger, M. (2013). A Global Agenda for Children's Rights in the Digital Age. *Journal of Children and Media*, 7(3), 283-304.
8. Odgers, C. L., Jensen, M. R., & Annual Research Review, J. (2018). Adolescent mental health in the digital age: facts, fears, and future directions. *Journal of Child Psychology and Psychiatry*, 59(4), 410-417.
9. Radesky, J. S., Eisenberg, S., Kistin, C. J., Gross, J., Block, G., Zuckerman, B., & Silverstein, M. (2016). Overstimulated Consumers or Next-Generation Learners? Parent Tensions About Child Mobile Technology Use. *Annals of Family Medicine*, 14(6), 503-508.
10. Staiano, A. E., Abraham, A. A., & Calvert, S. L. (2013). Adolescent exergame play for weight loss and psychosocial improvement: A controlled physical activity intervention. 21(3), 598-601.
11. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard university press.
12. Oljabaevna, E. Z. . (2023). The impact of gadgets on the development of communication, socialization and speech in preschool and preschool children. *International Journal of Formal Education*, 2(6), 60–63. Retrieved from <http://journals.academiczone.net/index.php/ijfe/article/view/939>
13. Oljabaevna, E. Z. (2022). To Study the Impact of Language and Social Development on Children When Using a Gadget. *Eurasian Journal of Learning and Academic Teaching*, 4, 59-61.
14. Esnazarova Zulfiya Oljabaevna. (2022). The impact of gadgets on children's development: Delayed speech and autistic disorders. *American Journal of Interdisciplinary Research and Development*, 10, 13–16. Retrieved from <http://www.ajird.journalspark.org/index.php/ajird/article/view/320>

Rezyume: *Zamonaviy raqamli asrda bolalar turli gadjetlar qurshovida ulg'aymoqda: smartfon va planshetlardan tortib, interaktiv o'yinchoqlar va ta'lim dasturlarigacha. Garchi bu qurilmalar juda ko'p afzalliklarga ega bo'lsa-da, ularning bolalarning til rivojlanishiga ta'siri haqida xavotirlar bor. Gadjet texnologiyalarining bolalar nutqiga ta'sirini tushunish raqamli asrda tilni egallash va undan foydalanishga yordam beruvchi turli omillarni hisobga oladigan kompleks metodologiyani talab qiladi.*

Резюме: *В современную цифровую эпоху дети растут в окружении различных гаджетов: от смартфонов и планшетов до интерактивных игрушек и образовательных приложений. Хотя эти устройства предлагают множество преимуществ, высказываются опасения по поводу их потенциального влияния на развитие речи детей. Понимание влияния гаджетных технологий на речь детей требует комплексной методологии, учитывающей различные факторы, способствующие усвоению и использованию языка в цифровую эпоху.*

Kalit so'zlar: *savodxonlik, dinamizm, grammatik kompetentsiya, uzunlik usullari, ijtimoiy-emotsional, tilni o'zlashtirish.*

Ключевые слова: *грамотность, динамичность, грамматическая компетентность, методы долготы, социально-эмоциональное, овладение языком.*

**INTERNATIONAL HARMONY AND SOLIDARITY
SERVES THE PROSPERITY OF THE SOCIETY AND THE SUSTAINABLE
DEVELOPMENT OF THE STATE**

Kamalova M.

Karakalpak State University named after Berdakh

***Summary:** This article delves into the imperative goal of ensuring inter-ethnic harmony and tolerance within Uzbekistan's society. It sheds light on the nation's commitment to creating an atmosphere of friendship, a key priority embedded in its state policy. Through a comprehensive analysis of constitutional foundations, legislative measures, and strategic initiatives, the article explores the multifaceted approach employed by Uzbekistan in building a cohesive, inclusive, and harmonious society. The findings highlight the importance of such policies not only for national unity but also for contributing to global efforts in promoting diversity and tolerance.*

***Key words:** state policy, love and loyalty to the Motherland, citizenship of our country, independence and sovereignty of the state, interreligious tolerance and interethnic harmony*

In recent years, a focal point of state policy has been the commitment to ensuring inter-ethnic harmony and tolerance within society. Efforts have been directed towards fortifying a sense of friendship and fostering a feeling of a large multi-ethnic family. Additionally, the state aims to imbue the younger generation with the spirit of love and loyalty to the Motherland, instill respect for both national and universal values, and enhance cultural and educational relations with foreign countries. Noteworthy large-scale initiatives have been implemented to achieve these goals.

President Sh.M. Mirziyoev emphasized the active application of the Constitution of the Republic of Uzbekistan to marriage, ensuring that citizens, irrespective of their nationality, collectively constitute the nation of Uzbekistan. The President further declared and guaranteed that the Republic of Uzbekistan respects the languages, customs, and traditions of the diverse nationalities and peoples residing within its territory. He underscored the commitment to creating favorable conditions for the development of these cultural aspects.

Indeed, the Preamble of the Constitution of the Republic of Uzbekistan explicitly declares that the people adopted this Constitution, in part, "to ensure the peace and national harmony of citizens." Consequently, our Fundamental Law not only serves as a crucial life guide but also stands as a source of pride and, when necessary, robust legal protection for all inhabitants of this land, regardless of gender, race, nationality, or religion.

Article 4 of our Constitution designates the Uzbek language as the state language of the Republic of Uzbekistan. Simultaneously, it underscores the Republic's commitment to respecting the languages, customs, and traditions of all nations and peoples within its territory, striving to create conditions for their development. This commitment is reflected in the educational sphere, where studies are conducted in seven languages, newspapers and magazines are published in over ten languages, and TV and radio broadcasts are transmitted in 12 languages.

Article 8 of our General Dictionary establishes the norm that "the people of Uzbekistan are comprised of citizens of the Republic of Uzbekistan, regardless of their nationality." Guided by this constitutional requirement, particular attention is given to resolving critical issues faced by citizens who have bound their fate to Uzbekistan, contributing earnestly to the nation's welfare. Addressing citizenship matters, regulating border relations, reviving historical relations among peoples, providing homes for the homeless, extending compassion to the needy, and ensuring that state offices fully serve the people have been long-awaited solutions to pressing issues. The resolution of these challenges has required substantial intelligence, wisdom, prudent policy-making, self-sacrifice, and perseverance.

Article 18 of our Constitution emphasizes that "All citizens of the Republic of Uzbekistan have the same rights and freedoms and are equal before the law, regardless of gender, race, nationality, language, religion, social origin, faith, personality, and social status." Currently, more than 130 nationalities and peoples coexist as one family in our country. Their selfless efforts across all fields contribute significantly to constructing a democratic legal state founded on a developed market economy, fostering the formation of a robust civil society.

While Uzbekistan possesses numerous riches, the paramount wealth lies in the prevailing peace, inter-ethnic friendship, and harmony within society. Today's realities underscore that securing the future of our shared home, motherland, society, families, and children is achievable only through conditions of mutual respect and harmony among people of different nationalities, faiths, and religions. In this context, the Strategy of Actions on the five priority directions of the development of the Republic of Uzbekistan in 2017-2021, initiated by President Sh.M. Mirziyoev, extensively discussed with the public, and approved on February 7, 2017, places special emphasis on the fifth priority direction titled "Ensuring security, interethnic harmony, and religious tolerance, conduct of foreign policy in a deeply thought-out, mutually beneficial, and practical spirit". [2]

To meet the demands of the times, it has become imperative to fortify the independence and sovereignty of the state, enhance regional security, stability, and foster a friendly neighborhood environment. Strengthening religious tolerance and inter-ethnic harmony is pivotal not only for internal cohesion but also to elevate the prestige of our country on the global stage. Formulating a mutually beneficial and practical policy that creates an environment of security, stability, and close cooperation in the surrounding regions aligns with the current needs.

In light of these objectives, there is a pressing need to reinforce humanitarian values and cultivate mutual solidarity among individuals of different nationalities, particularly among the youth. Elevating the quality of efforts in this direction to a new level is paramount.

To address these imperatives, the head of our state issued a significant decree on May 19, 2017, titled "On measures to further improve international relations and friendly relations with foreign countries" [3]. This decree underscores the commitment to advancing international relations and fostering amicable ties with foreign nations, aligning with the broader strategy of enhancing global cooperation and promoting a peaceful and cooperative world order.

Analyzing the pace and impact of sweeping democratic reforms, encompassing political, economic, social, and spiritual liberalization, underscores the collective dedication inspired by our country's president towards achieving pivotal objectives. Against the backdrop of ongoing global transformation, characterized by economic, political, national, religious conflicts, and escalating challenges in information and cyberspace, it is imperative to further cultivate inter-ethnic relations and foster amicable connections with foreign nations.

This assessment illuminates the existence of urgent issues necessitating solutions. These include:

- Elevating collaboration levels between state bodies, organizations, local executive authorities, and civil society institutions to deepen inter-ethnic relations and foster friendly connections with foreign countries;
- Establishing a robust system and mechanisms for monitoring the state of inter-ethnic relations in various locales, forming the foundation for early prevention of potential conflicts and organizing preemptive activities;
- Implementing a comprehensive set of educational, informational, and cultural-educational measures aimed at cultivating the culture of inter-ethnic interaction. This involves studying the history and traditions of the people of Uzbekistan. Additionally, prioritizing the enhancement of training, retraining, and professional development for specialists in state bodies, as well as employees of other organizations involved in the further development of international relations and friendly connections with foreign countries, becomes an urgent requirement in the context of ongoing reforms;

In light of these imperatives, the timely adoption of the Decree by the President of the Republic of Uzbekistan on November 15, 2019, titled "On the approval of the concept of the state policy of the Republic of Uzbekistan in the field of inter-ethnic relations" [4] becomes a pivotal step. It prompts a natural inquiry into the complementary aspects of the two documents signed by the head of our state in the same field, namely, the decrees of May 19, 2017, and November 15, 2019. Understanding the synergies between these documents is crucial for comprehending the holistic approach undertaken to address the challenges and opportunities within the realm of inter-ethnic relations and international connections.

The Presidential Decree of Uzbekistan dated May 19, 2017, stands as a pivotal measure aimed at ensuring stability, peace, and harmony within society. Its core objectives encompass strengthening the sense of belonging to a large, multi-ethnic family among citizens and providing comprehensive support for the further development of national cultural centers, friendship societies, and cultural and educational relations with foreign countries. This decree encompasses effective organizational and institutional measures designed to facilitate expansion.

In contemplating these initiatives, it is essential to highlight the reorganization undertaken on the foundation of two prominent structures that have historically operated—the Republican Center for International Culture and the Council of Societies of Friendship and Cultural-Educational Relations of Uzbekistan with Foreign Countries. This restructuring led to the establishment of the Committee of Inter-National Relations and Friendship Relations with Foreign Countries under the Cabinet of Ministers of the Republic of Uzbekistan. Significantly, this transformation unified entities such as the Republican International Cultural Center, 138 national cultural centers, the Council of Societies of Friendship and Cultural-Educational Relations of Uzbekistan with foreign countries, along with 34 friendship societies, all operating under a singular Committee.

The Committee is actively engaged in the consistent implementation of the state policy focused on ensuring inter-ethnic harmony and tolerance within society. Its endeavors encompass the widespread promotion of a peace-loving policy, showcasing achievements and successes across various facets of the country's life, and fortifying friendships with the international community, including the diaspora of our compatriots abroad.

Coordinating the development of inter-ethnic relations and the establishment of friendly relations with foreign countries in their respective regions is entrusted to key figures, including the Chairman of the Council of Ministers of the Republic of Karakalpakstan and the deputy mayors of the regions and the city of Tashkent responsible for relations with public and religious organizations.

Building upon the foundational decree dated November 15, 2019, issued by the head of our state, the most critical tasks for the consistent implementation and further refinement of the state policy in the sphere of international relations and friendly connections with foreign countries were delineated. These tasks align seamlessly with the overarching requirements set forth in the Action Strategy for the five priority directions of the development of the Republic of Uzbekistan in the period 2017-2021. As a starting point, the primary directions of the state policy of the Republic of Uzbekistan in the field of inter-ethnic relations were defined.

Secondly, the Republic of Uzbekistan endorsed the conceptual framework for its state policy in the realm of international relations. Following that, the "Roadmap" for the execution of this state policy from 2019 to 2021 received official approval. Presently, the Committee on International Relations and Friendly Relations with Foreign Countries, operating under the Cabinet of Ministers of the Republic of Uzbekistan, is actively involved in the meticulous coordination and timely implementation oversight of both the Concept and the "Road Map." In this context, the committee's structure underwent further enhancements as per the Presidential Decree.

At this juncture, it is essential to highlight the establishment of a Center for Scientific and Practical Research on International Relations within the Committee. This new center is

systematically conducting scientific, including social research, in the field of international relations while concurrently monitoring the evolution of processes in this domain. Additionally, a dedicated commission was instituted to ensure the effective implementation of the state policy concept in the field of international relations.

The principal objective of this commission is to enhance and regulate interethnic relations with a focus on safeguarding the constitutional rights and freedoms of citizens. The commission is committed to ensuring equality before the law, irrespective of gender, race, nationality, language, religion, social origin, faith, and personal or social status.

Currently, the Commission is orchestrating a methodical field study to assess the state of affairs in inter-ethnic relations. In executing the outlined concept and "Road Map," the committee is committed to establishing effective coordination among its activities, relevant ministries, and agencies. This involves instituting a systematic approach to regularly hear leaders' reports on the progress made.

An additional crucial aspect emerged in the address presented to the Oliy Majlis on December 29, 2020, where the President emphasized the imperative to elevate efforts in fortifying the environment of inter-ethnic harmony and tolerance within society to a qualitatively new level. Aligning with the UN General Assembly's resolution, the President proposed the widespread celebration of July 30 as International Friendship Day. Consequently, he recommended designating this date as the "Day of People's Friendship" in Uzbekistan, a proposition that resonated positively with our diverse citizenry. In accordance with the Law of the Republic of Uzbekistan enacted on February 10, 2021, July 30 is now officially recognized as the Day of Friendship of Peoples in our country. This law assumes paramount importance as it is geared towards reinforcing unity, tolerance, and inter-ethnic harmony among the diverse array of people and states coexisting peacefully in Uzbekistan, where representatives of over 130 nationalities, 16 religious confessions, harmoniously live together.

On September 19, 2017, during the 72nd session of the UN General Assembly, the President addressed contemporary challenges facing the global community. He advocated for the adoption of a special resolution titled "Enlightenment and Religious Tolerance." This proposal materialized on December 12, 2018, during the 51st meeting of the 73rd session of the UN General Assembly when the resolution "Enlightenment and Religious Tolerance" received unanimous approval from all 193 member countries. The initiation of this resolution, spearheaded by Uzbekistan, carries profound symbolic significance, underscoring the nation's commitment to fostering enlightenment and religious tolerance on the global stage.

Presently, Uzbekistan stands as a global exemplar in ensuring inter-ethnic harmony and inter-confessional tolerance, acknowledged by the international community. The deep historical roots of interreligious tolerance and interethnic harmony in our motherland underscore the enduring nature of these values. In essence, fortifying an environment of friendship, harmony, peace, and stability within our society is undeniably pivotal. This serves as both a crucial factor and an indispensable condition for the consistent implementation of sweeping reforms across the social, political, legal, economic, humanitarian, and spiritual domains. Furthermore, it plays a pivotal role in elevating the prestige of our country on the international stage.

This reality finds practical confirmation in the tangible outcomes of systematic reforms undertaken in the sphere of inter-ethnic relations, as well as the preservation and development of language, culture, traditions, and customs. These endeavors, spearheaded by President Sh.M. Mirziyoev, enjoy recognition from international organizations and the general public alike. Uzbekistan's commitment to these initiatives aligns seamlessly with the principles outlined in the Constitution and the Strategy of Actions. Simultaneously, it resonates with the international agreements, including the UN's Sustainable Development Goals, to which our country has committed itself.

References:

1. O'zbekiston Respublikasi Prezidentining 2019 yil 15 noyabrda qabul qilingan "Millatlararo munosabatlar sohasida O'zbekiston Respublikasi davlat siyosati kontsepsiyasini tasdiqlash to'g'risida"gi Farmoni // <https://xs.uz/uzkr/post/millatlararo-munosabatlar-sohasida-ozbekiston-respublikasi-davlat-siyosati-kontsepsiyasini-tasdiqlash-togrisida>
2. O'zbekiston Respublikasi qonun hujjatlari to'plami, 2017 y., 6-son, 70-modda, 20-son, 354-modda, 23-son, 448-modda, 37-son, 982-modda.
3. Xalq so'zi, 2017 yil 23 may.
4. <https://xs.uz/uzkr/post/millatlararo-munosabatlar-sohasida-ozbekiston-respublikasi-davlat-siyosati-kontsepsiyasini-tasdiqlash-togrisida>

Rezyume: *Maqolada jamiyatda millatlararo totuvlik va bag'rikenglikni ta'minlash, va do'stlik muhitini shakllantirish davlat siyosatining ustuvor yo'nalishlaridan biri sifatida belgilangan haqida so'z yuritiladi*

Резюме: *В статье говорится об обеспечении межэтнического согласия и толерантности в обществе, создании атмосферы дружбы, что определено как один из приоритетов государственной политики.*

Kalit so'zlar: *Davlat siyosati, Vatanga muhabbat va sadoqat, mamlakatimiz fuqaroligi, davlat mustaqilligi va suvereniteti, dinlararo bag'rikenglik va millatlararo totuvlik*

Ключевые слова: *Государственная политика, любовь и верность Родине, гражданство нашей страны, государственная независимость и суверенитет, межрелигиозная толерантность и межнациональное согласие.*

**THEORETICAL FRAMEWORKS UTILIZED BY TRANSLATORS TO NAVIGATE
LEXICAL SEMANTIC CHALLENGES IN TRANSLATION**

Djumambetova G.K.

Karakalpak State University named after Berdakh

Summary: *The article describes a comprehensive exploration of the theoretical frameworks and practical methodologies employed by translators to navigate the intricate landscape of lexical semantic challenges in translation. It delves into the foundational theories underpinning translation studies and examines the diverse approaches utilized by translators to overcome lexical semantic hurdles in their work. The article discusses key theoretical frameworks such as equivalence theory, relevance theory, and cognitive semantics, highlighting their significance in guiding translators' understanding of lexical meaning and semantic relationships between languages. It also explores practical methodologies adopted by translators, including context analysis, collocation analysis, and cultural adaptation techniques, to address specific lexical semantic challenges effectively.*

Key words: *theoretical, frameworks, practical, methodology, lexical, semantic, challenges, translation.*

Introduction. The study of theoretical frameworks and practical methodologies utilized by translators to navigate lexical semantic challenges holds significant importance in the field of translation studies and has practical implications for the translation profession. Several key points underscore its significance:

1. **Enhancing Translation Accuracy and Quality:** Understanding theoretical frameworks such as semantic equivalence, sense disambiguation, and cultural equivalence empowers translators to produce accurate and high-quality translations. By applying these frameworks, translators can effectively navigate lexical semantic challenges and ensure that the meaning and nuances of the source text are faithfully preserved in the target language.

2. **Facilitating Cross-Cultural Communication:** Translators serve as mediators between languages and cultures, facilitating communication and fostering mutual understanding. By employing practical methodologies grounded in theoretical frameworks, translators can bridge linguistic and cultural gaps, enabling effective communication across diverse linguistic and cultural contexts. This is particularly crucial in today's globalized world, where cross-cultural communication is essential in various domains, including business, diplomacy, and academia.

3. **Preserving Intended Meaning and Style:** Lexical semantic features such as ambiguity, polysemy, collocation, and idiomatic expressions contribute to the richness and subtlety of language. Translators must navigate these features skillfully to preserve the intended meaning, style, and tone of the source text. The study of practical methodologies enables translators to make informed decisions regarding lexical choices, ensuring that the translated text maintains coherence and fidelity to the original.

4. **Improving Translator Competence and Professionalism:** Mastery of theoretical frameworks and practical methodologies enhances translator competence and professionalism. By equipping translators with the knowledge and skills necessary to navigate lexical semantic challenges effectively, this study contributes to the continuous professional development of translators and promotes excellence in the translation profession.

5. **Advancing Translation Studies and Research:** Research on theoretical frameworks and practical methodologies for navigating lexical semantic challenges enriches the field of translation studies by offering insights into the complexities of translation practice. By examining how translators approach and resolve lexical semantic issues in different contexts, researchers contribute

to the development of best practices and methodologies in translation studies, driving innovation and advancement in the field.

In conclusion, the study of theoretical frameworks and practical methodologies for navigating lexical semantic challenges in translation is essential for ensuring translation accuracy, facilitating cross-cultural communication, preserving intended meaning and style, enhancing translator competence, and advancing translation studies and research. By addressing these challenges systematically, translators can fulfill their role as effective communicators and cultural ambassadors in an increasingly interconnected world.

Literature review. This literature review explores the theoretical frameworks and practical methodologies employed by translators to address the complexities of lexical semantics during the translation process.

Theoretical Frameworks: Equivalence Theory: Equivalence theory proposes various levels of equivalence between source and target texts, guiding translators in achieving semantic correspondence while accommodating linguistic and cultural differences [2]; [1].

Cognitive Linguistics: Cognitive linguistics offers insights into how language users perceive and conceptualize meaning, informing translators' decisions regarding lexical choices and semantic representations [3]; [4].

Relevance Theory: Relevance theory emphasizes the role of context and inferential processes in communication, guiding translators in navigating lexical semantic challenges by prioritizing relevance and communicative effectiveness [6]; [5].

Practical Methodologies: Contextual Analysis: Translators employ contextual analysis to discern the intended meaning of ambiguous or polysemous words, drawing on linguistic, cultural, and situational cues to make informed translation choices [7]; [8].

Corpus Linguistics: Corpus linguistics provides translators with access to large collections of authentic language data, enabling them to identify collocations, semantic patterns, and usage contexts for more accurate and natural translations [7]; [9].

Pragmatic Considerations: Translators take into account pragmatic factors such as cultural norms, communicative purposes, and audience expectations to ensure that translated texts are contextually appropriate and functionally equivalent to the source [6]; [10].

By integrating theoretical insights from equivalence theory, cognitive linguistics, and relevance theory with practical methodologies such as contextual analysis, corpus linguistics, and pragmatic considerations, translators can effectively navigate lexical semantic challenges and produce high-quality translations that faithfully convey meaning across languages and cultures. This literature review contributes to a deeper understanding of the theoretical underpinnings and applied strategies in translation practice, fostering advancements in the field of translation studies.

Discussion. The translation process involves navigating various lexical semantic challenges, including ambiguity, polysemy, cultural specificity, and idiomatic expressions. This discussion explores the theoretical frameworks and practical methodologies utilized by translators to address these challenges effectively.

Theoretical Frameworks: Equivalence Theory: Equivalence theory, proposed by Nida and Taber [1], suggests that translation should strive to achieve equivalence in meaning between the source and target texts. Translators employ this theory to navigate lexical semantic challenges by selecting lexical choices that convey the closest possible meaning in the target language while considering linguistic and cultural differences.

Relevance Theory: Relevance theory, introduced by Sperber and Wilson [11], emphasizes the importance of relevance in communication. Translators apply this theory by prioritizing the clarity and effectiveness of communication, especially in resolving ambiguity and conveying intended meanings through context and inference.

Cognitive Linguistics: Cognitive linguistics, as proposed by Lakoff and Johnson [3], explores how language reflects underlying conceptual structures. Translators utilize cognitive

linguistic principles to understand the conceptual mappings of words and expressions across languages, facilitating accurate translation and interpretation of lexical semantics.

Practical Methodologies: Contextual Analysis: Translators conduct thorough contextual analysis of the source text to discern the intended meanings of ambiguous or polysemous words. By examining the surrounding text, translators identify contextual clues that help disambiguate meanings and select appropriate translations.

Corpus Linguistics: Corpus linguistics involves analyzing large collections of texts to identify patterns of language use. Translators utilize corpus-based methods to study collocations, idiomatic expressions, and semantic associations, guiding their lexical choices and enhancing the naturalness and fluency of translations.

Cultural Research: Translators engage in cultural research to understand the cultural connotations and nuances associated with lexical items. By immersing themselves in the source and target cultures, translators gain insights into cultural-specific references, enabling them to adapt lexical choices and expressions to resonate with the target audience.

Case Studies and Translation Strategies: Case Studies: Case studies provide valuable insights into specific lexical semantic challenges encountered in translation projects. By analyzing real-world examples, translators can illustrate how theoretical frameworks and practical methodologies are applied to address these challenges in practice.

Translation Strategies: Translators develop and apply specific translation strategies tailored to the lexical semantic challenges present in the source text. These strategies may include paraphrasing, modulation, cultural substitution, or explanatory footnotes, depending on the linguistic and cultural context of the translation task.

Further research and collaboration between translation scholars and practitioners continue to enrich our understanding of effective strategies for overcoming these challenges in diverse linguistic and cultural contexts.

Conclusion. To sum up, the theoretical frameworks and practical methodologies employed by translators to navigate lexical semantic challenges play a pivotal role in ensuring accurate, effective, and culturally sensitive translation. Through the exploration of various theoretical perspectives and methodological approaches, translators are equipped with the tools necessary to address the complexities inherent in lexical semantics during the translation process.

Theoretical frameworks such as semantic equivalence, sense disambiguation, and cultural equivalence provide translators with conceptual lenses through which to analyze and understand lexical semantic features in both source and target languages. These frameworks offer guidelines for identifying and resolving translation problems related to ambiguity, polysemy, and cultural specificity, thereby facilitating the creation of translations that faithfully convey the intended meaning and cultural nuances of the source text.

Practical methodologies, including word sense disambiguation techniques, collocation analysis, and cultural adaptation strategies, offer translators systematic approaches to tackle lexical semantic challenges in their work. By leveraging corpus linguistics, computational tools, and cultural knowledge, translators can make informed decisions about lexical choices, idiomatic expressions, and cultural references, ensuring that the translated text is linguistically accurate and culturally appropriate for the target audience.

In essence, the integration of theoretical insights with practical methodologies enables translators to navigate the complexities of lexical semantics with precision and finesse. By embracing a multidimensional approach that combines linguistic expertise, cultural competence, and technological innovation, translators can overcome the inherent challenges of translation and bridge linguistic and cultural divides with clarity and fluency. As the field of translation continues to evolve, the exploration and refinement of theoretical frameworks and practical methodologies will remain essential for advancing the art and science of translation and promoting effective cross-cultural communication in an increasingly globalized world.

References:

1. Nida, E. A., & Taber, C. R. (1969). "The Theory and Practice of Translation." Leiden: Brill.
2. Catford, J. C. (1965). "A Linguistic Theory of Translation: An Essay in Applied Linguistics." Oxford University Press.
3. Lakoff, G., & Johnson, M. (1980). "Metaphors We Live By." University of Chicago Press.
4. Croft, W., & Cruse, D. A. (2004). "Cognitive Linguistics." Cambridge University Press.
5. Sperber, D., & Wilson, D. (1986). "Relevance: Communication and Cognition." Blackwell Publishing.
6. Gutt, E. A. (1991). "Translation and Relevance: Cognition and Context." Blackwell Publishing.
7. Baker, M. (2011). "In Other Words: A Coursebook on Translation." Routledge.
8. Newmark, P. (1988). "A Textbook of Translation." Prentice Hall.
9. Sinclair, J. (1991). "Corpus, Concordance, Collocation." Oxford University Press.
10. House, J. (1997). "Translation Quality Assessment: A Model Revisited." Gunter Narr Verlag.
11. Sperber, D., & Wilson, D. (1986). "Relevance: Communication and Cognition." Wiley-Blackwell.
12. Baker, M. (2011). "In Other Words: A Coursebook on Translation." Routledge.
13. Katan, D. (2004). "Translating Cultures: An Introduction for Translators, Interpreters, and Mediators." St. Jerome Publishing.
14. www.ziyonet.uz
15. Джумамбетова Г. Formation of economic terms in english and uzbek languages //Ренессанс в парадигме новаций образования и технологий в XXI веке. – 2023. – Т. 1. – №. 1. – С. 131-134.
16. Ахмедов О., Джумамбетова Г. Diachronic analysys of economic terms in english and uzbek languages //Ренессанс в парадигме новаций образования и технологий в XXI веке. – 2023. – Т. 1. – №. 1. – С. 100-103.

Rezyume: *Maqolada tarjimonlar tomonidan tarjimadagi leksik semantik muammolarning murakkab manzarasida harakat qilish uchun qo'llaniladigan nazariy asoslar va amaliy metodologiyalarning har tomonlama o'rganilishi tasvirlangan. Maqolada tarjimashunoslikka asos bo'lgan asosiy nazariyalarni o'rganadi va tarjimonlar o'z ishidagi leksik semantik to'siqlarni yengib o'tish uchun qo'llaydigan turli yondashuvlarni o'rganadi. Maqolada ekvivalentlik nazariyasi, aloqadorlik nazariyasi va kognitiv semantika kabi asosiy nazariy asoslar muhokama qilinib, ularning tarjimonlarning tillar o'rtasidagi lug'aviy ma'no va semantik munosabatlarni tushunishlarida muhimligi ta'kidlanadi. Shuningdek, maqolada muayyan leksik semantik muammolarni samarali hal qilish uchun tarjimonlar tomonidan qabul qilingan amaliy metodologiyalarni, jumladan kontekst tahlili, joylashuv tahlili va madaniy moslashuv usullarini o'rganadi.*

Резюме: *В статье описывается всестороннее исследование теоретических основ и практических методологий, используемых переводчиками для решения сложных задач лексико-семантики при переводе. Он углубляется в основополагающие теории, лежащие в основе переводоведения, и исследует различные подходы, используемые переводчиками для преодоления лексико-семантических препятствий в своей работе. В статье обсуждаются ключевые теоретические основы, такие как теория эквивалентности, теория релевантности и когнитивная семантика, подчеркивая их значение в понимании переводчиками лексического значения и семантических отношений между языками. В нем также исследуются практические методологий, используемые переводчиками, включая контекстный анализ, анализ словосочетаний и методы культурной адаптации, для эффективного решения конкретных лексико-семантических проблем.*

Kalit so'zlar: *nazariy, asoslar, amaliy, metodologiya, leksik, semantik, muammolar, tarjima.*

Ключевые слова: *теоретические, основы, практические, методологические, лексические, семантические, задачи, перевод.*

THE ARTISTIC FUNCTION OF THE TITLE IN THE STORY

Khayrullaev A^{1.}, Akmuratova B^{2.}

¹Tashkent State University of Uzbek Language and Literature named after Alisher Navoi

²Karakalpak State University named after Berdakh

Summary: *This article is about the title of the stories of the writer Normurod Norkabilov. The titles were divided into classifications derived from the name of detail, space, time, symbolic, emotional, and image.*

Key words: *story, title, detail, space and time, image, concept of the work.*

In the process of writing the work of the creator, there is only one line, path, which summarizes and completes the work in his mind, let's say it is the idea of the work, and the title is the short name of this idea or, let's say, the content of the work. Although these sentences do not express the whole essence of the title, in any case, a single word or sentence that expresses all parts and fragments of the work in its content embodies the title before our eyes. Choosing a title is naturally directly related to the skill of the author, the names of some works come to the world in the process of creation, and after the completion of some works, the author puts a title on it. Even sometimes the author changes the name of the work and puts a different title. Such situations are not often observed in the literary process. For example, the talented story writer Shukur Kholmiraev changed the title of "Havas" (1972) to "Uzbek's Simple". Also, the writer Tokhtamurod Rustam named his novel "The Game of Butterflies", and in the next edition he put the title "People who have not seen the sea".

Normurod Norkabilov's choice of title for the story is different from that of other writers. It is worth noting that the compositional uniqueness of the author's work is evident in the title itself. The writer chooses a short title for his stories, does not include figurative, symbolic, polysemantic words in the title. Sh. Kholmiraev ("Almonds bloomed in winter", "Spring air in autumn", "Moon blocked by a cloud", "The law of gravity of the universe", "Green field") or Nazar Eshankul ("The wind cannot be caught", "The man led by a monkey", "Qultoy", "Bahovuddin's dog") are almost never found in Normurod Norkabilov's stories. Adib follows a relatively traditional path. Its titles recall the titles of Abdulla Hkakhhor's stories ("Anor", "Tomoshoboq", "Daxshat", "Bemor"). The title of the writer's stories can be classified as follows. These are the titles included in the conditional classification derived from the name of detail, space, time, symbolic, emotional, image. The reason we say conditional is that an emotional title may have symbolism, or a title in a time and tense classification may have relevance to another classification. Detailed titles are Handkerchief, Stone, Butterfly, Well, Book, and others. Most of the writer's stories are detailed titles. When talking about detailed titles, it should be mentioned that artistic detail is important in the plot of the story, but also because it plays a big role in the fate of the characters, it rises to the level of the title of the work. For example, if we take the writer's story "Handkerchief", it is "... built on the basis of a characteristic detail - simply the events related to the handkerchief. In the story, about the lovers, a simple yellow kerchief with a red silk net on the edge of the head and the initials of the lovers' names written on one end, which accidentally fell into the hands of a child, serves as a magic key that reveals the secrets of several characters. When reading the work, it becomes clear that the handkerchief presented to the young man is a symbol of the girl's heart and hopes; since the young man dropped the handkerchief, it is not just a coincidence, but the result of disrespect and indifference to the girl's dear feelings, the beginning of the betrayal that is evident at the end of the story; this handkerchief, which accidentally fell into the boy's hand, makes his imagination go wild, thanks to this handkerchief, he shares the girl's dear feelings, generosity of heart and endless suffering. He will be aware of the deceit, betrayal and crime of a false lover; unable to bear these pains, he faints; in the end we come across that familiar magical detail - the yellow handkerchief. No, this is

not the handkerchief that the girl gave to the boy, which the boy had left, but instead of the dear bisot that the boy had found, another yellow handkerchief that the girl had given him at his request; after a boyfriend's betrayal, a girl's death, we see this handkerchief, which is extremely honorable for a child, when he faints, he throws it away... In this way, a simple detail in the story acquires a serious meaning and serves a specific artistic purpose³⁰.

Examples of the titles related to the place are the stories "In the Brewery", "On the Road", "Crossroads", "Corridor", "Shrine", "Dashtda", "Enatepa", "Karovultepa", "Yakkasuv", "Hill". These titles are characterized by the fact that the plot of the story takes place within a specific space or the detail of a specific space rises to the level of an artistic image. These types of stories differ in terms of depicting the spiritual image and faith of the main character in parallel with the inner world of the hero. Also, the place where the reality of the work takes place makes a sharp turn in the character's fate or psyche.

In the plot of the work of art, the titles representing time and time include the writer's stories "Rainy Evening", "Wedding Night", "The First Day of Summer", "The Night Guest" and others. The plot of these stories takes place on the border of space and time, within a chronotope. For example, in the story "The Night Guest" the artistic reality is limited to Chamanoi's yard and the night, while in "The First Day of Summer" the events take place on the river bank until sunset.

Stories with titles related to the emotional state of the hero include "Gloomy", "Happy Day", "The Stormy Day", "Alam", "Unfinished Picture". In these stories, the description of the inner feelings of the hero is leading. A clear example of this is the extensive portrayal of inner pain and suffering in the story "Mung". In stories with similar titles, as a result of external or internal influence, the hero experiences a certain state of mind.

Titles derived from the name or name of the image include the stories "Bulak", "Dongkalla", "Girl", "Kashka", "The Boy Who Sells Milk", "The Old Man and the Boy", and "The Outsider". These titles are taken directly from the name of the main character of the story and are placed at the top of the work as a title. "In the titles of the works, emphasis is placed on the characters, it is indicated that the direction of the plot is related to these characters³¹."

Stories with a symbolic title include "The Land of the Never Setting Sun", "The Day of the Eclipse", "The Forgotten Song", "The Blue Lake" and others. These titles have their own, conditional symbolism. In the plot of the story "The Day of the Solar Eclipse", the eclipse of the sun refers to the end times, the apocalypse. In the story "Forgotten Song" reference is made to the period of youth.

So, the title stands out as a compositional element that determines the content of the work. Adib names his works according to his creative intention. The reader enters the world of the work through the title, which is an important component of the work. Normurod Norkobilov's skill in using titles serves to ensure the integrity of the concept of literary stories.

References:

1. Boboev T. Basics of Literary Studies T.: "Uzbekistan"-2002. B.146.
2. Youth magazine, 1983, No. 2. B.39.
3. Norkabilov N. Selected works T.: "Ferdavs-Shah", B.247.
4. Norkabilov N. Selected works T.: "Ferdavs-Shah", 146-147.
5. Toraeva B. A comparative-typological study of chronotope poetics in modern novels. (on the example of novels by Ch. Aytmatov and N. Norkabilov) T.: "EFFECT-D" 142.. Hamraev K. Story composition. - T.: Nurafshon business, 2020. - B. 100.

Rezyume: *Mazkur maqolada yozuvchi Normurod Norqobilovning hikoyalari sarlavhasi xususida soʻz boradi. Sarlavhalar detal, makon, zamon, ramziy, emotsional, obraz nomidan olingan tasniflarga boʻlinib tahlilga tortilgan.*

³⁰ Youth magazine, 1983, No. 2. B.39.

³¹ Boboev T. Basics of Literary Studies T.: "Uzbekistan"-2002. B.146.

Резюме: Данная статья посвящена названию рассказов писателя Нормурода Норкабилова. Названия были разделены на классификации, основанные на названии детали, пространства, времени, символических, эмоциональных и образных.

Kalit so'zlar: hikoya, sarlavha, detal, makon va zamon, obraz, asar konsepsiyasi.

Ключевые слова: сюжет, название, деталь, пространство и время, образ, концепция произведения.

“LOVER”, “BELOVED”, “RIVAL” MOTIVES IN THE STORY GENRE

Hamraev K.O¹., Boltaboyev O.Yu².

¹*Tashkent State University of Uzbek Language and Literature named after Alisher Navoi,*

²*Karakalpak State University named after Berdak*

Summary: This article examines the theme of love in Uzbek stories of the 20th century. The typological and specific features of the plots of the work on the theme of love are interpreted. On the example of the stories of artists such as Togay Murad, Khairiddin Sultan, Nazar Eshonqul, Murad Muhammad Dost, Olim Otakhan, the changes in the psyche of the lover and the lover are shown against the background of nature. In addition, the poetic nature of the motifs of separation and meeting is widely covered in the stories about love.

Key words: *Title, composition, plot system, artistic image, artistic detail, artistic idea, figurative meaning, irony, story genre.*

In the 20th century, Uzbek storytelling found its true form. In the process of historical formation, the story underwent a renewal in form and content. As a result, Uzbek storytelling served as an artistic field in actively reflecting the problems of man and society, man and the world, past and future. That is why the various topics expressed in the stories of writers such as Abdulla Qadiri, Abdulhamid Cholpon, Gafur Ghulam, Abdulla Kahhor, Shukur Kholmiraev, Ahmad Azam, Nazar Eshonkul have left an indelible mark in the history of twentieth century literature.

In the following years, in the literary process, it became a tradition to publish stories on the same topic in the form of a collection. In recent years, the emergence of collections such as "XX asr muhabbat haqida yigirma hikoya" (T.: Uzbekistan , 2015), "OqTirnoq" (T.: Gafur Gulom , 2016) and "Onajon, ka'bam'ning" (T.: Gafur Gulom , 2016) serves to correctly assess the different stages of Uzbek storytelling . There are themes in fiction that work in their own way, within their characters. One such topic is the topic of love. If you think about it, we have a lot of monuments of eternity in different genres, from the Uzbek folklore to the history of classical literature and artistic interpretation of the theme of love. In the collection "XX asr muhabbat haqida yigirma hikoya", we read the following words: "In the treasury of our literature, there are stories written on the topic of love, which are enjoyed by today's and future generations ..."[1].

Although we see different interpretations of the same theme in the stories in this collection, it is permissible to recognize the importance of the common aspects between them. The appearance of similar components in the stories on the same topic, the expression of the feeling of love in close-up scenes, as well as the depiction of the experiences in the psyche of a lover and a lover leave their mark in the memory of anyone.

Twentieth-century storytelling is rich and diverse in terms of subject matter. These stories depict the love of the time, its characteristics, as well as the traditional plots of world literature, eternal and living motifs such as suffering, migration and exile. In the system of images of most stories, the presence of a triple system, i.e. a lover, a mistress and a rival system, typological signs of this theme can be found in the examples of the "first plot" . In fiction, these concepts are reflected in the composition of the first plot: by "first plot" we mean that the first divine information about the first man - Adam alayhissalam, which appeared in the Holy Qur'an [2], was transferred to fiction.

In order to clarify our point, let's dwell on some stories from this collection. Murad Muhammad Dost's story "Dашту далаларда" reminds of works with a traditional plot tested by its essence. The story begins with the spiritual experiences of the main character, a wrestler. "Haditha is gone, and the heart is also gone". Now it is difficult for a wrestler to live here. The reason was that "everything in the house reminds me of Hadicha: her step touches the threshold, her shoulder rests against the wall". As a result, the wrestler's heart sank. "He took refuge in the cellar left by his grandfather on the slope leading to the garden". This shelter was a place suitable for a narrow mind.

To Polovon, "at first, the basement looked a bit scary. The ceiling is low, and if there is no light, it is the origin of a real lahad . He gradually " got used to being blind " [3]. After this " getting used to " , he remembered the events that happened one after another. He remembered and felt sorry for himself. The fog that covered his being was dispelled and his mind began to clear ...

The events of the story are told through several plot lines. Two retrospective plot lines are connected to the chronological plot line in the story . This allows us to understand the dimensions of time and space that are characteristic of a great epic century. The incident of bringing Khadija as a bride from Shorkudu , the incident with Salim, and the events that took place on the way to bring Khadija back, each of them has its own bittersweet moments of love , the painful agony of marriage , and the sweet moments of love . expressed. Salim sakich, Nazar Makhsum, a wrestler who was a slave to the tricks of antichrists, is freed from the basement. Now no force could separate him from Khadijah. In the chronological plot line of the story, the writer describes the events of separation, and in the retrospective plot line, he talks about the actions of hateful people like Salim Sakich, who sows the seeds of suspicion between the happy lover and the lover. So, the essence of this story reminds the events of the first plot with the characters' feelings of suffering, emigration and visola, as well as being deceived by the tricks of the Antichrist. So, the writer created a bright image of the hero of the era in a small genre. This image can be said to be a reflection of a simple, brave nation's son in a work of art.

In the works about love, some features of the first plot are hidden in the fabric of the artistic text. For example, in the stories of Said Ahmed "Кўзларингда сехр бор эди", Olim Otakhan "Хотира ва хаёл ", Nazar Eshanqul " Оқ аланга " , a separate motive is the priority. The image of a lover describes his spiritual experiences in his own language during the pain of hijran. It helps a lot in reflecting the pains and thoughts of the hero. Such stories embody the characteristics of lyrical thinking in plot construction and expression. The events of O.Otakhan's story " Хотира ва хаёл " are revealed through the inner world of the hero, the evolution of his psyche. The hero's feelings are mixed with natural phenomena and acquire a symbolic meaning:

“...The room is quiet. It is snowing outside.

Half an hour ago, when I was walking thoughtfully on the street with tall buildings, sidewalks, and treeless streets, the snow falling on my skin, hair, and face now fell on my thoughts and memories, and white snow sparkles began to illuminate my thoughts about love and youth suffering like night stars. [4]. In the story, white sparks of snow are contrasted in a semi-dark room, and human body is contrasted with his free spirit. The above extract shows that these two opposite concepts served as an artistic conflict and the symmetrical axis ensured the balance of internal content in the story. Snow-white sparkles light up the dark world of the hero and introduce him to hopeful feelings. This story is about the agony of a lover who has lost his lover, and only memory and imagination can soothe his agony. The following words of Arafat are embodied in the hero's memory and comfort the sick soul. "... You said then that those who have left the world since the beginning of human life on earth will return with flowers in the spring, with waters in the summer, rain in the fall, and snow in the winter " [5]. So, in the story, the hero suffers from the feeling of physical separation, but believes that he is with his lover in spirit.

The head of the hero of N.Eshanqul's story " Оқ аланга " was also touched by the fire of parting. In this story too, the narrator narrates the events retrospectively. The pain of emigration in the lover's heart is described not only directly, but also through a letter: "... You may have forgotten me," the young man wrote to his once beloved daughter, "I may have completely disappeared from your memory." But in my mind, you still shine in that image - in a white dress with blue flowers. You are like a fluttering white flame. ... Alanga still warms my cold room like embers ”[6].

" White Flame " , the room also functions as an artistic space. This room alone is witness to the love of a lover like a flame . Rather , the witness is not a grudge , a confidant, a close friend . Because the young man used to write letters every day and put them in envelopes and take them to his room . All the pains in his heart were reflected in the letters, so they turned the room into a flowerbed that night : " When the window was full, the young man began to pick the pots with

flowers on the desk, chair, bookshelf, floor, and then on the sofa . The corners of the room were filled with paper flowers. A flower garden appeared in the room, with all the flowers in full bloom ”[7] .

In Uzbek storytelling, writers used nature and interior images for many purposes, but the landscape in " Оқ аланга " of N.Eshanqul is unique. In it, letters, white flame, vase, room - all in one whole were a symbolic expression of different aspects of the lover's heart, more precisely, the lover's heart itself: " The young man left the room and went out. Walking around the house, he looked at the window of the room. The room was engulfed in flames ..."[8]. The room turned into a white flame is an artistic invention of the writer. In essence, this discovery evokes the highest feeling called love.

" Эр-хотин " and " Дунёнинг сири " by Khayriddin Sultan , which are included in this book, also show common scenes in the description of reality, plot and image system. The events of the story take place in a chronological plot line, the depiction of a young family in the center of the story, and the expression of the couple's psyche are examples of our opinion. However, it should be noted that the compositional features of these two stories differ from each other. This is especially evident in the artistic idea of the author.

The writer begins the story " Эр-хотин " with the following sentences: " No, they did not meet on the bank of the river." At the meeting, he could not copy poems from books to say as his own. " Oh, I love you, I can't live without you!" Although they did not speak seasonal words like ” [9] , they were married. At first, they lived through various ups and downs of life. There were even times when Barchinoy said that he would not marry without a heart. However, due to the sacred bond between the Ural poet's horn work (child) and the couple, love sprouted in their hearts. The author has a unique approach to the theme of love in the story. It reveals the maturity of this feeling at the heart of pure national values in the image of the life of a young family. Adib praises that love does not happen in a random meeting, but only by understanding each other and following the traditions of the holy family.

" Дунёнинг сири " by Khairiddin Sultan , we can witness another unique interpretation of the feeling of love. Most of the events of the story take place in the resort library. The newly married bride works in this library and " comes to work every morning, dressed in her wedding dress, but regrets that there is no living soul admiring her comfort in a humid room without sunlight" [10]. Only Muzaffar, a blind student , entered this room, and as soon as he entered, he buried himself in books. This angered the bride. In this way, a wife who does not receive enough attention from her husband, willy-nilly becomes attached to a sick young man. No matter how much she observes, Kelinchak does not understand when and why she fell in love with this person, who is physically unhealthy, but mentally fresh. The true meaning of the title of the story is in this feeling. The writer admits that in some cases family and external beauty are powerless in front of love.

So, in the expression of this theme in these stories, the interpretation of the motivations of pain in the agony of love, separation in exile, and achievement in the end, if this feeling has a typical character with its commitment to eternal life from the beginning to the end, it is renewed in the heart of every creator and acquires a poetic meaning in the world of art with various glosses .

References:

- 1.Каримов Б. Бир шода марварид//XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.4.
2. Жўрақулов У. Назарий поэтика масалалари.-Т.: Ф.Ғулом, 2015.Б.153.
3. Мурад Муҳаммад Дўст. Дашту далаларда. // XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.147-159.
4. Олим Отахон. Хотира ва хаёл. // XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.218-223.
5. Юқоридаги манбадан, Б.221.
6. Назар Эшонқул.Оқ аланга// XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.252.
7. Юқоридаги манбадан, Б.253.

8. Юқоридаги манбадан, Б.253.

9. Тоғай Муроднинг. Эр-хотин // XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.142.

10. Хайриддин Султон. Дунёнинг сири// XX аср муҳаббат ҳақида 20 ҳикоя(тўплам). – Т.:Ўзбекистон мил.энц, 2015, Б.252.

Rezyume: *Bu maqolada XX asr o'zbek hikoyalarida muhabbat mavzusining yoritilishi o'rganilgan. Ishq-muhabbat mavzusiga oid asar syujetlarining tipologik va o'ziga xos ko'rinishlari talqin qilingan. Tog'ay Murod, Xayriddin Sulton, Nazar Eshonqul, Murod Muhammad Do'st, Olim Otaxon kabi ijodkrlarning hikoyalari misolida oshiq va ma'shuqa ruhiyatidagi o'zgarishlar tabiat tasviri fonida ko'rsatilishi tahlil qilingan. Bundan tashqari muhabbat haqida hikoyalarda ayriliq va uchrashuv motivlarining poetik xususiyati keng yoritilgan.*

Резюме: *В этой статье изучено раскрытие тем любви в узбекских рассказах XX века. Выражены типологические и типичные виды сюжетов произведений, относящихся к теме любви. На примере рассказов писателей подобно Тогай Мурод, Хайриддин Султон, Назар Эшонкул, Мурод Мухаммад Дуст, Олим Отахон анализированы показывания на фоне описания природы изменения в психике влюблённых. Кроме этого, в рассказах о любви широко раскрыты поэтические особенности мотивов разлуки и сведения.*

Kalit so'zlar: *Sarlavha, kompozitsiya, syujet tizimi, badiiy obraz, badiiy detal, badiiy g'oya, majoziy ta'no, kinoya, hikoya janri.*

Ключевые слова: *Заглавие, композиция, сюжетная система, художественный образ, художественная деталь, художественная идея, аллегорических смысл, жанр рассказа*

ABOUT THE VERSION AND VARIANTS OF THE EPIC "ERKOSAY"

Bekbauliev K.

Researcher of Karakalpak Institute of Humanitarian Sciences at Karkalpakstan Branch of the Academy of Sciences of the Republic of Uzbekistan

Summary: *This article analyzes the versions and variants of the epic "Erkosay". Some significant information about national epics in the works of well-known scientists are given in the article.*

Keywords: *epic, research, hero, nation, concept, plot, character.*

The study of the national versions of the "ErKosay" epic and their research is one of the factors that will ensure the effectiveness of our scientific activity. The reason is that in the process of researching the national version of any epic, whether we like it or not, we are forced to compare it with other versions from a historical and folklore point of view. In this matter, it is not a sin to pay attention to the similarities between the versions and variants of the epic, perhaps it is based on knowing the opinions of local scholars about the epic or scientific backwardness, and predicting and controlling the correctness or inaccuracy of your scientific opinions necessary for the use of scientific analysis and synthesis methods. According to famous Turkologist, academician V. M. Zhirmunskiy, "There is a way to search for similar versions and variants in a relative way. First, historical genetic comparisons, focusing on the origin of such comparable events from the same cluster and the features that benefited later stages of historical development. The second is the historical typological comparison, in which the similarity of the events that are genetically related to each other, from the similarity of the state of social development. Thirdly, it is necessary to compare the cultural relations between the peoples and peoples with the characteristics of "Influences" or "Acquisitions", which are the result of the development of the community close by origin. Only the application of such methods will bear fruit in revealing and demonstrating the historical foundations of epic essays [1].

To implement these relative research methods, we will not say more than the fact that the historical community and epic traditions have been fully preserved in the epic essays of the peoples of Central Asia, and therefore the peoples of the region. The reason is that the events described in their sagas are genetic typology, and their interaction can meet all the requirements of research. For example, none of the epics has a purely genetic or typological character. They are described in an intermediate state. The researcher can distinguish which one they belong to based on their content. Of course, it is important to study the influence of the stages of historical community development on epic essays. One more thing to note is that the methods of comparison should be closely related. Otherwise, we will not be able to distinguish genetic plots from typological features or genetic aspects of typological plots and their influence possibilities. In this way, there will be no chance to hide them from the eyes of the historical public. It is clear that these requirements are necessary for essays on large populations with very little research and realistic historical content. While studying the Karakalpak heroic epic "ErKosay", we are very happy to fulfill these requirements. The reason is that the content of the epic, the names of the heroes, geographical locations, and the closeness of gay bribery plots can be found in other national versions corresponding to the content of the epic.

National versions of the "ErKoshlaray" epic, compared we have now, are mostly written in the Karakalpak, Kirgыз, Kazakh and Nogai peoples. Their similarities in content and motives are characterized by the common names of the heroes and dedication of the epic to the theme of protecting the people, especially the heroic deeds of the young hero who returns his father's blood from his enemies. In some versions, the beautiful epic poems related to "ErKosay" are seen as one of the heroes participating in the events of the epic without the name of a special epic. For example, in the epic "Manas" of Kirgыз's, ErKosay, who is part of the cycle of epics, is marked as a hero.

Kazakh ethnographer Sh. Oalikhhanov recorded the epic "Manas" for the first time (1856), and he called this epic "The Iliad of Kirrağız". Paying attention to its complex nature, this epic is an encyclopedic collection of myths, fairy tales, legends and fairy tales of the Kyrgyz people, collected in one place and piled on the monastery [2]. Academician V. V. Radlov "Manas" is a poetic illumination of the life and aspirations of the people (here the Kyrgyz)" [3] came to the conclusion that these are true, and by the way, these thoughts have the content of staying in prayer. However, we can find a clear and significant idea of the "Manas" epic in the works of V. M. Zhirmunskyi. He called the epic "Manas" "Genealogical cycle". For example, the beautiful epic stories about Manas's birth, heroism, marriage, taking revenge from his enemies, death, his son Semetey, grandson Seytek, who will continue his succession, show that only this opens the way to the interpretation of thoughts [4]. By the way, the epic "Manas" has a genealogical character, it consists of the composition of chained events that reflect the transition stages of the heroism of protecting people from tradition to generations. According to the researchers, each of the heroes of the epics that make up the "Manas" genealogical cycle were great epic essays. So, "Seeking the contents of the monastery" lost its original single content properties [4]. The correctness of this opinion can be confirmed by the contents of the Karakalpak heroic epic "Er Kosay". The reason is that this epic has the character of a unique epic in the environment of Karakalpak residents, who have fathers, events, and national customs in front of them. So, the word pressure is the possibility that there were cases where the content of the epic "Manas" was absorbed. "Er Kosay" in the epic "Manas" (the trilogy is called Dabda) is called Kosh-Kosay Dabda and appears among the rebellions started by Toshtuk and Zangoricha, who do not want to tolerate his humiliation, violence, and insults, who are equally angry with Manas. In the different versions, when people talk about their disagreements. If Manas is strong, he will be strong, but not weak. With eyebrows, Zangorietaydı is going to stay in the grounding ceremony. The 70-year-old khan of "Manas" is praised as the "Father of the People", "Invincible Hero", and "Improved Fighter". A sorcerer with the ability to change the appearance of a living species appears in the guise of a benevolent man. With his blessing, Manas's child Semetey comes to the world. However, the fact that he is a hero who recovers the blood of his dead father from his most bitter enemies is of different importance for all versions of existence. Looking at these features, we have the opportunity to interpret the prediction that the content of the Karakalpak heroic epic "Er Kosay" may be one of the earliest versions of the genealogical cycle of the epic "Manas". In addition, the versions of the epic "Erkókshe", "Er Kosay" are also known among Kazakhs [5]. Ethnographer Ch.Valikhanov recorded the epic "Er Koshlaray" from the ransoms among the Karakalpaks. Prof. quoted that the content of the epic "Er Ko'say" told by Tasadduqbai tangiū corresponds to the content told by Valikhanov. Q.Makhsetov's information is important for determining the versions of the epic and for recognizing them as national epic essays [6].

I.Sagitov's epic poems "Edige", "Er Sho'ra", "Er Kosay" in Karakalpak are also similar to the Kazakh version of these poems [7]. In his opinion, he refers to a detailed and careful study of some event features of the "Er Kosay" epic, which we are going to talk about. Based on these, we take into consideration the fact that the closest version of the epic in terms of content, artistry and idea are the epics "Er Kokshe" and "Er Kosay", which are taken from the epic essays of the Kazakh population, and historical folklore. We have the opportunity to determine the properties of both versions of the types of existence included in the relative search.

The Kazakh version of the epic "Er Kosay" consists of several variants. Some of them are patriotic epics that appeared in white print in the last half of the 19th century. For example, the version of "Er Kokshe" published by V.V. Radlov in 1870 (the name of the epic is about Er Kosay) was written in 334 lines with a few words interspersed. "Er Kokshe and his child Er Kosay" variant was published by G. N. Potenin in 1918 in the second and third editions of "Jivaya straina" magazine (pp. 53-57). "Er Kosay" was recorded by Khangeldin in the 30s of the XX century and handed over to the Kazakh Research Society. This version of the epic is on the second roof of "Botirlar Jırı" (1961-j 15-74 bb). It was published in the first edition of "Aqsawıt" (1976, pp. 5-56) and in the third edition of "Batirlar Jırı" (1987, pp. 63, 166). Murin Seńdibaev's version of "Kosay"

is an epic written with interspersed lines (939 lines) [8]. In Kazakh folklore, there are four versions of the epic to this day. Of course, these options have their own characteristics in one line with the similarities of events. In these, the names of heroes of Er Zangoricha and Er Kosay are kept stable, the names of some epic heroes, the names of geographical places, the names of the names of the geographical places, and the names of the heroes are three. In the epic "Er Kosay" of the people of Karakalpak, it has unique national features as a version essay. However, one feature that sums up all this is that the image of a hero who protects the people is kept stable in any of the epic stories.

About the Nogay version of the epic, Andim Sikaliyev, a Nogay folklorist, expressed his interest in the fact that the people of Nogay have been collecting their own heroism for years informs about its existence in the epic "shlaray" [9]. Comparing these with the Karakalpak version of the epic, carrying out scientific research in the direction of folklore creates the best scientific results in determining the era, sources of emergence, genetic characteristics, and typological similarities of the epic. On the other hand, the versions of any epic are related to the separation of peoples who were together at one time (Khipchak, Konrat, Nogay, etc.) and develop in relation to the epic requirements that were taken with them. Thus, over time, new versions of those sagas appeared [10]. Each epic essay is a unique essay in terms of its content and the use of programmatic plots. By studying these essays, we can clearly see the characteristics of our national epic essay. "The epic of each nation is not a single variant but a national artistic work with its own uniqueness» [7]. "Er Kosalaray" epic is not only a grudge among Karakalpak folklorists, but it has not been studied in a special way in the scientific researches of other nations where this epic takes place. The opinions about the epic are not mentioned in the forewords of the preparation of the text of the epic, in the commentaries on the work of the famous poets, in monographic works, but the epic has not yet become an object of research on its own.

The plot connections that provide the content of the epic have unique properties for each version or variant of the epic. Since the names of the heroes in the epic are described as "Er Kokshe" and "Er Kosay", and the source of the events is devoted to the theme of protecting people, the differences between them cause many scientific problems that must be solved. For example, Kosay, as the hero of the epic, is a multi-faceted hero with the image of a 70-year-old wizard in gay brothels. The printed part of his image is enriched with mythical and mystical elements. According to our observations, among the epics of the Nogay period, the epic "Er Kosay" is seen with more unnatural mythic, fairy tale-like plots.

Scholars have raised the question of whether Er Kosay is a person in history or an epic hero who did not, and have not yet been able to find a complete solution to it. When the name of "Er Kosay" is mentioned among the heroes of the Nogayli cycle, there are no sources about his existence in history [4]. We do not have relevant historical information about his father Er Kokshe.

The epics of the nomads, which are part of the geneological cycle, consist of heroic deeds passed down from father to son, and are presented in the works of V. M. Zhirmunskiy, "The Forty Heroes of Qirim". There, Er Kokshe and Er Kosay are marked with the numbers 11 and 12 and are evaluated as heros (generations) [4]. This situation makes it possible to say that the epics should be included in the epos of the people. In addition, "Forty heroes of Qirim" does not consist of the original hashes born from the chain of uzilmeitug. They are divided into several gangs, each with horses and beating people. A cycle of forty heroic epics belonging to the epic of Nogay was collected, and the epics combined into several groups were absorbed into their own content. According to Kazakh scholars, Murin Sengirbaev had a strong role in the emergence of this series of epics [11]. He (1859-1954) lived around the world. For some reason, there is a stockpile around Karakalpakstan. He was able to participate creatively with Karakalpak "jiraws" and local Kazakh streams [9]. It is certain that these contacts, which took place in the last quarter of the 19th century, could not but serve to expand and broaden the repertoire of the future exchange. His bailout services during his time in Karakalpakstan provide a different learning experience. However, despite the fact that he wrote and distributed other essays such as "Edige", "Er Sho'ra", "Er Soyim", "Er Kosay", which are part of the strange type of epics told among the Karakalpaks, there is little

regard for their content and artistic levels. It is clear that he tried to enrich the repertoire by studying them. Based on these possibilities, we can determine the episodes and plots of the Karakalpaks in the "Er Kosay" saga, which were defeated due to their mutual influence. Despite the fact that Er Koshlaray is an unusual hero, the similarity of characters between the versions gives a lot of relief in the similar events. For example, prof. S. Bahadirova in her article about the epics "Er Kosay" and "Manas", compares the plots of both epics and draws attention to the fact that Er Koshlaray is a person in history. She said, "Scientists believe that Er Koshlaray is a historical person. In the Russian chronicles, Sh.Valikhanov wrote that Nikonov's chronicle was written in 1423 as Zangorishey, who died in Odoev's signature. Er Kosay is known that in the legends of the Karakalpak population, there was a return to the Karakalpak area in the XIV century. His cemetery was buried in the sheepfold of Karatash near Ámiwdarya in Karakalpakstan [2]». By the way, at the same time Er Kosay cemetery is located in the illuminated place, it became a special place for people to visit during one period of time. Elsewhere, there are no fact decrees that determine the land that was planted without adding land. Brows to us in a place called "Atbashi" in the surroundings of the Kyrgyz mountains [4].

In all versions of Degan, Er Zangorich and his vengeful hero son Er Kosay are mentioned together without change recognition, many of their names are seen as heroes of historical events, etc. If we rely on the reasons, we have to admit that he is a hero of the historical prototype type. All in all, the fact that the historical sources of reliable documents are not wide enough does not allow us to make a correct opinion. Prof. R. Berdibaev said, "It is necessary not to follow the events with a certain bias, since the epos played a different role in history, it is necessary to look for the image of the hero who has reached the end in the minds of the people's minds, who burned aggressive enemies with the merciless demanding power of people close to someone» [12]. By the way, they never did their creative work without a reason or proof. As long as the population has a heroic image, it means that there is a vital need for a community based on it. The heroes of the epic lived in history not because of their absence, but because of the beautiful images given by the people and desired by the people.

National versions also have different accounts of how Er Kosay came out of the beating. In the epic "Manas" he is mentioned as the khan of the Khabasan tribe [4]. In the Kazakh version, it is more pronounced as the son of Uaq. In the Karakalpak version, the ethnic sign "Nogay" is kept stable [13]. Of course, at the time when the term "Nogay" was a word, it was the name of the union of several races that expressed the meaning of ethnicity. Therefore, it can be assumed that Er Kosay, who is marked on the cover of that book, is a hero who belongs to the same lineage of Nogay.

In the Karakalpak version of the epic, the words "katagan" and "uaq", which are mentioned in other versions, are three. From this point of view, the question of determining the origin of the hero can be carried out from the national versions, which are related to the ethnic and geographical possibilities. If the city gives you epic essays, the performers will try to bring all the events and places where you have been to your side. This is a legal concept that has been used in the creative experience of our people for hundreds of years, and does not allow for actions that are vetoed or rejected outright. One of the new problems in Karakalpak folkloristics is the study of the epic "Er Kosay" from the genetic and typological level. Genetic and typological researches have not yet been carried out on a single population essay. However, it should be noted that there are positive comments about these problems. They will find more epics individually in monographic research tasks.

The tasks and ideas of revealing the unique characteristics, ideas, and beauty of the epics were realized in the last half of the 50s of the last century. Such an object of scientific research was first captured by the scientist K. Matlabov. In his monograph, the idea of the "Forty Girls" epic is discussed, such as the artistic properties, the march of the epic, and the differences and similarities between the sources of the epic and the epics of other nations of the era. It was the first experiment aimed at studying epic and historical events in a genetic and typological direction [6]. In fact, the

problems mentioned in this work have not been specifically researched, even in that case, it is possible to observe their initial samples in the interpretative thoughts and observations of the scientist. In this regard, the works of A. Áliev on the epic "Maspatsha", J. Khojanियазov on the epic "Pahlavonamıs", K. Ollohbergenov on the epic "Edige" (doctoral researcher), J. Nizamatinov "Er Sho'ra" "According to the epic, the relevant tasks were developed. In Karakalpak folkloristics, few experiences are collected on monographic research tasks for epics. Today, these works are being deepened, issues of expanding the scope, looking at the original levels of the epic and additional plots, paying attention to international influences, studying the transformative properties of plots and motives, distinguishing typological differences between genetic plots and images. It is becoming one of the demands of the time, public needs. We believe that monographs and scientific articles published on individual versions of epics will have an impact on the quality and efficiency of scientific work on the epic "Er Kosay".

We have come to the following conclusions on the issues of gathering, publishing and researching the Karakalpak version of the epic "Er Kosay" and the national versions.

1. The Karakalpak version of the epic "Er Kosay" is a beautiful epic essay distinguished by its content, artistry, illumination of the images of ideological heroes, historical community, and life aspects. Historical folkloric eyes have sufficient resources to carry out scientific activities.

2. The collection of national versions of the epic took place at the end of the 30s of the last century, and it had several variants.

3. The story-telling work was done for the first time in the XVII of the multi-volume Karakalpak folklore. Then this option was elaborated and reworked and reprinted as the XX roof of Karakalpak Folklore.

4. Issues related to the "Er Kosay" saga are mentioned in some scientific articles, in monographic works, in the scientific observations conducted as additional reports.

5. The short version of the epic has several features in terms of collection and publication. His content of the gay bribe plot was absorbed into the epic "Manas". It was not published in the form of an epic.

6. The work of the Kazakh version of the epic "Er Kosay" began in the middle of the 19th century. There is a word related to the name Ch.Valikhanov. This epic was published by G. Potoninde as a version of a fairy tale. In the 20th century, four versions of it appeared.

7. The task of studying the Central Asian versions of "Er Kosay" has not yet been determined, but consists only of thoughts at the level of control and predictions.

8. In all the national versions of the saga, typological and genetic eyes have the opportunity to use the tiras for study.

9. There are enough experiences in our national folklore in studying the epic in the historical folklore direction, and the scientific opinions, predictions, observations of Uzbek, Kazakh, Kyrgyz, Russian, South Siberian, North Caucasian scientists related to genetic and typological problems. helps to increase the quality and efficiency of our scientific activity.

References:

1. Жирмунский В.М. Эпическое творчество славенених народоми провлемысравнительного изучения эпоса. Жур. «Вопросы литаратуры» 1958, № 6, 118-б.
2. Валиханов Ч.Ч. сочинения- запРГО.т.ХХІХ.1904, 71-72 11.
3. Радлов В.В. Образцы народной литературы тюркских племен Ч.1-Х.Спб, 1866-1907, 2.V.ХІІ.
4. ЖирмунскийВ.М. Тюркский героический эпос. Л,1974, 34-б.
5. Қазақ әдебиетиниң тарийхы. Биринши китап. Қазақ Ғылым Академиясының баспасы. Алматы 1960, 140-146 б.
6. Мақсетов Қ.М. Қарақалпақ фольклористикасы. Нөкис Қарақалпақстан, 1989-ж. 153 б.
7. Сағитов И.Т. Қарақалпақ қаҳарманлық эпосы. Нөкис «Қарақалпақстан» 1986 ж. 79-б.
8. «Батырларжыры» III том Алматы «Жазыўшы», 1987, 40-106 бб.? «Батырларжыры» Алматы «Жазыўшы», 1990, 103-134 бб.
9. «Батырлар жыры». Қырымның қырық батыры. Алғы сөзин жазғанлар О.Нурмуханбетова, Қ.Садиков. Алматы, «Жазыўшы» 1989. Т. II. 11-12 б.

10. Потапов Л.П. Геройческий эпос алтайцев Журн. Советская этнография, 1949, 31, 132 б.
11. Батырлар жыры. Қырымның қырық батыры. Биринши китап, Алматы, «Жазыушы» 1989,7-б.
12. Бердибаев Р. К проблеме историзма эпоса Советское тюркалогия 1986, 32.
13. Қарақалпақ фольклоры көп томлы XVII т, Нөкіс «Қарақалпақстан» 1987,183 б.

Rezyume: *Maqolada "Erqusay" dostonining turli versiyalari va variantlari o'rganiladi. Taniqli olimlarning ishlaridagi milliy dostonlar haqida qiziqarli ma'lumotlar atroflicha yoritilgan..*

Резюме: *В данной статье анализируются версии и варианты эпоса «Еркосай». В статье приводятся некоторые существенные сведения о национальных эпосах в трудах известных ученых.*

Kalit so'zlar: *doston tadqiqot, botir, millat, konsept, syujet, qahramon.*

Ключевые слова: *эпос, исследование, герой, нация, концепт, сюжет, персонаж.*

THE UNITS OF PAREMIOLOGY IN LINGUISTICS

Kubeysinova D.T.

Karakalpak state university named after Berdakh

Summary: *The article examines the issue of the linguistic consciousness of native speakers of proverbs and sayings, which play an important role, as they allow one to penetrate into the national and cultural features of the linguistic picture of the world of a nation. A comprehensive study of proverbs will provide an opportunity to understand the specifics of the mentality and culture of any people. The wealth of the paremiological fund opens up broad prospects for further study of proverbs and sayings.*

Key words: *linguistic consciousness, native speaker, proverb, saying, national-cultural, features, linguistic picture of the world, nation, study, proverb, mentality, culture, people, wealth, prospects.*

INTRODUCTION

Proverbs and sayings are, as you may know, units of paremiology, which derives from the Greek *paremia*, which means “moral saying”. Even though paremiology units in linguistics have been sufficiently studied, their description is still pertinent since attempts are being made to view proverbs and sayings from a linguocultural viewpoint as national consciousness stereotypes at this point in scientific growth. Through a thorough analysis of proverbs, we may uncover their purpose, trace their origins, reflect on their substance more fully and properly, and take previous information into consideration. Finding national and cultural peculiarities is the goal of linguistic and cultural examination of proverbs and sayings. Proverbs and sayings are regarded in linguoculture as one of the ways to document culturally relevant occurrences since they are linguistic signals.

One of the earliest forms of oral folk art are proverbs and sayings, which are considered “the first example of human speech activity and monuments of its verbal art”.

MATERIALS AND METHODS

These declarations proved for ages that individuals could pick out and understand the most distinctive, typical features of daily life, work, family and social life, and the like.

Proverbs are a condensed kind of folk wisdom that almost entirely concentrate on an individual, including his behaviour, character qualities, and connections within the family, team, community, etc.

In addition, V.V. Kolesov discusses this in his writing: “A proverb is the outcome of a “dispute, verbal tournament”. Proverb development is linked to an individual’s comprehension of their role in the world and the dialectics of comprehending the world”. [2]

There are proverbs and sayings in every country. According to the author, “a comparison of the proverbial fund of different languages can open up broad prospects for interlingual (interethnic, intercultural studies of the mentality of different ethnic groups) and the proverbial cognitive structures of different languages have similarities and differences, which makes their comparative analysis possible”.

As far as is known, the definitions of “proverb” and “saying” are still ambiguous. In terms of cultural studies of language, the central question about the status of proverbs is still debatable and significant. By separating proverbs and sayings based on key characteristics and contrasting the diverse opinions of scientists about this matter, attempts are made to ascertain the status of these expressions.

The language that consolidates social and historical experience - both national and universal - allows a person to comprehend both the outside world and themselves. Modern man is forced to examine the language closely because he is interested in the history and the roots of his civilization. Proverbs, sayings, and phraseological units function as living archives of the past. “Both the moral

law and common sense, expressed in a short saying, which were bequeathed by the ancestors for the guidance of their descendants” are contained in these special microcosms. [1, 41]

Proverbs and sayings have a unique place in the language because of this, and it makes sense to study them as a subject of linguistics.

A language’s paremiological fund, which reflects a people’s history, customs, and traditions, is a priceless linguistic legacy. Proverbs provide forward many interpretations and evaluations of aspects of human existence, including work, family, love, and teams.

The most significant component of the people’s spiritual culture is found in their proverbs and sayings, which are distinguished by their varied semantic content, poetic creative structure, and vivid imagery in connection to language. It is possible to discern the universal and cultural-national in the semantics and structure of proverbs, to characterise the national mindset and elements of the people’s worldview through a comparative linguocultural study of the proverbial system of two typologically diverse languages.

RESULTS AND DISCUSSIONS

As a result, they not only highlighted the characteristics of interpersonal interactions but also assisted in the accumulation of life experience. Proverbs and sayings, then, are brief, to-the-point, and occasionally rhymed expressions that express, in an aphoristic fashion, the conclusions drawn from a person’s observations of his life.

Proverbs are “a powerful source of interpretation, since they are traditionally the language of everyday culture that has been formed over centuries, transmitted from generation to generation, in which all the criteria and guidelines of this life attitude are reflected in a sententious form people - native speakers”, according to V.N. Telia [4, 241]. The author places proverbs in the context of cultural traditions.

We carried out a linguocultural analysis. The analysis was carried out in the following areas:

- 1) archetypal circumstances that date back to a few of mediaeval man’s practical endeavours were found;
- 2) the study and description of proverbs’ figurative semantics, which revealed peoples’ worldviews via pictures embedded in proverbs;
- 3) an analysis of the grammatical structure of proverbs in the Russian and Karakalpak languages was carried out, determined by the structure of the language and reflecting the process of categorization of objective reality.

The following findings were from a comparative linguocultural examination of proverbs from Karakalpak and Russia. The examination of archetypal scenarios exposed people’s attitudes towards different aspects of their environment. An evaluation of human behaviour in particular contexts and interpersonal interactions may be obtained via the interpretation of archetypal scenarios. On the one hand, stereotypical circumstances provide a common perception of the situation; on the other hand, they highlight particular aspects of Russian and German national character and way of life.

CONCLUSIONS

In conclusion, we may draw the important conclusion that proverbs and sayings should be thoroughly studied as a subject of linguistic inquiry. Proverbs and sayings have a significant impact on native speakers’ language consciousness because they provide insight into the linguistic image of a nation’s culture and national traits. This thorough examination of proverbs will enable one to comprehend the unique characteristics of Russian culture and mindset. In summary, the abundance of the paremiological fund provides a plethora of opportunities for more research into proverbs and sayings.

Finally, we would like to quote Z.K. Sabitova, who said, “The world of words is diverse, interesting, fascinating, and still not fully understood: it is as inexhaustible as space, Universe”. We believe this remark properly captures the scope and comprehensiveness of proverbs and sayings. Depth, comprehensiveness, capacity, volume, maximal fullness of meaning, spirituality, idea

saturation, creative, life-giving force, and the immense strength of its impact on an individual have all been emphasised time and time again. [3, 304]

Sayings and proverbs are a common kind of oral folk art. They have been with humans from the beginning of time. Proverbs and sayings become enduring, unforgettable, and essential in speech through expressive techniques including exact rhyme, straightforward structure, and succinctness.

1) Sayings and proverbs are a traditional folk art form from long ago. Their origins stretch back millennia, and they emerged in other ages. Even in the absence of lettering, many of them were visible. As a result, the debate about primary sources is currently ongoing. The primary origins of English proverbs and sayings may be identified as follows: folklore, literature, biblical allusions, borrowing, and the application of Shakespearean quotations.

2) Sayings and proverbs are not the same thing. The proverb's didactic substance and completeness are its key characteristics. The proverb stands out due to its lack of an educational quality and its incomplete finish.

References:

1. Buslaev F.I. Rus maqollari va maqollari, to'plangan va tushuntirilgan. – M., 1954. – 176 b.
2. Kolesov V.V. Qadimgi Rusning aforistikasi // Qadimgi Rusning dono so'zi. - M., 1989 yil
3. Sobitova Z.K. Lingvokulturologiya: Darslik. - M.: Flinta: Fan, 2013. - 528 pp..
4. Teliya V.N. Madaniyat kontekstidagi frazeologiya. – M.: Rus madaniyati tillari, 1999. – 336 b.

Rezyume: *Maqolada ona tilida so'zlashuvchilarning lingvistik ongi masalasi ko'rib chiqilgan bo'lib, ular xalq dunyosi lingvistik tasvirining milliy-madaniy xususiyatlariga kirib borishga imkon beradigan muhim rol o'ynaydi. Maqollarni har tomonlama o'rganish har qanday xalqning mentaliteti va madaniyatining o'ziga xos xususiyatlarini tushunish imkonini beradi. Paremiologik fondning boyligi maqol va matallarni yanada o'rganish uchun keng istiqbollarni ochib beradi.*

Резюме: *В статье рассматривается вопрос о языковом сознании носителей языка пословицы и поговорки которые играют большую роль, так как позволяют проникнуть в национально - культурные особенности языковой картины мира нации. Всестороннее изучение паремии даст возможность понимания специфики ментальности и культуры любого народа. Богатство паремиологического фонда открывает широкие перспективы для дальнейшего изучения пословиц и поговорок.*

Kalit so'zlar: *lingvistik ong, ona tili, maqol, matal, milliy-madaniy, xususiyatlar, dunyoning lisoniy tasviri, millat, o'qish, mentalitet, madaniyat, xalq, boylik, istiqbol.*

Ключевые слов: *языковое сознание, носитель языка, пословица, поговорка, национально-культурные, особенности, языковая картина мира, нация, изучение, паремия, ментальность, культура, народ, богатство, перспективы.*

THE SIGNIFICANCE OF INDIVIDUAL WORK WITH A NATIONAL OR GEOGRAPHIC FOCUS IN THE DEVELOPMENT OF CROSS-CULTURAL RELATIONSHIPS AMONG STUDENTS

Menlimuratova E.A.

Karakalpak state university named after Berdakh

Summary: The article outlines the many types of self-directed student projects with a regional emphasis that educators employ inside their English language practical classroom framework. Individual work projects with a geographically unique country character help students immensely in developing international interactions during their English studies.

Key words: lesson, foreign, formation, focus, systematization, information, geographical map, drawing, intercultural, nature, country, form, character, cross-cultural.

INTRODUCTION

Poor classes these days are mostly identified by the fact that most of the students in them just hang around and don't really engage with the material. Students spend a significant amount of the lesson engaging in a range of solitary activities when following the great masters' instructions. [2, 15].

One of the key characteristics that distinguishes the skill level of a foreign language teacher is the use of a variety of complementary student independent works of a country's geographic character in their work, which takes into account the educational capabilities of students in the field of using foreign literature, according to a study of top foreign language teachers' work experiences.

By looking at how students set up independent projects with a focus on geography and assessing the results of several such student efforts, we can determine the most frequent organisational mistakes. The suggested degree of independence of a country geographic character is not commensurate with the students' academic aptitude; the task selection process is individualistic and poorly articulated; the duration of the independent work is too short for this group; and the independent work itself is repetitive. Organisation at work is random in form, substance, and quantity; there is no pattern behind it.

MATERIALS AND METHODS

Each form of student's independent work in the system of practical lessons in a foreign language is represented by a wide range of work types used by teachers in the teaching practice. Students' independent work with a national geographic focus is undoubtedly included in this broad variety of activities, which fosters the development of cross-cultural interactions among students. Let's enumerate the most popular and successful ones:

1) Using the book as a guide. There is local geographic information and a foreign text in this work: the creation of a prepared reaction to a foreign text that has been read and has a national geographic character; replicating the geographical information of a foreign text on a regional level; providing a quick synopsis of a foreign book with a national focus; examine the text for solutions to issues that have previously been brought up; evaluate, contrast, extrapolate, and arrange foreign information into several paragraphs. while dealing with primary sources from foreign nations, reference materials, and popular scientific literature, making notes and summarising what has been read.

2) Geographical exercises by country: instruction, model-replicated exercises, reconstructive exercises, collection of various tasks and questions and their answers; Students' replies are evaluated by their peers, and they participate in many activities designed to hone their practical skills and talents.

3) Managing a variety of difficulties and carrying out regionally specific practical work.

4) Tests, dictations, essays, and independent student verification projects about the geographic makeup of a nation.

5) Write essays and reports about a country's geographic features using literature from other countries.

In addition to knowing a foreign language, the efficiency of intercultural communication depends on a variety of aspects, including the communication environment and culture, etiquette guidelines, awareness of nonverbal cues, general background knowledge, and much more. [1].

Competence is considered as a requirement for the student's preparation, "expressed as a set of interrelated semantic orientations, knowledge, abilities, skills and experience of the student's activities in relation to a certain range of objects of reality, necessary for the implementation of personally and socially significant productive activities". [5,9].

RESULTS AND DISCUSSIONS

Students build intercultural ties with each other through the majority of the types of independent regional work that have been mentioned. To fit into each of the four categories of independent work mentioned above, students can construct the types of independent work mentioned above for varying degrees of their own learning activities. For an array of teaching objectives, the innovative educator possesses an extensive library of diverse independent regional geography books. None of the range of autonomous work includes prescribed instructions for putting it into practice. [4, 26]. The goal and method of the activity, on the other hand, should be clear to the pupils before beginning any work with a country geographic topic. Establishing cross-cultural interactions among students is facilitated by such nation-specific activity. This greatly influences the efficacy of all efforts. In order to solve the educational problem and accurately perform all processes, students must fulfil the following conditions in order to be able to independently explain a particular item or phenomenon when finishing an educational project with a national focus.

The tasks include:

- a) clearly defining the description assignment and outlining its boundaries, whether they are expanded or minimised;
- b) providing all previously covered basic concepts;
- c) presenting a pre-made map of the description language, which includes the object's name and all of its component terms, symbols, and code marks.

The teacher's job is to set up the necessary frameworks for students' independent work with a national geographic theme in the class, the most important of which are the following, in order to facilitate effective cross-cultural interactions among students:

- a) the necessary preparation of students for assignment completion (transmitting foundational knowledge and imparting general education skills);
- b) the progressive introduction of student autonomous work types with a country-specific character, varying in complexity and mental activity stimulation;
- c) a variety of autonomous work types with a geographic focus on a specific nation that are used to teach each academic topic;
- d) a selection of tasks that both set reasonable challenges and spark students' interest in completing them;
- e) introducing students to the sources from which they can obtain the information necessary to complete the task;
- f) the teacher's assistance with the task, if needed;
- g) the teaching of self-control techniques to students during the working day;
- e) the teacher's required evaluation of the students' independent work.[3,22].

CONCLUSIONS

Therefore, you must put more emphasis on students' understanding of the target language's population and culture when teaching them English. Students in the target language nation will find it easier to build cross-cultural relationships if they have knowledge about the country's culture and its populace. Understanding the culture of the nation where the target language is spoken fosters intercultural relationships and mutual understanding among speakers of various national languages.

Outside of regular school hours, students can have consultations and extra classes. In certain situations, these are used to address the need of students for in-depth discussion of course material that is not covered in optional classes; in other situations, they are used to close knowledge gaps, close individual students' apprenticeship gaps, and avoid academic failure. A separate group is made up of the many forms of independent activity, including topic circles, scientific societies, olympiads, competitions, etc. Here, students do all assignments freely, and they represent a wide range of academic backgrounds and ages. Subject matter experts who have been invited to oversee them are issue academics with a specific field of expertise.

So, the development of a student's intercultural connections is greatly enhanced by individual work with a regional focus. Because of this, the instructor must be both imaginative and knowledgeable.

References:

1. Akhyamova IA Cultural self-presentation of modern youth by non-verbal means // Pedagogical education in Russia. 2011. No. 4.
2. Dobrovich A.B. "Aloqa psixologiyasi va psixogigiyenasi haqida o'qituvchi." -M., "Ta'lim", 1987. -205 -yillar.
3. Esipov B.P. Darsda talabalarning mustaqil ishlari. M.: Uchpedgiz, 1961.
4. Grigorieva EA O'qituvchining o'zini o'zi qadrlashi haqida. Eksperimental va amaliy psixologiya. 4 -son, Leningrad davlat universiteti, 1971 yil.
5. Zimnyaya I. A. Pedagogical psychology: textbook. 2nd ed., additional, corrected. and processed M.: Logos, 2000. 384 p. 3. Kon I. S. Sociological psychology. Voronezh: MODEK, 1999. 560 p.

Rezyume: *Maqolada o'qituvchilar amaliy ingliz tili darslarining bir qismi sifatida foydalanadigan mintaqashunoslik xarakteridagi talabalarning mustaqil topshiriqlari turlari tasvirlangan. Mamlakatning geografik o'ziga xos xususiyatiga ega bo'lgan mustaqil ta'lim talabalarga ingliz tilini o'rganish jarayonida madaniyatlararo muloqotni rivojlantirishga katta yordam beradi.*

Резюме: *В статье описываются виды самостоятельных студенческих заданий страноведческого характера, которые используют преподаватели в рамках практических занятий по английскому языку. Самостоятельные занятия с географически уникальным характером страны очень помогают студентам в развитии межкультурного взаимодействия во время изучения английского языка.*

Kalit so'zlar: *dars, xorijiy, ta'lim, yo'naltirish, tizimlashtirish, axborot, geografik xarita, chizma, madaniyatlararo, tabiat, mamlakat, shakl, xarakter, madaniyatlararo.*

Ключевые слова: *урок, иностранный, образование, фокус, систематизация, информация, географическая карта, рисунок, межкультурный, природа, страна, форма, характер, межкультурный.*

LINGUOCULTURAL PECULIARITIES OF PHRASEOLOGICAL UNITS WITH COMPONENTS OF ZOONYMS IN ENGLISH AND KARAKALPAK LANGUAGES

Tleumuratov G., Sagatova Z.

Karakalpak state university named after Berdakh

Summary: *The present article is devoted to studying English and Karakalpak phraseological units containing zoonymic component. The phraseological fund of a language is closely connected with the national culture representing both its international constituent and its uniqueness. The group of phraseological units under consideration is one of the most widely presented in the phraseological fund of the English and Karakalpak languages. Animals symbolize various traits of human character, reflect this or that quality of a person that serves as a basis for creating of a phraseological unit. This article describes the common features and the differences of the linguoculture under consideration which are identified through the definition and linguacultural analysis of phraseological units. The similarities are mostly explained by the common origin of phraseological units, and the differences are based on the dissimilarity and peculiarities of English and Karakalpak peoples' ways of life, their traditions, customs, religion and geographical location.*

Key words: *linguocultural, phraseological unit, zoonymic component, meaning, comparison, similarity, peculiarity.*

Introduction. Phraseology is one of the special element of every nation and culture. It plays an important role in the development of nations' language and culture. The subject of its studies is the origins of idioms and their categorical characteristics as well as the peculiarities of their functioning in speech. It is well-known that languages and cultures are interconnected. Languages reflect the past and present of cultures and save their values for different generations. Phraseological units reflect the rich historical experience of nations, they depict people's attitude toward work and everyday life, things and phenomena of the world around. The phraseology is a kind of a picture gallery in which the most vivid and amusing sketches of the nation's customs, traditions and prejudices, recollections of its past history, scraps of folk songs and fairy-tales are collected. Phraseology is not only the most colourful but probably the most democratic area of vocabulary and it draws its resources mostly from the very depths of popular speech. The phraseology literature represents it as a subfield of lexicology dealing with the study of word combinations rather than single words. Developing throughout the time the national language as a social and historical category never loses its certain function of preserving cultural and historical traditions and therefore forming the national character, which is expressed by different lingual units, especially phraseological units and idioms. In everyday communication, the emotional character of spoken language is manifested in the usage of expressive means, in particular, phraseological units with components-zoonyms [5, 165]. Human history is closely connected with the history of animals. Animals have always played a significant role in the life of people. Man has never been without animals, from ancient times they live in a close coordination with each other, they accompany our whole life, being an integral part of it. We may not realize how much impact animals have on our lives. They have played various roles; that of a friend, companion, protector, comforter, and more. It is assumed that zoonyms are a significant source of phraseology in any language and they are very frequently used in daily written and spoken language, they are frequently encountered in magazines, newspapers, movies or TV shows and they form a part of the core values of the culture to a certain extent.

Modern language is full of colorful sayings that bring to mind our favorite animal companions; they have always been a rich source of imagery in language. And what a variety of odd and grotesque images, figures and personalities one finds in this amazing picture gallery: *dark horses, white elephants, bulls in china shops and cats escaping from bags and dogs barking up the*

wrong tree or in Karakalpak language *aq tuye* (white camel), *u'lken o'giz* (big bull), *balpaq tishqan* (fat rat), *sho'je qoraz* (roostering chicken), *bazar ko'rgen eshki* (the goat been in bazaar).

Sometimes this parade of funny animals looks more like a hilarious fancy-dress ball than a peaceful picture gallery. So, *a dark horse* mentioned above is actually not a horse but a person about whom no one knows anything definite, and so one is not sure what can be expected from him. The imagery of *a bull in a China shop* lies very much on the surface: the idiom describes a clumsy person. *A white elephant*, however, is not even a person, but a valuable object which involves great expense or trouble for its owner, out of all proportion to its usefulness or value, and which is also difficult to dispose of. *To let the cat out of the bag* has actually nothing to do with cats, but means simply “to let some secret become known”. *To bark up the wrong tree*, the current meanings of the constituents create a vivid and amusing picture of a foolish dog sitting under a tree and barking at it while the cat or the squirrel has long since escaped. But the actual meaning of the zoonym is “to follow a false scent: to look for somebody or something in a wrong place: to expect from somebody what he is unlikely to do”. The zoonym is not infrequently used in detective stories: The police are barking up the wrong tree as usual (i.e. they suspect somebody who has nothing to do with the crime). [3]. In Karakalpak phraseology by *aq tuye* (white camel) they mean the situation that one has witnessed should be announced to nobody. The imagery of *u'lken o'giz* (big bull) lies the eldest child in the family, according to the culture the guilty is always the eldest child when children did something wrong and the phrase is used in order to shout at or to show right direction into something. The phraseological unit *balpaq tishqan* (fat rat) means an unpleasant fat person while *sho'je qoraz* (roostering chicken) is young man who likes fighting even is not strong. *Bazar ko'rgen eshki* (the goat been in bazaar) the current meanings of the constituents create a vivid and amusing picture of a goat which has been in the market, but the actual meaning of the phrase is an experienced person in some sphere.

Materials and Research Methods.

For the present research, idioms were chosen with the help of continuous sampling method from monolingual and bilingual dictionaries in these languages, particularly “Longman Dictionary of Contemporary English” [8], “Macmillan English Dictionary for Advanced Learners” [9], “Oxford Idioms Dictionary for Learners of English” [10] and “Short Phraseological Dictionary of Karakalpak language” [6]. On the whole, 247 units were found: 129 in English, 118 in Karakalpak. It proves out that this zoonymic component is of great significance for the studied languages and cultures reflecting real as well as cultural views of the world [7, 264].

Before speaking about the practical examples and results of our research, we should state the definition of a «phraseological unit», as this topic is still disputable among linguists. Most scholars agree that the most common features of a phraseological unit are semantic indivisibility, shortness and figurativeness. Prof. Shanskiy writes «phraseological unit is a ready-made, reproducible unit, the content and form of which are fixed» [11]. Prof. Akhmanova considers that in a phraseological unit the meaning of the whole expression prevails over the meaning of each component [4]. But in English linguistics the term «phraseological unit» is not commonly used, the term «idiom» is preferable there. Let us clarify if the difference between these linguistic phenomena is crucial. The definition provided by Longman dictionary presents the idiom as «a group of words that has a special meaning that is different from the ordinary meaning of each separate word». Thus, we may say that the discussed problem is more or less the same. Prof. Sh. Abdinazimov considers that phraseological unit shows itself the important cultural rites, ceremonies, because it is based on cultural-national introduction to the world. In his work “Linguoculture” he claimed that mostly phraseological units with the component of zoonym in Karakalpak language used for comparing with man and acts around him, especially to describe the character of a person [1].

Results and Discussions.

The phraseological units with the component of zoonyms model an image of the person by a principle of “mirror reflection”: on the one hand, to an image of an animal are attributed anthropomorphic properties (character traits, behavior, a way of life of the person), on the other

hand, this image is projected on the person to whom characteristics of zoomorphisms (habits, customs, appearance of an animal) are attributed. On the basis of this cognitive mechanism universal typological models of phraseological units with the component of zoonyms are formed: “appearance of an animal – appearance of the person”, “behavior of an animal – behavior of the person”, etc.

Comparative analysis of phraseological units with the zoonym component with qualitative characteristic in English and Karakalpak languages showed the following results:

- Cunning and deceit in English and Karakalpak languages associated with the image of a fox and a snake: Eng.: “*sly as a fox*”, “*old fox*”; “*snake-headed*” insidious, with a head snakes; Kk.: “*sum tu’lki*” (sly fox), “*qara jilan*” (black snake). However, in Karakalpak language goat is also used for expressing cunning: “*eshki bas*” (the head of the goat).

- Stupidity is expressed through animals such as the donkey, hen, sheep: Eng.: “*act (or play) the ass*” (behave stupidly), “*as stupid as a donkey*” or “*stupid as a cork (donkey)*”; “*follow smb. like sheep*” (blindly follow smb. like a flock of sheep, follow a bad example), “*as mad as a March hare*”, “*as mad as a wet hen*” (like a wet chicken); Kk.: “*tawiq miy*” (the brain of the hen), “*eshektin’ miyin jegen*” (have eaten the brain of the donkey), but sheep is not used to express the stupidity in Karakalpak language, it usually expresses calmness.

- Stubbornness is associated in English through the image of a donkey: “*stubborn as a mule*”; in Karakalpak language stubbornness is expressed through the image of a donkey and bull: “*eshektey qaysar*” (stubborn as a donkey), “*o’gizdey qirsig*” (stubborn as a bull).

- Such human qualities as talkativeness, boasting are expressed through the images of birds: rooster, parrot: Eng.: Brag(boast) about how cock “*show off like a cockerel*”, talk like a parrot “*talk like parrot*”; as far as in Karakalpak boasting are expressed through the images of bull: “*o’zin maqtat’an o’giz*” (boasting himself as a bull).

- Cowardice in both languages is assessed through the image of a hare, Eng.: “*(as) timid as a hare(lamb)*” (cowardly as a hare(lamb)), “*pigeon-hearted*” (cowardly, timid); Kk.: “*qoyan ju’rek*” (hare-hearted), “*qoyanday qaltiraw*” (trembling like a hare).

- Greed is expressed through the images of different animals (wolf, viper, flea), Eng.: “*to have the dead vipers in your pocket*” (to have dead vipers in your pocket), “*skinned a flea*” (to skin a flea to hide something), “*as greedy as a wolf (dog)*”; Kk.: “*bo’ridey ash*” (insatiable like a wolf), “*ishtan biyt*” (louse with pants), “*bu’rgenin’ sig’ip suwin ishetug’in*” (to drink water by squeezing the flea).

- The English convey such qualities as endurance, vitality through the image of a cat: “*to have as many lives as a cat*”, “*a cat with nine lives*” (tenacious person); in Karakalpak language, this image is transmitted through images of dogs, sheep and even flies: “*iyt janli*” (with dog’s life in the meaning tolerant), “*semizlikti qoy ko’teredi*” (sheep accepts the fatness in the meaning be patient, tolerant), “*shibin janim*” (my fly’s soul in the meaning survivable like a fly).

- Dirty, drunken state is transmitted in Karakalpak language through the image of a pig: It should be noted here that the negative connotation of the phraseological unit “*shoshqaday sasiw*” (to smell as a pig), is caused in the Karakalpak by the fact that this animal is in Islamic culture is considered unclean and contacts with which Muslims are forbidden. The tradition of the negative relationship to the pig is motivated by religious beliefs. Another unpleasant situation is presented by the image of dog: the phrase “*ishinde iyt o’liw*” means to badly farting person as far as dog also is in most cases connected with negative association.

In English dirty, drunken state is transmitted through images, owls, foxes, dove: “*drunk became as fox*”, “*with eyes like an owl*”, “*pigeon-eyed*”, etc.

A lot of animal images are usually found in the popular imaginary, become materialized in the speech of certain people, and as a result, many popular phraseological units arise in everyday tongue, fruit of a very relaxed talking environment.

Conclusion

Animals are used equally widely in English and Karakalpak pictures of the world, i.e. phrases borrowed from the world of wildlife is traditionally an important part of a conceptual picture of the world in language consciousness of the person. The phraseological units under study reveal evident cultural bias and reflection of features of national mentality and religious traditions. The given examples show that the same zoonym component in phraseological units of both languages can have completely different meanings. The same animal can be used for expressing different characteristics. That is, people rely on different animal names to characterize the same phenomenon. This can be explained by the fact that one animal is more popular in one country and another is common in another. In addition, due to the characteristics of some countries, a single ethnic group may place more importance on a particular characteristic. The wording picture is often based on a reality that only one country knows. The national peculiarities of the image of an expression are in the way and character of the people, their spiritual life, historical events, unique traditions, special customs, and the special selection of this expression or the lexical elements of that expression. Some similar concepts have different meanings and connotations in each language; some are productive in Karakalpak language and non-productive in English and vice versa. All these facts prove that international and unique linguacultural components can be found in any language.

References:

1. Abdinazimov Sh., Tolibaev X. *Lingvokulturologiya*. – Nukus: Karakalpakstan, 2020. – p.158
2. Alefirenko N.F. *Lingvokulturologiya*. – M.: Flinta: Nauka, 2010. – p.399
3. Antrushina G.B., Afanasyeva O.V., Morozova N.N. «English Lexicology». -M.:URIGHT-2013. -288 p.
4. Akhmanova O.S. *About the principles and methods of linguostylistic research*. – M.: Moscow University Press, 1966. – p.183
5. Gimadeeva A. A. The functioning of phraseological units with components-zoonims in colloquial speech (on the material of the Tatar and English languages). *Vestnik of Tatar State Humanitarian Pedagogical University*. Issue 3(21). Kazan, 2010. P. 163-165.
6. Eshbaev J. Qaraqalpaq tilinin' qisqasha frazeologiyaliq so'zligi. No'kis, 1985.
7. Ter-Minasova S.G. *Language and Cross-Cultural Communication*. M.: Slovo, 2000.
8. Longman Dictionary of Contemporary English, 2007.
9. Macmillan English Dictionary for Advanced Learners, 2007.
10. Oxford Idioms Dictionary for Learners of English, 2006.
11. Shansky N.M. *Phraseology of modern Russian language: for the students of higher education of department «Russian language and literature»*. – 4th ed., Saint Petersburg: Spetsiyalnay literatura, 1996. – p.192

Rezyume: *Ushbu maqola ingliz va qoraqalpoq tillarida zoonimik komponentni o'z ichiga olgan frazeologik birliklarni o'rganishga bag'ishlangan. Tilning frazeologik fondi milliy madaniyat bilan chambarchas bog'liq bo'lib, uning xalqaro tarkibiy qismini ham, o'ziga xosligini ham ifodalaydi. Ko'rib chiqilayotgan frazeologik birliklar guruhi ingliz va qoraqalpoq tillari frazeologik fondida eng ko'p uchraydi. Hayvonlar inson xarakterining turli belgilarini ifodalaydi, frazeologik birlik yaratish uchun asos bo'lib xizmat qiladigan shaxsning u yoki bu sifatini aks ettiradi. Ushbu maqolada ko'rib chiqilayotgan til madaniyatining umumiy xususiyatlari va farqlari tavsiflanadi, ular frazeologik birliklarning ta'rifi va lingvomadaniy tahlili orqali aniqlanadi. O'xshashliklar, asosan, frazeologik birliklarning umumiy kelib chiqishi bilan izohlanadi, farqlar esa ingliz va qoraqalpoq xalqlarining turmush tarzi, an'analari, urf-odatlarini, dini va geografik joylashuvining o'xshash emasligi va o'ziga xosligi bilan izohlanadi.*

Резюме: *Настоящая статья посвящена изучению английских и каракалпакских фразеологизмов, содержащих зоонимический компонент. Фразеологический фонд языка тесно связан с национальной культурой, представляя как ее интернациональную составляющую, так и ее своеобразие. Рассматриваемая группа фразеологизмов является одной из наиболее широко представленных во фразеологическом фонде английского и каракалпакского языков. Животные символизируют различные черты человеческого*

характера, отражают то или иное качество человека, что служит основой для создания фразеологизма. В данной статье описаны общие черты и различия рассматриваемой лингвокультуры, которые выявляются посредством определения и лингвокультурологического анализа фразеологизмов. Сходства во многом объясняются общим происхождением фразеологизмов, а различия основаны на несхождении и особенностях быта английского и каракалпакского народов, их традиций, обычаев, религии и географического положения.

Kalit so‘zlar: lingvomadaniy, frazeologik birlik, zoonimik komponent, ma’no, qiyoslash, o‘xshashlik, o‘ziga xoslik.

Ключевые слова: лингвокультурный, фразеологизм, зоонимический компонент, значение, сравнение, сходство, особенность.

METHODS OF PEDAGOGICAL DIAGNOSTICS OF TEACHER ACTIVITY

Arziyeva R.A.

Karakalpak State University state university

Summary: *The essence of the diagnosis is that the teacher is a researcher of his activities. Diagnostics becomes a powerful tool for self-knowledge. Self-awareness is considered an important condition and basis for improving professional skills. Because it is professional self-awareness that is a component of pedagogical mastery and a criterion for the development of a teacher's personality.*

Key words: *Science, technology, diagnostics, self-analysis, teacher empathy, correctional process.*

In the modern period of development of science and technology, the need for highly qualified and mature personnel is increasing, which, in turn, places a responsible task not only on teachers of schools and vocational colleges, but also on teachers of higher educational institutions. The teacher's attitude towards his profession is important. The essence of the teacher's profession is reflected in his activities. To do this, he must love children and love his profession with all his heart. These qualities are not only a human virtue for a teacher, but also a professional necessity.

It should be noted that internal desire in itself cannot ensure the creative work of a teacher. To do this, the teacher must first of all know the technology of independent and creative research, ways, means and methods of analyzing his own work, assimilating and generalizing his teaching experience, identifying the characteristics of his personality. One of the tools that teaches teachers to do this is the ability to analyze their own personality, activities and work, diagnose their achievements and shortcomings, that is, learn on the basis of self-pedagogical diagnosis. Below we will focus on the self-diagnosis technology of a powerful teacher. As noted, the pedagogical activity and personality of a teacher can be diagnosed with the participation of "external" experts - school leaders, curators, as well as with the "internal" diagnosis of his activity and personality. The essence of working diagnostics is that the teacher is a researcher of his activities. And diagnosis becomes a powerful tool for self-knowledge. Self-awareness is considered an important condition and basis for improving professional skills. Because it is professional self-awareness that is a component of pedagogical mastery and a criterion for the development of a teacher's personality.

It is important that self-awareness skills are included in the formation of tendencies towards self-development of a teacher.

In the process of self-observation, the teacher becomes aware of specific aspects of his teaching activity. They are manifested in his personal qualities, value orientation, inclinations, and determination of his place in the system of professional and social relations. In the process of self-observation of a pedagogical diagnosis, you can use methods that provide various empirical data. The most important thing here is reliable empirical data. For example, the results of a simple observation of a "pedagogical diary" of the chronology of the teaching process, the level of knowledge and education of students, assessment of certain stages of teaching activity according to special criteria, determination of professional knowledge and personal qualities using tests, etc.

Each teacher in his work experience can try self-observation and comparison of his results, identifying commonalities and differences in them. The most important thing is regular self-observation. Constant analysis of one's work experience, identifying changes in it, discovering new aspects of it is the basis of creative work and research in interaction with a teacher. work skills along with self-awareness.

As noted, self-awareness is a regular process and is the first step in self-observation. It is necessary to strengthen it with an analysis of its activities. Introspection, in contrast to introspection, allows one to determine cause-and-effect relationships between information about the teacher himself. Self-analysis is based on a thought-ideal process, and on the basis of a deep

analysis of the data obtained in the process of self-observation, issues such as the degree to which the goal of improving one's personality and teaching activities are achieved are resolved. Achieved, and the comparison of the obtained result with the image of the formed personal qualities is decided. At the stage of self-analysis of the teacher, different models of his professional "I" are compared and an informative basis for self-assessment is created. The "psychic-internal" aspect of self-analysis can be complemented by various other "external" information processing methods. Various lessons and educational work carried out to teach teachers self-observation will help them understand the essence of the technique of self-analysis. To facilitate this, a teacher lesson analysis scheme was developed. The introspection and introspection described above lead to self-evaluation, preparing the ground for the teacher's understanding of his personality and activities.

Self-assessment as a method of pedagogical diagnostics serves as the basis for determining the teacher's attitude towards his personality and activities based on his self-analysis. Self-esteem depends on a number of personal feelings of each teacher. Its criterion is determined by the real personality and level of activity of the teacher. Research has identified three types of self-esteem. [47] These are: 1) low self-esteem, the teacher is not able to correctly assess the capabilities available to him and considers them below his current level. Such self-esteem negatively affects the socio-psychological state of the teacher and, as a result, lack of confidence in one's abilities becomes an obstacle to improving one's personality and profession. This, in turn, gives rise to an important complex of professional failure and causes a rejection of active forms of self-improvement; self-esteem. In this case, the teacher overestimates his professional capabilities and considers himself much better than his current position. In such a situation, a teacher may for a certain period of time feel confident in his abilities, consider himself superior to others and try to advise (educate) them. But that doesn't go far. Over a certain period of time, unfounded confidence and overestimation of oneself will spoil the relationship between the teacher and members of the teaching staff and lead to a conflict situation. Ultimately, this external conflict leads to internal conflict and becomes the basis of the conflict between the present self and the future self. Such high self-esteem causes socio-psychological tension, self-doubt, insolvency, for example, the inability to assess one's capabilities. In this case, the teacher cannot determine his place in the professional environment and begins to lose interest in his profession; Adequate self-assessment. An adequate assessment is manifested in accordance with the actual state of one's capabilities. A clear understanding of oneself allows the teacher to correctly assess one's strengths and weaknesses and identify specific ways to eliminate them.

Teacher empathy (understanding of teachers) is much higher and managing others (dynamism) is much lower. The higher the discrepancy between teachers' self-assessment and experts' assessment, the lower the accuracy of others' (experts') assessments. In other words, the smaller the difference between the supposed "I" and the "I" of colleagues and experts, the more adequate the teacher's self-esteem. Thus, increasing the adequate level of self-esteem represents the development of the teacher's level of perception of interpersonal relationships or the strengthening of professional empathy, the mutual compatibility of the assessments of the teacher and his colleagues and their rapprochement. This, in turn, determines the cohesion of the teaching staff. It should be noted that a teacher's incorrect assessment of himself has a negative impact on his behavior. If a teacher's self-esteem is low, he will not find the strength to solve the problems facing him. He tries to avoid them. A teacher with high self-esteem, on the contrary, tries to solve a problem that does not correspond to his capabilities. In both cases, avoidance of the problem being solved and a misconception about it leads to the impossibility of solving it.

The most important thing is that inadequate self-esteem leads to the teacher's inability to determine the goals and directions of his professional development. Inconstancy in self-esteem leads to the formation of an incorrect perception of one's own personal qualities and capabilities, unawareness of the need for their development, or the wrong direction in self-improvement. In this case, the teacher makes mistakes and shortcomings, not being able to determine which aspects of his personality to develop.

Thus, a teacher's false perception of himself forces him to give a false assessment of himself, which, on the one hand, leads to low effectiveness of his teaching activities, and on the other hand, prevents him from realizing and understanding his own shortcomings. As a result, he disrupted the process of self-development. From the above it is clear that self-diagnosis is a rather complex process. Taking into account its results, changes can be made to the pedagogical process. An important stage of self-diagnosis is the teacher's own changes in personal qualities and activities. Based on two-way communication, at this stage the process of self-government of the teacher as a participant in the educational process was completed. In the process of correction, the practical application of the pedagogical diagnosis of the previous stages in the daily activities of the teacher is achieved. When implementing communication in the educational process, three types of self-correction are used, which correspond to three different communication systems in cybernetics. These are:

1) current self-correction: carried out directly during the lesson, arising from the requirements of the changing pedagogical situation. In this case, effective completion of a correctional lesson, depending on the situation, is based on the internal professional self-awareness of the teacher and is carried out on the basis of previously formed self-diagnosis;

2) final correction: according to the latest results of the teacher's pedagogical activity, it depends on the level of compliance with the goals and objectives of the educational process. This form of self-correction is carried out much later in comparison with bilateral pedagogical influence, is aimed at a general program for changing the teacher's activities and is based on a review and understanding of the range of pedagogical tasks that require solutions. to be decided;

3) correction based on foresight; Based on the teacher's pedagogical foresight, the pedagogical process is designed, its reconstruction before the start of the educational process, prognostic information about the characteristics of students and the individual nature of their activities.

Thus, correct conduct of pedagogical diagnostics, understanding of the essence of information about two-way communication and its clear implementation allow the teacher to organize his teaching activities at a high level. This creates a need for constant improvement of his personality and activities.

References:

1. Abdullaeva Sh.A., Ruziev R.A. Pedagogical diagnosis and pedagogical correction. -T.: 2010-y.
2. Aminov A.Kh. Organizational-pedagogical foundations of improving the system of training of public education workers.-Samarkand,-2001.
3. Yodgorov N., Edgarova L., Mamatov D. - Proceedings of the republican scientific-practical conference. T.: -2015.

Rezyume: *Tashxisning mohiyati shundaki, bunda o'qituvchi o'z faoliyatining tadqiqotchisi. Tashxis bu o'z-o'zini bilishning kuchli instrumentiga aylanadi. O'zini bilish kasbiy mahoratni takomillashtirishning muhim sharti va asosi xisoblanadi. Chunki aynan kasbiy o'z-o'zini anglash pedagogik mahoratning tarkibiy qismi va o'qituvchi shaxsining rivojlanganlik mezoni hisoblanadi.*

Резюме: *Сущность диагноза состоит в том, что педагог является исследователем своей деятельности. Диагностика становится мощным инструментом самопознания. Самопознание считается важным условием и основой совершенствования профессиональных навыков. Потому что профессиональное самосознание является составной частью педагогического мастерства и критерием развития личности педагога.*

Kalit so'zlar: *Ilm-fan, texnika-texnologiyalar, tashxis, o'z-o'zini tahlil qilish, o'qituvchilar empatiyasi, korrektsiya jarayoni.*

Ключевые слова: *Наука, техника, диагностика, самоанализ, сопереживание учителя, процесс коррекции.*

ABOUT THE CASE. CHARACTERISTICS OF NOMINATIVE CASE

Abishova G.M.

Karakalpak State University named after Berdakh

Summary: *This article discusses about the study of cases. It analyzes the opinions expressed about the issue of cases in world languages. The scientific views and examples on grammatical cases in German and Karakalpak languages, especially nominative case are described in the article.*

Key words: *linguistics, study of cases, comparing, category, issue of cases in German and Karakalpak languages.*

The language is the valuable treasure of each nation. Studying the course of its development, similarities and differences of languages in a comparative typological way helps us to determine many things. A number of works on the issue of comparative language learning in foreign and Turkic languages have been developed. The linguistic phenomena characteristic of language is revealed in them. But the similar and different sides of the cases in the German and Karakalpak languages are considered one of the issues that have not yet been studied in the comparative typology.

In both of the languages under comparison, the cases that are spoken about are considered the nominative case, and the rest of the cases are formed from these cases. They are defined as a form with a zero indicator, contrary to other cases. In Turkic languages, this form is represented by the symbol 0 in the analysis [4: 19].

The study of the category of cases in linguistics has a long history. The study of Greek grammar about the concept of case dates back to the 4th century BC. The term case was understood in the ancient Greeks as a form that has changed from the main meaning of the word. This linguistic phenomenon was not only related to nouns, but also to verbs. Greeks accepted the first form of nouns as nominative, and that of verbs as present tense.

Later, the doctrine of case was developed by the philosophical school of the Stoics. They limited the meaning of the term "case" and found it appropriate to use it only in relation to the change of nouns. In addition, they changed Aristotle's opinion and considered the nominative as case. Unmediated and mediated cases were formed as opposition to each other by that time.

The English word *case* and the German *Kasus* are used instead of the Greek word *ptosis* which means to fall. Later, the word *Ptosis* was directly translated into Latin as *casus*. The word *casus* is the past participle of the verb *cadere* and means to fall in the infinitive. The English *Case* and the German *Kasus* is the Latin word *casus* which etymologically means case. The meaning of the Russian word "padej" also arose as an etymological "padyot" and "padat" which means to fall, to fall down [3:36].

"Case (casus) is a change of the form of the word, the last syllable in it (supplement) in different directions" constitutes the meaning of the cases.

The main task of the representatives of this field is not only to pay attention to the historical development of languages, but also it was not left out to reveal the initial meanings of grammatical elements, the first meanings of cases which was used to analyse and investigate the initial meaning and formation of them, the emergence of case affixes. They were mainly representatives of localist, logical and syntactic theorists.

Localists recognize the nominative as the first basic form of the noun and point out the expression of space (place) relationship in the meanings of indirect cases. They also found that there are three types of place categories in the genitive, dative and accusative cases. They conclude that their consistent placement is similar to the gradual succession of bodily (human body) movements, as shown in Greek grammar: genitive (indicative) is moving away, dividing, separating, dative - immobility, silence, a state of peace, accusative - approach (is in opposition to the genitive).

Localist theorists could not classify nominative case standing within the narrow framework of localism (not being able to get out of it). That's why following ancient scholars they removed the nominative from the case system, showing the genitive, dative and accusative cases as cases that express the meaning of real space (place).

A famous representative of this theory, Michelson, expresses his opinion about cases as follows: There is a logical law for connecting action with purpose. The reason for this is given by the subject case (nominative), and the result is given by the object case (accusative). Thus, he called the mentioned cases the most necessary (useful) and named dative and genitive as the cases of relative necessity.

According to the scientific research of Theodore Rumpel, the same logical category is given in different forms and expressed in different ways in several languages, based on this, the language form taken separately cannot be derived from the logical content of the thought. Based on the above facts T. Rumpel defines a case as the form of a noun in a sentence.

The function of any case is to express the connection (relationship) between words in a sentence. For this reason, it has a certain form and shows the relationship between the object and the predicate in the sentence. Denoting the nominative-subject, it also objects to the first and most desirable case [7:57].

So, nominative is noun, case which has function of subject, accusative-direct object, object of transitive verbs, dative-indirect case, nominative case, their meanings are the same so they are also considered as case.

According to the famous Russian linguist K.S. Aksakov, there are different shades of meaning in the characteristic of the cases. Cases have their meaning not only in terms of usage, but also in all grammatical forms in everyday conversation, in addition to syntax.

The study of the category of case in Russian linguistics has its own history. V. M. Lomonosov, the founder of the scientific study of the Russian language, in his scientific research entitled "Russian Grammar", mentioned the existence of 7 agreements on the change of nouns that mean different object or action meanings.

M. V. Lomonosov understood that "change" means not only cases, but also pronouns when they are accepted as articles [2:76].

The Greeks and Germans used prefixes of nouns and pronouns to distinguish them from cases. Cases cannot be the main tool in forming syntactic relations in many cases, but it is used together with other linguistic phenomena to indicate these relations. Here, of course, the case form is one of its main elements.

Remarkable studies have been conducted on the category of cases in Turkic languages and also in the Karakalpak language. A. Kidirbaev, one of the Karakalpak linguists, dedicated his candidate's thesis to the category of case in the Karakalpak language in 1944. As a result of his scientific research, the scientist tried to convince that there are not six but seven cases in Karakalpak grammar. Calling the seventh conjugation auxiliary (*kómekles*), he shows the auxiliary words *menen*, *benen*, *penen* (*qálem menen*, *at penen*, *joldas penen*) as its grammatical forms. The idea resulting from the author's research was included in the Karakalpak language grammars published for schools of those times, which was used until the end of the 1950s.

In this article, we will give some information about nominative case. The nominative is distinguished from the other three cases in German by the following characteristics:

1. Outside of the sentence, it can be the terms of objects, also the events: *der Mensch*, *das Haus*, *das Vieh*, *die Liebe*, *der Stak*, *die Tür*, *das Buch*, *die Kuh*, etc.

The linguists explain the appearance of nominative case in such a function as *Benennungsnominativ*, that is, a nominative that calls (things-subjects) [5: 67].

We are not far from the opinion that if we apply this opinion of the linguist to the Turkic languages, to be more precise, to the Karakalpak language, we will not make a mistake. Because the German nominative performs the same function as the Karakalpak language *ataw* can perform, that is, it also has the feature of naming objects and various events. Its naming feature is its singular

appearance in the sentence, as well as outside the sentence: úy, baqsha, bolis, arba, sıyır, jańalıq [4:9].

2. Another feature of the nominative is that it is syntactically independent as a subject case, unlike other cases that are governed by verbs, nouns, adjectives or prepositions. The main function of the nominative is to become subject in the sentence, because none of the cases can fulfill this task. The nominative is not governed by other words: Die Frau hatte das alles in ihrer Wirtschaft gelernt. (A.Seghers. Die Toten bleiben jung).

3. One of the features of the nominative is that it can be used alone as a separate sentence: Ein schwerer Schritt. (B. Uhse. Die Patrioten). Stille. Winter des 1945. Jahres. Dunkelheit.

This feature of the nominative in German is characteristic of Karakalpak, as well as ataw (nominative) case in all Turkic languages. 2) A nominative sentence is also expressed by a compound in the form of ataw, sometimes by a single word. This type of sentences is called ataw gap (simple sentence) in the Karakalpak language [6: 47].

The second and third characteristics of the nominative appear on the basis of its first.

Benennungsnominativ- The difference of the indicative nominative from the words in other cases is that it is given in bilingual or trilingual dictionaries.

In all dictionaries, no matter what language they are in, nouns are given in the ataw case and in the singular. This feature of the German nominative is also typical of the ataw in Karakalpak language. If we look at the Karakalpak-Russian, Karakalpak-English dictionaries, we will be sure of the correctness of this opinion:

Anfang m, Anfänger m, Anflug m, Aussprache f, Disziplin, Eintrag m, Faß n, Haus n, Herausstellung, Klasse f, etc.

Buwin, qara, qorǵanıw, sandıq, sarqum, tuyǵı, etc. (Syllable, look, security, chest, cup, feeling, and etc).

Even in some dictionaries, as well as in encyclopedias, the nominative is used as the basis, the beginning of the text that follows it. This idea is not only specific to the nominative in the German language, but also applies to the dictionaries of all languages and the words related to the noun group used in them. In some dictionaries, mainly for the next text related to one language, the noun is expressed not only in the nominative -ataw case, but also by using its capital letter.

The function of the nominative is so wide and diverse that even in some published works on grammar, they have not been fully expressed. The germanist scholars such as H. Paul, O. Behadel, V. Wilms, and L. Zotterli also avoided this topic in their works. The main functions of the nominative have been fully covered by Erdman-Mensing, although they have not been clearly systematized. He appreciated its role in Emotional Speech very highly. Also, the well-known linguist F. Blast in his two-volume work "Neuhochdeutsche Grammatik" analyzed the nominative and its main functions in an overview-summarized form. The Russian scientists have given special attention to the functions of the nominative in their scientific works. In this regard, it is appropriate to show A.M. Peshkovsky's work entitled "Russian syntax in scientific knowledge". The concept of a linguist scientist is also reflected in the German language grammar books written by Russian scientists. The functions of the nominative have been resolved in detail in several Indo-European languages.

The main peculiarity of the nominative is that it is considered independent from the point of view of the syntax, but other cases are subordinated by the syntax. Nominative ataw is the main (direct) case and stands in opposition to other cases. In his work, V. Admoni writes about nominative's use in expressing the feelings of emotional-talking, calls it "emotional nominative" and emphasizes that it is close to exclamations: [1: 64] Donnerwetter! Teufel! Zum Teufel mit der Padischahwürde! (K.R.Alp)

In the Karakalpak language, as well as in the related Turkic languages, there is no information about the use of the ataw case in such a function. But such examples can be found in literary works and folklore sources. Oy, músápir-ay! (K. Sultanov). (Oow, poor!).

In general, the issue of the category of cases in each language has been studied separately. The grammatical similarities and specific aspects of nominative case have been determined. We discussed the opinions of scientists above and came to the conclusion that it is better to compare the view points in this field. In this regard, it is important to study the functional tasks of the German and Karakalpak cases in a contrastive way in comparative typology.

References:

1. Admoni U.G. Der deutsche Sprachbau, 2. Aufl. - Moscow, 1973.
2. Aksakov K.S. Lomonosov in the history of Russian literature and language. – M., 1846.
3. Drozdova T.I. Support-symbols and support-rhymes in English lessons. V.zh: Foreign languages at school. No. 6-1999 - S. 35-38.
4. Kazakbaev K. Sistema padejey imyon sushchestvitelnyx v nemetskom i Turkmenskom yazykax. (The system of cases of nouns in the German and Turkmen languages.) Abstract of candidate's dissertation. - Baku, 1968.
5. Moskalskaya O.J. Grammatik der deutschen Gegenwartssprache. -Moscow, 1975.
6. Nurmakhanova A. Uchebnik po sravnitel'noy grammatike tyurkskih zyzykov. (Textbook on comparative grammar of Turkic languages.) - Alma-Ata. 1971.
7. Rumpel Theodor. Casuslehre in besonderer Beziehung auf die griechische Sprache, – Halle, 1945.

Rezyume: *Bu maqolada kelishiklarning tadqiqoti haqida so'z etilgan. Unda dunyo tillaridagi kelishiklar masalasi haqida bildirilgan fikrlar tahlil qilingan. Nemis va Qoraqalpoq tillaridagi grammatik kelishiklar, ayniqsa bosh (nominative) kelishik haqida ilimiy fikrlar va misollar maqolada berilgan.*

Резюме: *В данной статье речь идёт об изучении падеж. Анализируются мнения, высказанные по вопросу падежей в мировых языках. В статье изложены научные взгляды и примеры на грамматические падежи в немецком и каракалпакском языках, особенно на именительный падеж.*

Key words: *til bilimi, kelishiklarning tadqiqoti, qiyoslash, kategoriya, Nemis va Qoraqalpoq tillaridagi kelishiklar masalasi.*

Ключевые слова: *языкознание, изучение падежей, сравнение, категория, проблемы падежей в немецком и каракалпакском языках.*

METHODOLOGICAL BASIS OF FORMING PHRASEOLOGICAL COMPETENCE IN TEACHING ENGLISH TO THE STUDENTS LEARNING ENGLISH AS A FOREIGN LANGUAGE

Tajenova G.

Karakalpak State University named after Berdakh

Summary: *The article provides information on the methodological basis of forming phraseological competence in teaching English to students learning English as a foreign language.*

Key words: *Competence, phraseological competence, communicative competence, socio-cultural competence, linguistic competence, speech, pragmatic, strategic, discursive competence*

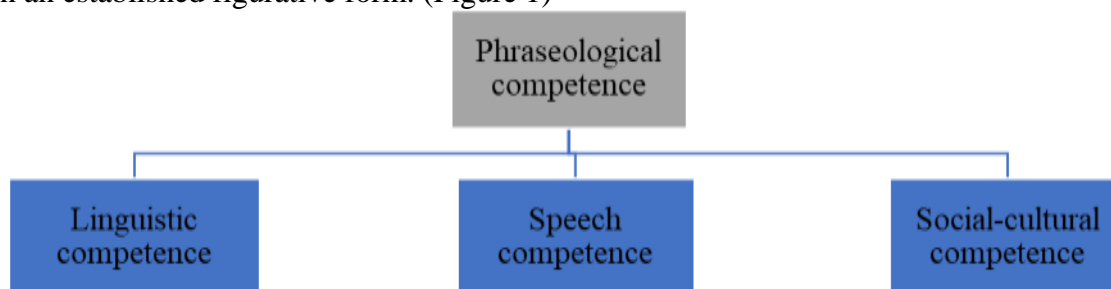
Occupying an important place of innovative educational technologies in foreign language lessons and the implementation of innovative technologies in practice in the educational process is becoming one of the most important strategic resources. Taking this into account, based on the content of the research work, a deeper analysis of the meaning of the concepts of "competence", "competence", "phraseological competence" is one of the tasks of the research, and we made a comprehensive scientific analysis of these concepts.

Many modern methodologists characterize different models of the structure of communicative competence. In some studies, communicative competence is divided into four separate competences according to the main types of speech activity: speaking, reading, listening and writing. The point of view of V. V. Safonova is closest to us [14] which defines the following components of communicative competence of a foreign language:

a) linguistic (grammatical);

b) speech (pragmatic, strategic, discursive);

c) socio-cultural (sociolinguistic and regional studies). It should be noted that, in our opinion, phraseological competence is in contact with all three competences (linguistic, speech and socio-cultural), and at the same time it is derived from these three competences, which are its components, because phraseology is not only interrelated, but also the lexical structure of the language, but it is an important concentration of centuries-old sociolinguistic knowledge of the people in an established figurative form. (Figure 1)



Thus, based on the above picture, we can define phraseological competence (as a component of communicative competence in learning a foreign language) as the ability to implement linguistic, speech and socio-cultural competences in various situations of speech communication.

Phraseological competence is learned as a component of communicative competence in learning a foreign language. It is studied as the ability to realize linguistic, speech and socio-cultural competence in various situations of verbal communication, which involves adequate perception and use of phraseological units of the English language in speech [13]. In the last half century, not only the definition, but also the understanding of the structure of competence has undergone significant changes.

Researcher N.D. Galskova distinguished the following components that make up the composition of communicative competence and phraseological competence [14]:

- the skills of using linguistic (lexico-grammatical) means of communication (linguistic or language component) formed on the knowledge of the phraseological system and their basis;
- knowledge, skills and abilities that allow understanding and creation of foreign language sentences containing elements of units or complete phraseological expressions in accordance with a specific communication situation, speech task and communicative intention (pragmatic or speech component);
- knowledge, skills and abilities that allow to communicate verbally and non-verbally with native speakers in accordance with the national-cultural characteristics of the foreign language society (socio-cultural component);
- knowledge, skills and abilities that allow you to anticipate the content of the speech act, predict the development of interaction, which is especially important when communicating with carriers of Japanese culture - high-level subtext, context culture (strategic component) culture;
- The motivational-objective component of the educational process, which is based on the formation of the motivational component and depends on the effectiveness of the construction of the cognitive process.

Therefore, the researcher N.D. Gal'skovoy emphasized the importance of five main components in the formation of phraseological competence: socio-cultural competence, language competence, motivational competence, speech competence and strategic competence [14]. If, in accordance with the proposed definition and structure of phraseological competence, as a result of its formation, the following skills are formed in the student:

- a) can find phraseological units and proverbs from the text;
- b) recognizes the lexical meaning of phraseological units and proverbs used in the context (phrase, sentence, text);
- c) can interpret the dictionary meanings of well-known phraseological units and proverbs by using socio-cultural knowledge;
- d) can correctly use the learned phraseological units and paremic units in speech.

Briefly considering the place of phraseological competence as a part of communicative competence, proposing a structural diagram and definition of phraseological competence and its connection with the phraseological side of the language, we came to the conclusion that the formation of phraseological competence must necessarily be a component of communicative competence. In order to achieve the goal of the research, it was determined that it is necessary to solve the following problems in the formation of phraseological competence in teaching English to A1 Pupils:

1. Analysis of the concept of "phraseologism", "phraseological competence", "speech competence" from scientific and methodical literature on the topic;
2. Review of national characteristics of phraseological units in the English language;
3. To study the problems of classification of phraseological units;
4. To study the difficulties in teaching English to A1 level Pupils;
5. Selection of phraseological units in the English language;
6. Teaching English to Pupils of A1 level, as well as determining selection criteria.
6. The development of an original system of educational exercises in English;
7. Conducting experimental training on teaching English to A1 level pupils and checking the effectiveness of the developed system.

The following methods were determined for the formation of phraseological competence by teaching English to A1 level pupils:

1. analytical method (scientific and methodical analysis of literature on the research topic, determination of this structure; summarization of elements, grouping of data);
2. selection of phraseological units, i.e. choosing phraseological units of interest to us from the text, dictionaries;
3. component analysis - studying the meaning of certain phraseological units using texts;
4. analysis of the main problems and methods of mastering phraseological units

5. methods of interpretation (explanation, comparison, analogy, etc.);
6. modeling method;
7. methods of statistical analysis of experimental training results.

In conclusion, the development of oral speech based on the competence approach is one of the modern and effective educational principles, and in the formation of phraseological competence in teaching English to A1 level pupils, it encourages them to think and consider in a new way in accordance with the requirements of today's time, it makes it possible to acquire knowledge easily and quickly, and motivates.

References:

1. Ахмедова Л.Т. Теория и практика обучения профессиональной русской речи студентов-филологов.–Т.; Fan va texnologiya, 2013. – 200
2. Jalolov J.J. Chet til o'qitish metodikasi; chet tillar oliy o'quv yurtlari (fakultetlari) talabarlari uchun darslik. – Tashkent; O'qituvchi, 2012. – p 432.
3. Саттаров Т.К. Формирование профессиональных умений будущего учителя иностранного языка на практических занятиях по специальности (на материале английского языка): Abs. Diss. Dr. Ped. Sc. –Tashkent, 2000. –p 32
4. Хашимова Д.У. Лингводидактические основы изучения лагун в контексте современного функционирования русского языка и межъязыковых взаимодействий: Diss. Dr. Ped.Sc. – Tashkent, 2007. 209p
5. S.A.Nazarova. Xitoy tiliga o'qitishda talabalarining chet tili leksik kompetentsiyasini takomillashtirish.: Abs. Diss. Can. Ped. Sc. –Tashkent.
6. Nazarova M.A. Ingliz tilidagi matnlarni o'qishda talabarlarni leksik polisemiya o'rgatishni takomillashtirish.: Abs. Diss. Dr. Ped. Sc. –T.; 2018. –p42.
7. S.Azizova. Oliy ta'lim muassasalari talabalariga ingliz tili frazeologizmlarini o'rgatishning lingvomadaniy xususiyatlari.: Abs. Diss. Phd. Ped. Sc.–Tashkent.
8. M.X.Gulyamova. Ingliz tilini o'qitishda talabalar kommunikativ kompetentsiyasini rivojlantirishga integrativ yondashuv.: Abs. Diss. Phd. Ped. Sc. – Tashkent.
9. B.R.Samatova. Ingliz tilini o'qitishda nofilologik yo'nalish talabalarining motivatsiyasi (yurisprudentsiya yo'nalishi misolida): Abs. Diss. Phd. Ped. Sc. – Tashkent
10. D.R.Abduganieva. Til OTMLar talabalarini ketma-ket tarjimaga o'rgatishning lingvodidaktik xususiyatlari.: Abs. Diss. Phd. Ped. Sc. – Tashkent.2020.
11. А.Бабенко. Лингводидактические основы обучение фразеологическим единицам в практическом курсе русского языка как иностранного. Abs. Diss. Can. Ped. Sc. Moscow, p 16
12. Цзан Вэньцзянь. Лингводидактическая система формирования фразеологической компетенции китайских русистов. Abs. Diss. Can. Ped. Sc. Moscow-2009, p4
13. Баграмова Нина Витальевна. Структура и место фразеологической компетенции в составе коммуникативной компетентности. Электронное научное издание (научно-педагогический интернет-журнал).
14. Гальскова Н.Д., ГезН.И. Теория обучения иностранным языкам. Лингводидактика и методика: учебное пособие для студ. лингв. ун-тов и фак. Ин.яз. высш. пед. учеб. заведений. М.: Академия, 2007. 336 p.

Rezyume: Maqolada ingliz tilini chet tili sifatida o'rganuvchi talabalarga ingliz tilini o'rgatishda frazeologik kompetentsiyasini shakllantirishning metodologik asoslari haqida ma'lumotlar keltirilgan.

Резюме: В статье представлена информация о методических основах формирования фразеологической компетенции при обучении английскому языку студентов, изучающих английский язык как иностранный.

Kalit so'zlar: Kompetensiya, frazeologik kompetensiya, kommunikativ kompetensiya, Ijtimoiy-madaniy kompetensiya, lingvistik kompetensiya, nutqiy, pragmatik, strategik, diskursiv kompetensiya

Ключевые слова: Компетенция, фразеологическая компетентность, коммуникативная компетентность, социокультурная компетентность, языковая компетентность, речевая, прагматическая, стратегическая, дискурсивная компетентность.

**IMPROVING THE METHODOLOGY OF DEVELOPING STUDENTS'
COMMUNICATIVE COMPETENCE IN ENGLISH IN KARAKALPAK SCHOOLS (in the
case of grades 8-9)**

Karlibaeva A.E.

Karakalpak State University named after Berdakh

Summary: This article discusses how current techniques play a crucial role in helping students learn the fundamental skills they need to succeed in the subject of science.

Key words: communicative competence, technology, digital, knowledge, skill, competence, ability, efficiency, intercultural communication, person-oriented education.

These days, our nation's educational system incorporates both foreign experiences and contemporary information and communication technology. It is common knowledge nowadays that around 70% of people on the planet are multilingual. Working with digital technologies and the world's accelerating processes of globalisation are driving up need for experts with flawless command of other languages, particularly English. Learning foreign languages is becoming more and more common as a means of guaranteeing the effectiveness and quality of foreign language instruction.

"Competence" (or "competence"-ability in English) is the capacity to exhibit talent, inventiveness, and skill in real-world situations. Many definitions of "competence" have been offered by experts, researchers, and scientists. It basically refers to the capacity to apply theoretical knowledge to tasks in an efficient manner and to exhibit exceptional professional competence, skill, and talent.

We are aware of the pressing need for instructors to teach foreign languages, especially English, by looking at the CEFR³² levels for grades 8 through 9, and applying techniques suited for those children' age. A cursory examination of the relevant literature indicates that studies have been carried out in a range of educational contexts. The way English is taught in general school these days the educational principles of "(Inter)Cultural Awareness," "Language Awareness," and "Humanity" are the foundation upon which it is being created.

(Inter)Cultural Awareness: The idea of intercultural communication originated in Germany and quickly spread throughout the West. This idea suggests that teaching English as a communication tool is not as important as developing the student's general and speaking skills, which entails piqueing his interest in both English and other cultures and having him pay attention to language that he may come across in daily life. Developing the necessary abilities to adjust to living situations in an increasingly integrated Europe is the aim. This is the reason the nation studies component of English language instruction is prioritised in this paradigm.

Poems and songs that educate pupils to the customs and traditions of the nation where the language is being learned make up the educational method and material, which is structured like a game. The term "neighbour (sister) language learning" originates in Europe, where English speakers teach the majority of the sessions. Furthermore, students regularly migrate within European nations, and for a given amount of time, they have the chance to live in an English-speaking environment. Given this, it is inappropriate to propagate this idea in nations with distinct cultures and geographical distances from Europe. It has been shown that not everyone in the globe understands what it means to learn English as a communication language, and it is not easy to "export" teaching strategies. First of all, it is appropriate to teach the language's practical application, that is, to focus solely on "daily speech situations" and "daily life topics," even while there is no requirement or opportunity for conversation or interaction with an English speaker.

³² <https://englishphobia.medium.com/what-are-cefr-levels-in-english-d103a065ffdc>

Second, in addition to the United States of America, Australia, Canada, and several other nations, English is the official language of one nation, namely Great Britain. These nations have distinct cultures even if English is the official language.

The "Language Awareness" (also known as "Holistic approach") philosophy promotes the idea that learning English is a prerequisite for learning new information. That is, learning new information about life through the medium of English is the goal of general English education. However, Vygotsky's hypothesis of ontogeny in speech development by M. Williams and R. Bednlar.

The term "holistic approach"³³ was the one they favoured using. They contend that Vygotsky breaks down the material to be learnt into manageable chunks and skill sets, and that he would not have approved of their presentation as such. [8,9].

This finding has led to a rise in the use of the CLIL³⁴ (Content and Language Integrated Learning) method in the US, Europe, and other nations where English is a second language. The idea of "Humanity" (person-oriented) has been accepted in Uzbekistan; in accordance with it, the student's needs and interests are given priority in fundamental English education, and he is treated as the main topic of the educational process and intercultural interaction. The goal of English speech exercises is to help students develop their personalities by helping them master the cultural legacies left by the language's creator. The learner enhances their prior social, cultural, linguistic, and emotional experiences by speaking, listening, comprehending, writing, and other activities.[8,10]

The educational method is utilising both international experiences and contemporary information and communication technology. establishing a contemporary methodology, ensuring the continuity and consistency of secondary education instruction in general education topics, and enhancing state standards for general education subjects based on the competency approach. ³⁵On April 6, 2017, the Cabinet of Ministers of the Republic of Uzbekistan adopted the "State education of general secondary, secondary special, and vocational education" 187 in order to create and execute a new generation of educational-methodical complexes.[7,559].This choice turned out to be crucial to the advancement of the educational process. Specifically, the competence-based approach to English language instruction and the development of students' practical application abilities enhanced the narrative greatly.

The goal of education is to help students develop their personalities and their mental-intellectual and creative qualities show through. In summary, competence is an integrated system made up of information, experience, and skills that show up in professional training and general ability. may be summed up as an adjective list. Within the framework of global linguistics, several subfields of applied linguistics are emerging. Enhancing pupils' creative and communicative proficiency necessitates an integrated learning environment built on the mentoring model. An component of sociopragmatism is the study of methodological economy of speech; methodological openness and interpretation of the relationship between the addressee and the addressee in speech actions are significant to everyone.

The study of language usage techniques and abilities is known as global linguistics, and it is one of the newest trends in current style. Since each country's native tongue enhances it grows thru. The establishment of an integrated learning environment facilitates the acquisition of communicative competence, a crucial skill for language development. The significance of the study done on the promotion of the English language on the Internet is demonstrated by the description of "Supporting scientific and research work on the development of the English language in our

³³ Williams M., Burden R. L. Psychology for language teachers. A social constructivist approach. - L.: Cambridge University Press, 2010. - 40 p.

³⁴ <https://nnkt.ueh.edu.vn/wp-content/uploads/2015/12/29-015.pdf>

³⁵ Resolution No. 187 of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 "On approval of state educational standards of general secondary, secondary special, vocational education" <https://lex. En/docs/-3153714>

country, the tasks of international cooperation in this regard" from last year demonstrates. Therefore, in order to create an integrated learning environment based on the teacher's approach and to analyse the semantic and methodological features of language research issues that determine the norms of cognitive, sociopragmatic, and linguistic use, linguistics students must become more proficient communicators. The necessity for language learners to advance their English language proficiency starting in school age is increased by the globalisation of language learning, free communication, and idea sharing with international colleagues. In the context of globalisation, increasing the chances for educational topics to learn and share information is very important. It is vital to the growth of students' communicative proficiency. Enhancing the pedagogical processes of developing a comprehensive learning environment and using mentorship to raise students' communication proficiency are receiving particular focus. We believe that the ideas of competency and competence are interconnected and encompass the ideas of knowledge, competence, and skills, such as the capacity for goal-setting, in-depth problem-solving, thoroughness, and creative thought. comprises attributes.

Today's educational changes will only be effective if they teach highly competent individuals who will accelerate the advancement of production, research, technology, and the arts. As a result, it is critical and required that each student acquire unique competencies relevant to the subject matter. The integration method represents a novel educational reality in the context of the modernization of secondary general education.

The tasks of "step-by-step implementation of the principles of improving the teaching methodology, introduction of modern information and communication technologies and innovative projects into the field of public education" are defined in the concept of development of the public education system of the Republic of Uzbekistan until 2030³⁶ developing a methodological system for the formation of private competencies, improving the mechanism of introducing the "computer-based educational method" of teaching technology science based on an integrative approach into educational practice, and elucidating the structural underpinnings of the development of basic and science-related competencies in students all contribute to improving the quality of education and efficiency.

A.A. Bodalev originally defined "communicative competence" as the capacity to build and sustain productive connections with others when one's own internal resources—that is, knowledge and abilities—are accessible. There are several theories and perspectives in Russian psychology about the issue of communicative ability. According to S.V. Titova, for instance, communicative competence is the capacity to act in the context of the conversation in order to develop a predictive model of his behaviour, empathy, and communication-related personal traits (such as social orientation and appropriate self-esteem).[7,561].

Developing the linguistic, sociolinguistic, and pragmatic aspects of enhancing communicative competence and the framework for getting students ready for successful communication are especially crucial. The way the forums are organised is given particular consideration.

References:

1. 2017 of Sh. Mirziyev, President of the Republic of Uzbekistan In the years 2017-2021 specified in Decree No. PF-4947 of February 7 Five priority areas of development of the Republic of Uzbekistan "Strategy of Actions" on this.
2. President of the Republic of Uzbekistan Sh. Mirziyev, 2017 Address to the Oliy Majlis of December 22. // Xalq suzi. 23, 2017 December
3. Khasanova Sh.B. E-learning resources development and from usage experiences // Continuous education. - Tashkent. 2017, No. 5. - B. 4651.
4. Toraev B.Z. The field of informatics and information technologies pedagogues in the integration of general professional subjects formation of competence. Ped. science tall fake dr. (PhD). diss.

³⁶ Decree of the president of the republic of uzbekistan approving the concept of development of science until 2030 <https://lex.uz/docs/-5073447>

5. Taylakov U.N. The technology of education is electronic informative and educational environment. Monograph.-T.: Uzbek Research Institute of Pedagogical Sciences, 2016. - P.152.

6. Khamidov B.C., Sirojiddinov K.I., Umarmkhanov N.I., Ismailov K - A., Tursunboev X-E-, Abdullaev Z.S. Professional in e-learning improving competence /Monography.LG.: autoref.-Tashkent. UzMU, 2018. - B. 27.

7. G.O.Axmedova-International Journal of Education, Social Science & Humanities. Finland Academic Research Science Publishers, 2023. Publishing centre of Finland

8. G.Sh.Tadjieva -Teaching English language in primary classes.- The study guide was recommended for publication by the decision of the Council of Namangan State University No. 4 on December 11, 2019

Rezyume: *Ushbu maqolada hozirgi texnikalar talabalarga fan bo'yicha muvaffaqiyatga erishish uchun zarur bo'lgan asosiy ko'nikmalarni o'rganishga yordam berishda qanday hal qiluvchi rol o'ynashini muhokama qiladi.*

Резюме: *В этой статье обсуждается, как современные методы играют решающую роль, помогая учащимся освоить фундаментальные навыки, необходимые им для достижения успеха в предмете науки.*

Kalit so'zlar: *kommunikativ kompetentsiya, texnologiya, raqamli, bilim, malaka, kompetentsiya, qobiliyat, samaradorlik, madaniyatlararo muloqot, shaxsga yo'naltirilgan ta'lim.*

Ключевые слова: *коммуникативная компетентность, технологии, цифровые, знания, умения, компетенции, способности, эффективность, межкультурная коммуникация, лично-ориентированное образование.*

ENDURING RELEVANCE IN I.S. TURGENEV'S NOVEL «FATHERS AND SONS»

Allamuratov A., Bazarbaeva M.M.

Karakalpak State University named after Berdakh

Summary: *The article examines the voice not of the author, but of culture itself, which denies the formula in ethics, and does not find a material equivalent for aesthetics. The civilizational pressure is broken against the foundations of the cultural order, and the diversity of life cannot be reduced to a beetle that one must go look at in order to understand the world.*

Key words: *«superfluous man», «nihilist», «man of the times», «civilizer», «mid-1850s», «60s. XIX century».*

The novel «Fathers and Sons» was created in the heat of controversy. Russian literature was rapidly democratizing, the priest's sons were crowding out the nobles who were based on «principles». «Literary Robespierres», «revelers-vandals» walked confidently, striving to «wipe poetry, fine arts, all aesthetic pleasures from the face of the earth and install their crude seminary principles» (all Turgenev's words). This, of course, is an exaggeration, a hyperbole, that is, a tool that, naturally, is more suitable for a destroyer-civilizer than for a cultural conservative, like Turgenev was. However, he used this tool in private conversations and correspondence, and not in fine literature. The journalistic idea of the novel «Fathers and Sons» was transformed into a convincing literary text. It contains the voice not even of the author, but of culture itself, which denies the formula in ethics, and does not find a material equivalent for aesthetics. The civilizational pressure is broken against the foundations of the cultural order, and the diversity of life cannot be reduced to a beetle that one must go look at in order to understand the world.

Turgenev's novel, in addition to its artistic beauty, is also remarkable in that it stirs the mind, provokes thought, although in itself it does not resolve any issue and even illuminates with a bright light not so much the phenomena being deduced as the author's attitude towards these very phenomena. It provokes thought precisely because it is permeated through and through with the most complete, most touching sincerity. Everything that is written in Turgenev's last novel is felt until the last line; this feeling breaks through beyond the will and consciousness of the author himself and warms the objective story instead of being expressed in lyrical digressions. The author himself is not clearly aware of his feelings, does not subject them to analysis, and does not take a critical attitude towards them. This circumstance gives us the opportunity to see these feelings in all their untouched spontaneity. We see what shines through, and not what the author wants to show or prove.

Turgenev's opinions and judgments will not change one bit our view of the younger generation and the ideas of our time; we won't even take them into account, we won't even argue with them; these opinions, judgments and feelings, expressed in inimitably vivid images, will provide only materials for characterizing the past generation, in the person of one of its best representatives. The main task in the novel is to depict and explain everything that made the «superfluous man» a typical representative of modern society. At the same time, a critical assessment of this type of character is given from the point of view of the historical and social needs of Russia in the mid-1850s. Speaking about the «man of the times», it is impossible not to mention one of the significant novels of Russian literature, «Fathers and Sons» (1862). This novel by Turgenev reflects the confrontation between two socio-political camps that managed to appear in Russia by the 60s. XIX century. In his work, the author identified the main social disagreements on the eve of the Great Reforms, and also raised several important questions of a private nature, for example, about the attitude of the new generation to art (music, painting, literature) and to science. As you can see, the position of the emerging «nihilists», their denial of spiritual love and aesthetic enjoyment of nature, greatly worried the writer.

The novel recreated the period preceding the abolition of serfdom, and at this time the disputes (which became fierce) between two generations distant from each other about art, religion, and people continued. These two generations in the work under consideration are presented not only as ideas of the eras, but also as a conflict between the aristocracy and the younger generation. D.I. Pisarev, one of the supposed prototypes of Bazarov, noted: «...This novel, obviously, constitutes a question and challenge addressed to the younger generation by the older part of society...» [4, p. 4].

The main character is a young man, a supporter of natural sciences, who continues to study to become a doctor. Readers learn that Bazarov is a nihilist from his conversation with Arkady Kirsanov, who invited his friend to stay at the family estate “noble nest”.

At first, Kirsanov admires Bazarov and even strives to imitate him. However, over time, a gap is revealed between the young people: Bazarov’s nihilism turns out to be too harsh and rude for Arkady, who was brought up in liberal traditions. Bazarov's attitude to the world is commented on by himself with irony, sometimes even sarcasm. He sees the surest way out of the Russian crisis in destroying and denying a lot, which he actively and more than once declares: «First you need to clear the place, and then build». Bazarov, as already noted, does not recognize art and believes that it has no benefit for humanity. One can recall his judgment about Raphael’s paintings: «Raphael is not worth a penny...» [6, p. 27].

The main character’s attitude towards nature is characteristic: «Nature is not a temple, but a workshop, and man is a worker in it» [6, p. 22]. Bazarov, as a true nihilist, does not allow any authorities; being sufficiently educated, he trusts only scientific facts confirmed by experience. Of course, in this case we are talking about the natural sciences: medicine, chemistry, physics, etc. The main character also rejects the existing social order. He believes that the country urgently needs changes, that while the older generation of liberals still relies on old achievements, there is no way to change anything.

Bazarov's death was the logical conclusion of his position: by denying harmony between the spiritual and material, a person dooms himself to suffering and death. Turgenev dreams of uniting the best qualities of characters: the culture and education of the nobles and the power and energy of the new generation. However, this type of personality has not yet developed in Russia. Continuing to talk about the «man of the times», it is important to note the reflection of the populist movement in Turgenev’s work.

The writer created his last novel, *Novi*, in 1877, being one of the first to notice the peculiarities of the movement of the populist revolutionaries, which played a significant role in the socio-political life of Russia. In this novel, Turgenev no longer examines, as before, the fate of individual types of character; he shows the fate of the populist movement, quite massive, which wrote tragic pages in national history. «*Novi*» examines the social conflicts of the era, the reasons for their emergence and methods of resolution.

One of the heroes of «*Novi*» is Nezhdanov, and Turgenev conceived it as a «romance of realism». The origin of this character indicates one of the main reasons for the appearance of such characters; it is a prehistory, a prologue to the work «the advanced man of the time found himself not only in contradiction with the surrounding reality, but also in contradiction with himself» [2, p. 34].

This is why a type of hero appears in Russian literature called an extra person. The typology of this character presupposes a critical attitude of the individual towards the existing social system, a protest against the oppression of the individual, and a declaration of the idea of personal freedom. Obviously, such people did not fit into the rules of society, did not want to make a career, and therefore found themselves «deprived of a place» (despite their brilliant abilities, intelligence and energy).

A striking example of such characters are Pushkin’s *Onegin* and Lermontov’s *Pechorin*. At the end of the 1850s–1880s, in the pre-reform and post-reform times, the image of the superfluous person changes, personal passive or active protest is replenished with public ideas. This can be observed by reading Turgenev’s novels about *Rudin*, *Bazarov*, *Insarov*.

The populist era depicted in *Novi* added characters such as Nezhdanov; they «sincerely wished for themselves great activity in the name of the people and at the same time remained dreamers, poorly knew and understood the real needs of the people» [2, p. 34].

«*Fathers and Sons*» is perhaps the most noisy and scandalous book in Russian literature. Avdotya Panaeva, who really disliked Turgenev, wrote: «I don't remember that any literary work made so much noise and aroused so much conversation as Turgenev's story «*Fathers and Sons*». It can be positively said that «*Fathers and Sons*» was read even by people who had not picked up books since school».

It was precisely the fact that from then on the book was picked up precisely at school, and only occasionally after, that deprived Turgenev's work of its romantic aura of loud popularity. «*Fathers and Sons*» is perceived as a social, service work. And in fact, the novel is such a work. It is simply necessary, apparently, to separate what arose thanks to the author's intention, and what is contrary, due to the very nature of art, which desperately resists attempts to put it in the service of anything. Turgenev described the new phenomenon quite lapidarily in his book. The phenomenon is definite, concrete, today. This mood is set at the very beginning of the novel: «What, Peter? not in sight yet? asked on May 20, 1859, going out onto the low porch without a hat...»

It was very significant for the author and the reader that it was just such a year. Previously, Bazarov could not appear. The achievements of the 40s of the 19th century prepared his arrival. The society was strongly impressed by natural scientific discoveries: the law of conservation of energy, the cellular structure of organisms. It turned out that all the phenomena of life can be reduced to the simplest chemical and physical processes and expressed in an accessible and convenient formula. Vokht's book, the same one that Arkady Kirsanov gives his father to read – «*Force and Matter*» - taught: the brain secretes thoughts like the liver secretes bile. Thus, the highest human activity, thinking, turned into a physiological mechanism that can be traced and described. There were no secrets left. Therefore, Bazarov easily and simply transforms the basic position of the new science, adapting it for different occasions of life. «You study the anatomy of the eye: where does that mysterious look, as you say, come from? This is all romanticism, nonsense, rottenness, art», he tells Arkady. And he logically ends: «Let's go and look at the beetle». (Bazarov quite rightly contrasts two worldviews - scientific and artistic. Only their clash will not end in the way that seems inevitable to him. Actually, Turgenev's book is more precisely about this, this is its role in the history of Russian literature.) [1;122]

In general, Bazarov's ideas boil down to «watching the beetle» - instead of thinking about mysterious looks. The beetle is the key to all problems. In Bazarov's perception of the world, biological categories dominate. In such a system of thinking, a beetle is simpler, a person is more complex. Society is also an organism, only even more developed and complex than the individual.

Turgenev saw the new phenomenon and was afraid of it. An unknown force was felt in these unprecedented people. To realize it, he began to write down: «I painted all these faces, as if I were painting mushrooms, leaves, trees; they put an eyesore on me and began to draw». Of course, one should not completely trust the author's coquetry. But it is true that Turgenev tried his best to maintain objectivity. And he achieved it. As a matter of fact, it was precisely this that made such a strong impression on the society of that time: it was not clear who Turgenev was for? The narrative fabric itself is extremely objectified. All the time one senses a zero degree of writing, uncharacteristic of Russian literature, where we are talking about a social phenomenon. In general, reading «*Fathers and Sons*» leaves a strange impression of the unstructured plot, the looseness of the composition. And this is also the result of an attitude of objectivity: as if it is not a novel that is being written, but notebooks, notes for memory. Of course, one should not overestimate the importance of design in fine literature. Turgenev is an artist, and this is the main thing. The characters in the book are alive. The language is bright. As Bazarov wonderfully says about Odintsova: «A rich body. At least now to the anatomical theater».

But nevertheless, the scheme emerges through the verbal fabric. Turgenev wrote a novel with a tendency. The point is not that the author openly takes sides, but that the social problem is put at the forefront. This is a novel about the theme. That is, as they would say now - biased art.

However, here a collision of scientific and artistic worldviews occurs, and the very miracle that Bazarov completely denied occurs. The book is by no means exhausted by the scheme of confrontation between the old and the new in Russia at the end of the 50s of the 19th century. And not because the author's talent has built up a speculative framework of high-quality artistic material that has independent value. The solution to «Fathers and Sons» lies not above the diagram, but below it - in a deep philosophical problem that goes beyond the boundaries of both the century and the country.

«Fathers and Sons» is about the clash of the civilizing impulse with the order of culture. About how the world, reduced to a formula, turns into chaos.[3;83].

Civilization is a vector, culture is a scalar. Civilization is made up of ideas and beliefs. Culture summarizes techniques and skills. The invention of the flush cistern is a sign of civilization. The fact that every house has a flush cistern is a sign of culture. Bazarov is a free and sweeping carrier of ideas. This relaxedness of his is presented in Turgenev's novel with mockery, but also with admiration. Here is one of the remarkable conversations: «...However, we were quite philosophical». «Nature evokes the silence of sleep», said Pushkin. «He never said anything like that», said Arkady. Well, I didn't say that, but I could and should have said that as a poet. By the way, he must have served in the military. Pushkin was never a military man! For mercy, on every page he says: «To the battle, to the battle! for the honor of Russia!». It is clear that Bazarov is talking nonsense. But at the same time, he guesses something very accurately in the reading and mass perception of Pushkin by Russian society... Such courage is the privilege of a free mind. Enslaved thinking operates with ready-made dogmas. Uninhibited thinking turns a hypothesis into a hyperbole, a hyperbole into a dogma. This is the most attractive thing about Bazarov. But also the most frightening thing.

This is the kind of Bazarov that Turgenev was able to wonderfully show. His hero is not a philosopher, not a thinker. When he speaks at length, it is usually from popular scientific works. When he briefly expresses himself sharply and sometimes wittily. But the point is not in the ideas themselves that Bazarov expounds, but in the way of thinking, in absolute freedom («Raphael is not worth a penny»).

And what confronts Bazarov is not his main opponent, Pavel Petrovich Kirsanov, but the way of life, order, respect for which Kirsanov professes («Without principles taken on faith, you cannot take a step, you cannot breathe»).

Turgenev ruins Bazarov, confronting him with the very idea of the way of life. The author guides his hero through the book, consistently giving him exams in all areas of life: friendship, enmity, love, family ties. And Bazarov consistently fails everywhere. The series of these exams forms the plot of the novel. Despite the differences in circumstances, Bazarov suffers defeats for the same reason: he invades order, rushes like a lawless comet, and burns out. His friendship with Arkady, so devoted and faithful, ends in ruin. Attachment does not withstand tests of strength, which are carried out in such barbaric ways as defamation of Pushkin and other authorities. Arkady's fiancée Katya accurately formulates: «He is predatory, and you and I are tame.» Tame means living by the rules, maintaining order. The way of life is sharply hostile to Bazarov and in his love for Odintsova. In the book, this is persistently emphasized even by simple repetition of literally the same words. «What do you need Latin names for? asked Bazarov. Everything needs order, she answered».

And then it describes even more clearly «the order that she established in her home and in her life. She strictly adhered to it and forced others to obey it. Everything during the day happened at a certain time... Bazarov did not like this measured, somewhat solemn correctness of daily life»; It's like you're rolling on rails, «he assured».[1;137].

Odintsova is frightened by the scope and uncontrollability of Bazarov, and the worst accusation in her mouth is the words: «I am beginning to suspect that you are prone to exaggeration». Hyperbole, the strongest and most effective trump card of Bazarov's thinking, is seen as a violation of the norm.

The collision of chaos with the norm exhausts the very important theme of enmity in the novel. Pavel Petrovich Kirsanov, like Bazarov, is not a thinker. He is unable to oppose Bazarov's pressure with any articulated ideas and arguments. But Kirsanov acutely senses the danger of the very fact of Bazarov's existence, focusing not on thoughts or even words: «You deign to find my habits, my toilet, my neatness funny...» Kirsanov defends these seemingly trifles, because instinctively understands that the sum of little things is culture. The same culture in which Pushkin, Raphael, clean nails and an evening walk are naturally distributed. Bazarov poses a threat to all this.

The civilizer Bazarov believes that somewhere there is a reliable formula for prosperity and happiness, which only needs to be found and offered to humanity («Correct society, and there will be no diseases»). In order to find this formula, some unimportant details can be sacrificed. And since any civilizer always deals with an already existing, established world order, he uses the opposite method: not creating something anew, but first destroying what already exists. Kirsanov is convinced that well-being and happiness themselves lie in accumulation, summation and preservation. The uniqueness of the formula is opposed by the diversity of the system. You can't start a new life on Monday. The pathos of destruction and reconstruction is so unacceptable for Turgenev that it forces Bazarov to ultimately lose outright to Kirsanov.

The climax is a finely written duel scene. Depicted as a whole as an absurdity, the duel is nevertheless not foreign to Kirsanov. She is part of his heritage, his world, his culture, rules and «principles». Bazarov looks pathetic in a duel, because he is alien to the very system that gave rise to such phenomena as a duel. Here he is forced to fight on foreign territory. Turgenev even suggests that there is something much more important and powerful against Bazarov than Kirsanov with a pistol: «Pavel Petrovich seemed to him like a big forest, with which he still had to fight». In other words, the barrier is nature itself, nature, the world order.

And Bazarov is finally finished off when it becomes clear why Odintsova renounced him: «She forced herself to reach a certain line, forced herself to look beyond it and saw behind it not even an abyss, but emptiness... or ugliness».

This is an important recognition. Turgenev denies the chaos that Bazarov brings even greatness, leaving only naked disorder.[3;65]

That is why Bazarov dies humiliatingly and pitifully. Although even here the author maintains complete objectivity, showing the strength of spirit and courage of the hero. Pisarev even believed that by his behavior in the face of death, Bazarov put that last weight on the scales, which ultimately tipped in his direction.

But a much more significant cause of Bazarov's death was a scratch on his finger. The paradox of the death of a young, thriving, extraordinary person from such an insignificant reason creates a scale that makes you think. It was not a scratch that killed Bazarov, but nature itself. He again invaded with his crude lancet (this time literally) the transformer into the established order of life and death and fell victim to it. The smallness of the reason here only emphasizes the inequality of power. Bazarov himself is aware of this: «Yes, go ahead and try to deny death. She denies you, and that's it!».

Turgenev killed Bazarov not because he did not figure out how to adapt this new phenomenon to Russian society, but because he discovered the only law that a nihilist, at least theoretically, does not undertake to refute.

He is illegitimate, his father is a prince and his mother is a governess, and Nezhdanov (a man with a «speaking» surname) never forgets this fact. Every reminder of his illegal birth causes a natural painful reaction. Having acquired his father's legacy, he constantly felt like an outcast in the society of aristocrats. Nezhdanov's attempt to connect with the people was unsuccessful; his subtle nature was not ready to come into contact with the severity of peasant life that was revealed to him.

A romantic view of history, ignorance of the modern problems of the village, and the state of affairs in the economy led to the collapse of the activities of a very honest and noble man. Dramatic predetermination concerns not only Nezhdanov, but also other participants in the revolutionary struggle of the populists. Other representatives also failed—Markelov, Matrulina. As you can see, Turgenev is rightfully considered an objective «chronicler» of the most important events that took place in the 1840s - 1880s. XIX century. In the novels, stories, and essays of the author, the economic and political processes of our time appeared in artistic images. The outstanding writer realistically depicted the main types of personalities: «circle members», nihilists, populists, who actively declared themselves as significant public figures.

Reference:

1. Винникова Г.Э. Тургенев и Россия / Г.Э. Винникова.—Москва: Советская Россия, 1986. - 411 с.
2. Ефимова Е. М. И.С. Тургенев. Семинарий / Е.М. Ефимова.—Москва: Учпедгиз, 1958. - 205 с.
3. Писарев Д.И. Реалисты / Д.И. Писарев.—Ленинград: «Художественная литература», 1981.-76 с.
4. Тургенев И. с. «Рудин» / И.С. Тургенев.—Москва: АСТ, 2018.— 192 с.

Rezyume: *Maqolada muallifding emas, axloq dagi formulani bekor etuvchi, esdatikaga madaniy ekvivalent topa olmaydigan madaniyatning o'zi ovozi korip shigiladi. Madaniy tartib asoslarinia zid tsivilizatsiya bosimi buziladi va hayotning xilma-xilligin dunyoni tushinish uchun qarash zurur bo'lgan qo'ngizga qisqartirishlik mumkin emas.*

Резюме: *В статье рассматривается в нем голос не автора, а самой культуры, которая отрицает в этике формулу, а для эстетики не находит материального эквивалента. Цивилизаторский напор разбивается об устой культурного порядка, и многообразие жизни не удается свести к жуку, на которого надо идти смотреть, чтобы понять мир.*

Kalit so'zlar: *«Ortiqcha odam», «nigilist», «zamon odami», «tsivilizator», 1850-yillarding o'rtalari, 60 -yillar. XIX asr.*

Ключевые слова: *«лишний человек», «нигилист», «человек времени», «цивилизатор», середина 1850-х гг, 60-ые гг. XIX века.*

INTERPRETATION OF LUST IN ABDULLA ORIPOV'S LYRICS

Qazaqbaeva D.B.

Law college of the Republic of Karakalpakstan

Summary: *Lust is a means of acquainting a person with evil. There are many epics and ghazals in the classical literature that are interpreted as lust. There is also a legend in folklore that Satan mingled with human blood when he cooked the children he left to Eve out of anger. The main task of literature aimed at moral education is to turn man away from this path. Seventy devils cannot do the work of one nafs, Rabguzi said in his work.*

Key words: *lust, devil, Eve, Adam, "heartlessness", composition, attribute, "consequence".*

It is known from literature textbooks that the concept of a perfect person is equated with the concept of a spiritually purified person. And spiritual purification is overcoming NAFS.

In addition to laziness, non-drinking and dressing, nafs means ignorance, conceit, arrogance, worldliness, oppression, theft, laziness, taste, lack of vision, avarice, careerism, despondency, anger, in general, which pollutes the spirit of faith and the heart. It is understood as the totality of all the evils that lead away from God.

In a number of verses of the Holy Qur'an, there are rulings on the necessity of curbing and overcoming the ego. Also, there are many instructions in this regard in the hadiths of our prophet Muhammad. As an example, this is what Hazrat Ali said

advice (hadith) can be cited: "O Ali, those who have reached the status of sainthood (sainthood) did not achieve such great status because they prayed a lot, but because they conquered their egos." Lust is the very essence of man

powerful, dangerous enemy. Subject to it, a person is condemned to spiritual and physical destruction, destruction [1; 85].

In classical literature, Yassavi's work "Devoni Hikmat" portrays the ego perfectly. The main criterion of mystical literature is that a person fights against his ego and reaches the level of perfection. Even in the differentiation of characters such as the ascetic, ascetic, and obid, they rise to different ranks according to the extent to which they overcome their ego. Yassavi says:

*Let your lust destroy you at the last moment,
Loot the house of religion
At the time of death, part with your faith,
If you are smart, you will be busy with your ego [2].*

Along with the image of the self, faith, honesty, conscience, virtues such as wisdom and generosity are opposed side by side. Your lust is bad

Consequences: Pharaoh, Qarun, because of his lust it is assumed that it has fallen. Also in the work of Najmuddin Kubro spiritual depravity and the evils that destroy a person are caused by lust is fired.

*There is a giant inside me, it can't be hidden,
It will not be easy for him to bow his head [3].*

A person who kills the demon of lust becomes the possessor of the property of contentment and can acquire the treasure of purity. In modern Uzbek poetry, like other creative writers and poets, in the work of Abdulla Oripov, we witness the condemnation of lust and all the evils it causes.

Abdulla Oripov reflects these issues in humorous and philosophical tones. In the poet's poem "Life problems" it is not easy to work in order to live in this world, and the image of mean people who ask for money to do this work even though hard work is yours. The composition of the work begins with the father and son wandering in search of work. As a problem, the employer is empty-handed

is said to be impossible. The fact that it is not the power of knowledge, but the ability to be promoted to a position, is sarcastic in the sarcophagus:

*Forget the power of science
Akcha will lift you up from below.*

The poet says that the uniqueness of unscrupulous people in this world is that people who are slaves to their lust "ask for justice even from an ant". In the last stanza of the poem, the poet describes a person who is subject to lust:

*A man without thought,
It's like being a slave to lust.
Honesty and Conscience on one side
The cry slowly smokes.*

Such works with a didactic content are covered in classical literature in the form of advice or in the context of "what happened". If we look at Yassavi's advice in his work, we can observe the interpretation of "consequence of lust" in Abdulla Oripov's work. The poet does not directly use the image of lust, but gives an example through the events that happened as a result of lust. For example, in his poem "Eastern Destiny":

*I dug up wealth from under the earth,
Never thought it would end.*

When we read the above verses, we remember the image of Qorun. The poet describes the interpretation of lust associated with wealth and money as "heartlessness", wealth tickles the human soul:

*Alas, man has become despondent,
Aqchadir is also a coach who leans on him.*

In the poem "Mangu panoh" interest is shown as the reason for separation of dear people from each other. Describing the image of lust with its associated attributes is common in the work of the poet. For example, "Market" There is also an allusion to this in the titular quatrain:

*The market has turned all the way,
The traces of the owners have also dried up.
O Lord, if there is one who understands,
I was crying, hitting my head on the leg [4].*

After all, a person who understands himself and God cannot be led astray by interest, market, or wealth! Nafs is made to man from birth. It is only necessary to manage it. God shows mercy to the poor and gives them wealth. On the one hand, he puts the ego: it will be the bridge of the test.

In the poem "Allah Marhamati" he writes the answer to why the soul was created:

*God gave someone wealth, gold,
Maybe he will take pity on his poor soul.
And it's worse that he can't get enough,
He added lust.*

In the poem "Faith" the poet contrasts lust and the market with faith:

*Lust hit everyone from the way,
Aylan is from the right and left of the saint.
You can't do anything without money,
He destroyed the mosque and made it a big bazar.*

At the beginning of the plot of the poem "Earthquake in the Sky", we encounter the repentance of an old woman, an old man, a scientist, a critic, who entered the path of lust. If we read the poem, we will only hear the consolation of a child saying to his mother: "Don't be afraid" from the shaking of the plane. But those listed above do not admit their sins when they are in danger. The reason why the critic acquitted the poet was the ambition of the poets, and the student himself blamed the scientist for taking bribes. that the bazar haji babo traded in the hajj, they argue that commerce is not prohibited in the hadiths. This is a sign of loss of faith. There are different

interpretations of nafs in modern poetry. Because the more development there is, the more the paths leading to lust are opened. It is up to the creative people to turn people away from this path!

References:

1. Yoldoshev Q., Kadirov V., Yoldoshibekov J. Adabi Yat: Textbook for the 9th grade of general secondary schools. / Revised 4th edition. - T.: "Uzbekistan" NMIU, 2019.
2. Ahmed Yassavi. "Devoni Hikmat", Tashkent - 1993.
3. Rafiev A., Gulomova N. Mother tongue and literature (textbook for academic lyceum, vocational colleges) "Sharq", Tashkent - 2004.
4. Oripov A. Selected works. "Sharq", Tashkent - 2019.
5. Turgunpolatov, D. R. (2021). Hyperbole is a popular literary genre. Academic research in educational sciences (ARES), 2(8). DOI: 10.24412/2181-1385-2021-8-186-188.
6. Turgunpolatov, D. R. (2021). The work of Hakim Nazir, the elucidation of the educational aspects of his works. Scientific progress, 2(3).
7. Turgunpolatov D.R., Abdullayeva O.O. (2022). The use of exaggeration in comic works. Scientific progress. 3 (4).
8. Turgunpolatov, D. R. (2021). The glorification of the feelings of patriotism and love for the country in the ballad "Legend of Courage" by Shuhrat and the historical stories "Tomaris" by Mirkarim Asim. Scientific progress, 2(3), (pp. 187-191).
9. Turgunpolatov D.R. (2022). Writing is a great talent. Our science and intelligence - to you, Motherland! Republican online scientific-practical conference. (pp. 17).
10. Abdullayeva, O. O. (2021). Work on questions and tasks in studying Abai's work. Academic research in educational sciences, 2(3), 4-9.
11. Abdullayeva, O. O. (2021). Cultivating students' feelings of patriotism based on the work of Ibrayim Yusupov. Academic research in educational sciences, 2(3), 176-180.
12. Botirboyev, F. P., Abdullayeva, O. O., & Shermatova, U. S. (2021). Working on questions and tasks in studying the work of Oljas Sulaymanov. Academic research in educational sciences, 2(4), 2013-2018. <https://doi.org/10.24411/2181-1385-2021-00834>
13. Abdullayeva, O. (2021) Influence of works of art on human spirit. Scientific progress, 1(5), (pp. 272-275)
14. Abdullayeva, O. O. Q, (2021). The role of modern technology in teaching the Uzbek language. Scientific progress, 1(5)

Rezyume: *Nafs insonni yomon illatlarga oshno qiluvchi vositadir.*

Mumtoz adabiyotda nafs talqin qilingan ko'plab doston-u g'azallar mavjud. Xalq og'zaki ijodida ham Shayton Momo Havoga qoldirib ketgan bolachalarini Odam Ato g'azabdan qiymalab pishirib eganda inson qoniga aralashgani haqida rivoyat bor. Axloqiy tarbiyani maqsad qiluvchi adabiyotning bosh vazifasi insonni bu yo'ldan qaytarmoqdir. Bir nafsning ishini etmish shayton qilolmaydi, degan edi Rabg'uziy o'zining asarida.

Резюме: *Нафс – это инструмент, подвергающий человека плохим порокам.*

В классической литературе существует множество эпосов и газелей, в которых трактуется эго. В фольклоре также существует легенда о том, что Адам смешал человеческую кровь, когда съел детей, которых сатана оставил Еве. Главная задача литературы, направленной на нравственное воспитание, — свернуть людей с этого пути. Рабгузи сказал в своем произведении, что семьдесят чертей не могут выполнить работу одной души.

Kalit so'zlar *nafs, shayton, Momo Havo, Odam Ato, "qalbsizlik", asar kompozitsiyasi, atribut, "sodir bo'lgan oqibat".*

Ключевые слова: *похоть, Сатана, Ева, Адам, «бессердечие», состав произведения, атрибут, «последствие».*

**IDEAS ABOUT THE UPBRINGING AND EDUCATION OF AJINIYAZ KOSIBAY ULI
AND WAYS OF USING THEM**

Taspanova J.K.

Karakalpak State University named after Berdakh

Summary: *The article talks about the educational ideas of Ajiniyaz Kosibay uli and ways of using them. He was a great thinker of his time and he tried to make young people knowledgeable and educated.*

Key words: *knowledge, consideration, enlightenment, scholars, history, didactic view, society, experience, people, Karakum Ishan madrasah, imagination.*

Ajiniyaz's ideas about knowledge and acquiring knowledge were realized by explaining to the youth the achievements of ancient Kharezm science as an example. He knew the history, culture and science of this country well. It is known that the ancestors of Kharezm and Karakalpaks lived side by side, in neighborly relations, created a cultural heritage together and witnessed many historical events. A brief genealogy of the peoples of Kharezm and Karakalpak (Shejire) shows that he did a lot of research in the epic "Demishler", which was written in analysis, and that he had a deep knowledge of the past history, cultural life and history of Kharezm in the Middle Ages. Although the saga under consideration does not directly say that a place of knowledge was established in ancient Kharezm where scholars and scholars gathered, it is hinted to some extent that there was a "place of scholars".

Ajiniyaz who thoroughly learned the history of the peoples of the East and the Arabic language, knew well that the influence of Arab culture and science had a profound effect on the creation of the Kharezm civilization. The Arabs of the 7th-8th centuries realized the importance of their achievements in ancient Greek science on a global scale. As a result of their achievements in the field of natural sciences, mathematics and social sciences translated into Arabic, Arabic science and culture flourished at that time.

Ajiniyaz understood these events well. In the epic "Demishler", the thinker who equated science with religion and religion with science, figuratively considered both religion and science to be the water of zam-zam in Makkah, the vapor of this water of zam-zam spread in Kharezm, the miraculous water of zam-zam that gives light to people's lives, Arabic science, Islam explained what he understood as religion: "Zam-zam water in Makkah, their steam spread to Kharezm" [1] - he described that the country was prosperous.

Thus, Ajiniyaz described the development of religious teachings in the ancient Kharezm region, as well as the successes of various natural, mathematical and social sciences, as well as the fact that scientists maturely mastered the knowledge of science and the knowledge of sciences.

The poet looked with interest, there was a specific reason for the flourishing and development of science in the life of the people during the Renaissance in Central Asia. During this period, religion relied on science, and science relied on religion, and they complemented each other and were drawn in one direction. Religious teachings and scientific concepts were not opposed to each other.

As Ajiniyaz had some knowledge about such scientific activities that took place in Kharezm in the Middle Ages, he called this country the gathering place of all the scientists of the Middle Ages, "the motherland of science". The poet gave information in the above-mentioned "Demishler":

Several scholars came out of Kharezm,
Their lives are known to the world,
Advanced knowledge, style of education,
Sayings that are the homeland of science,
The Muslim people of Kharezm,
Sayings where wisdom begins work - [2],

Therefore, Ajiniyaz wrote that in the Middle Ages and later, Kharezm state "started the work of wisdom" and carefully preserved the achievements in the field of science, science was a sacred event and a great career for this country, and the famous scientists of Kharezm were also known to the world through science.

In his views on science, which is of first-class importance in the history of mankind, Ajiniyaz emphasized the need to pay attention to the sciences that study society, to know the structure of the environment in which mankind lives, the order and rules of people's coexistence, the ways of improving people's lives, the reasons for facing difficulties in society, controlling the direction of the times demanded that he understand the ways of his development.

For young people, the poet considered that the structure of society is related to all living creatures in nature, that one third of the eighteen thousand worlds consists of the human community, and in order to properly manage the community and make it a happy environment for mankind, the leaders of the country should carry out the work of management by choosing the right path.

In his didactic views, Ajiniyaz emphasizes the need to know the youth in detail in order to properly understand the history of society, its content, and the essence of development. Ajiniyaz, who understood "history as the experiences of people living in society", believes that knowledge of human history is necessary for a deeper understanding of current (in his time - emphasis is ours) life and social differences.

In his opinion, if the people know the history of mankind well, it will change the life of the society in a positive direction, it will explain the past history in connection with the present life, it will allow to distinguish mutual differences and use the necessary experiences. Ajiniyaz himself was interested in history and knew it well. Emphasizing that knowledge of human history helps young people to correctly assess the events of their time. He wrote:

I studied history, asking everyone,
Looking inside old books,
My mind went everywhere,
They say the world needs wise men [1].

As a result of the study of history, the poet came to the conclusion that the management of the society is carried out with wisdom, and only the work with intelligence will bring the human society to a prosperous life. His poem "Demishler" is a valuable genealogical work that tells the history of Kharezm and Karakalpak people to young people.

In the didactic views of the thinker, information on the methodology of history is also prominent. As the first way to determine history, he asked the people about the past, to study the past history from people who know a lot, to know that when asking a question not only from one person, but by "asking everyone" for this information, comparing and analyzing the information provided by them, it is true explained the necessity of selection. A second way for young people to learn history, he warned, is to study written records, looking through genealogies and other "old books" and learning through the information that remains in them.

Ajiniyaz, in his thoughts on science, knowledge, knowledge of the world, states that the inner spiritual world of a person is "illuminated" only with the help of education and knowledge, that a person's human dignity, humanitarianism, acquired intelligence and knowledge, and education arise on the basis of negative events in the life of society. We see that all the evils occur as a result of ignorance, that what humiliates a person is his lack of intelligence and ignorance, that the inner spiritual world of a person draws strength from knowledge and lives, accordingly, by demanding that every person be literate, victory raised the need to make the people literate.

He explained that to the extent that people, with the help of science, discover the unsolved secrets of the world in which they live, to the extent that they deeply master the unique phenomena of nature, as a result, human society flourishes and develops, and knowledge is the main source of education and improvement of human life. For this reason, Ajiniyaz insisted that education and

science in society should be looked at from a special perspective as a major direction of his views on education.

The people of Central Asia in the 19th century relied on the theoretical and practical teaching methods developed by the world-famous Eastern scholars of the Middle Ages to educate young people in schools and madrasahs. The reason is that in ancient Kharezm, in addition to the research of worldly sciences, it is known that efforts were made to implement high-quality methods of teaching students in schools and madrasahs.

This can be seen from the poet's writing: "Mature knowledge, style of education" [2], referring to the education process in the "Karakum Ishan" madrasah. Ajiniyaz, who believed that the higher the quality of science is, the more effective the teaching methods are, said that science and teaching methods cannot be separated from each other. It is known that in the 19th century, in our country, the Karakum Ishan madrasah played an important role in the promotion of science, development, teaching methodology, secular sciences along with religious teachings. Madrasah teachers, based on their experience in teaching students, understood well that as a result of using effective teaching methods, children's thinking, understanding, formation of their confidence in certain areas of science, their knowledge improves, and their intelligence begins to grow. It is often observed that through the learned knowledge, the students control the world more sensitively, so the easier the teacher explains the subject to the students, the faster they understand and master the content of knowledge.

Even if we assess that the level of education in schools and madrasahs of the mentioned period was low, we must admit that the requirements for teaching were to a certain extent significant. It is known that didactic requirements such as the interdependence of education and training, the gradual progression of teaching from easy to complex, teaching specific to the age characteristics, understanding of the mind, and individual differences of students are implemented to a certain extent.

Especially in schools and madrasahs, the content of the lesson is explained orally, the lesson is conducted through conversation, students are taught to work independently with the book (textbook), demonstration exercises are conducted during teaching, etc. Teaching methods were often used by teachers. Without these methods, even the primary education process would not be possible. Each master used his unique skills as a mudarris (teacher) that he had individually acquired with the teaching methods he had learned from his former master during his apprenticeship.

Ajiniyaz particularly appreciated the success of the educational center "Karakum Ishan" madrasah, which has experience in imparting knowledge in this direction. In the poem "Demishler": Karakum is a place of knowledge.

His style is high, he is a young soul [2], -it was not unreasonable that he wrote.

The enlightener understood that the reason why the madrasah became a famous place of education in Karakalpak and Kharezm was the contribution of its teachers to the widespread spread of knowledge in our country and the fact that this method of teaching their students was effective and convenient. It was concluded that if the content of the lesson is recommended to students in an easy way, students will learn it quickly, the number of young people interested in learning will increase, and the effectiveness of education is closely related to its content and teaching methods.

Ajiniyaz talks a lot about the Karakum Ishan madrasah in his poem "Demishler". We have some information about his teaching and mentoring at this educational institution. In addition to this, the content of his above-mentioned poem proves that the enlightened person had good knowledge of the content of education in this madrasah, the teaching method, and the issues of teaching students worldly sciences.

The poet noted that many schools and madrasahs of that time were not as developed as "Karakum Ishan" madrasah, taking into account the concept that methods of imparting knowledge are of great importance in the field of education. Noticing such unfavorable conditions, the poet made changes to teaching methods in schools and looked for ways to open literacy to children.

These thoughts of the enlightener prompted him to live in Orenburg for five years, among the Kazakh, Tatar and Bashkir peoples, to get acquainted with the culture and customs of the local peoples, to study at schools, universities (Orenburg) and in Turtkul (Petro-Alexandrovsky), which was opened in 1874-1878, was greatly influenced by awareness of Russian schools.

Therefore, in order to make young people literate, it was necessary to know the writing and its spelling, as well as the specific features of the correct writing of letters, along with teaching book teaching in schools. He did not consider mullahs who did not know how to write and only learned to read books as educated teachers. Therefore, criticizing the fact that some teachers who only teach books by rote do not teach literacy, and that such teachers did not bother to teach young people how to write letters. He wrote critical views about mullahs in the poem «Bolmasa» (If it is not) [3].

He encouraged school teachers to teach young people in a way that is easy and convenient for them, and suggested that a child should first learn to write a letter from school. For this purpose, the poet considered it necessary to first master the sequence of the alphabet in order to help young people learn letters easily. Ajiniyaz proposed the demonstration principle of education, emphasizing the qualitative reception of knowledge if young people study the information taught in the process of education, so that they can understand and master it well.

In the poem "Somebodies", explaining the importance of human feelings and thinking in perceiving the world around him, a person can accept what he sees with the help of his eyes, think about it, think about it, analyze this information given by the sense organs with the help of human thinking (in the brain), he pays attention to the content, he says that he expands his knowledge by mastering it. With this in mind, he raised the idea of conducting teaching on the demonstration principle, saying: "A person learns with his thinking, seeing everything with his eyes" [3].

The poet has many years of experience in teaching children in his village and in the schools he opened in the Kazakh country, and he believes that the use of physical punishment for young people, if they do not acquire knowledge at the required level, is a failure to properly educate them. For this purpose, in his poem "Bakhit" (Happiness), he says that physical punishment causes spiritual suffering in children, that it is wrong to use physical punishment on students because they do not know the lesson, and that if they do not succeed in the lesson, it is necessary to explain it to them, saying that "One cannot be angry with someone who does not know" [3].

As a traditional teaching method, Ajiniyaz advocated frequent repetition of the lessons taught to the students in order not to forget the acquired knowledge. He did not cancel the memorization method when asking for the assigned tasks. He believed that memorization improves the child's memory and ability and trains the mind.

Ajiniyaz himself had a pleasant and beautiful voice. When he was giving lessons to children, the girls of the village would listen to his sweet sound from the outside of the door when they came from the water and put their gourds on the wall of the mosque [4].

In addition, the enlightener included independent music lessons in the content of academic subjects in his school without paying attention to some religious rules. He noted that music awakens the imagination of young people, awakens imagination, gives intelligence and emotion to solve internal problems, has the ability to educate young people in morals, purity of heart, and love for the Motherland.

In general, the didactic views of Ajiniyaz Kosibay uli reflect different aspects according to the content and direction, and allow us to come to the conclusion that the poet should be recognized as a didactic-scientist.

References:

1. Ajiniyaz. Selected works. -Nukus: "Karakalpakstan".2014. p.247.
2. Ajiniyaz. Demishler (They Say). newspaper Karakalpakstan zhaslary. 1997. October,9.
3. Ajiniyaz. Selected works. -Nukus: "Karakalpakstan".1994. p.114.
4. Half a century in Turkestan. V.P. Nalivkin: biography, documents, works. – M.: Marjani Publishing House, 2015. – 220 p.

Rezyume: Maqolada Ajiniyoz Qosiboy o'g'lining ta'lim-tarbiyaga doir g'oyalari va ulardan foydalanish yo'llari haqida aytilgan. U o'z davrining buyuk mutaffakuri bo'lib, yoshlarni xar tamondan ilmi va bilimli bo'lishi uchun harakat qilgan.

Резюме: В статье говорится о воспитательных идеях Ажинияза Косибай улы и способах их использования. Он был великим мыслителем своего времени и всячески старался сделать молодежь знающей и образованной.

Kalit so'zlar: bilim, mulohaza, ma'rifat, ulamolar, tarix, didaktik qarash, jamiyat, tajriba, xalq, Qoraqum Eshon madrasasi, tasavvir.

Ключевые слова: знание, размышление, просвещение, учёные, история, дидактический взгляд, общество, опыт, люди, медресе Каракум Ишан, воображение.

UDK 070:004.738.5

HYPertext IN JOURNALISM IS AS AN OBJECT OF CONTENT CREATION

Begniyazova Q.A.

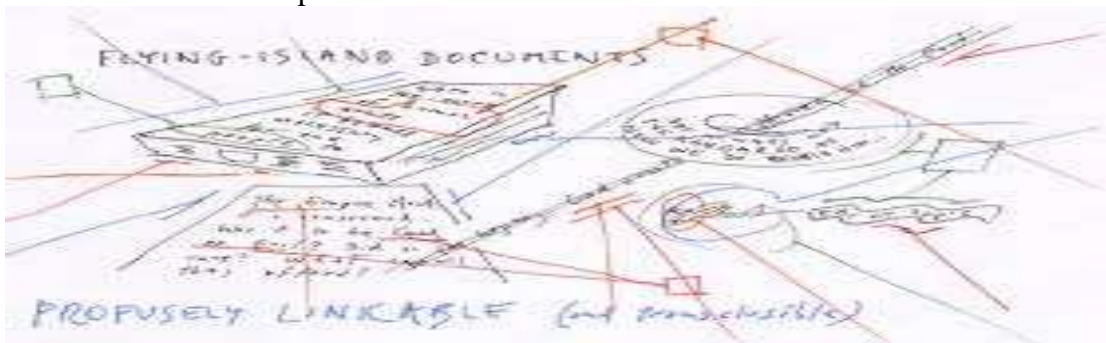
Karakalpak State University named after Berdakh

Summary: The characteristics of hypertext and the issue of its model have been studied from linguistics, information technologies, and historical perspectives, but have not been fully analyzed in journalism. We aim to distinguish it from other Internet journalism features. Hypertext is the practice of semantically linking multiple texts together.

Keywords: Hypertext, hypertextuality, algorithm, mass media, content analyse, hyper, Theodore Nelson, hyperlink, connection

"I am glad that the opportunity was created for people to check and evaluate the written message in an individual way. In front of his algorithm, the broadcasters are forced to be completely objective" [1], says Theodore Nelson, the founder of the theory of hypertext. With this phrase, the author emphasizes the most relevant functional aspect of mass media. Similarly, today hypertext has a special place in journalism, and it should be said that it is both old and new at the same time. If researchers of hypertext as a new concept associate it with the creation of the Internet, its oldness is associated with the ability of the author to give a link to anyone and quote excerpts from other people's opinions or written works. For that, we believe that it is necessary to study this term from a journalistic point of view, give its theoretical definitions, and define its structural characteristics.

Hypertext is a text displayed on a computer screen and other electronic devices (phone, tablet, etc.). It is created in hypertext Markup Language, which is a kind of electronic text. The term is derived from the English prefix "hyper" and the Greek "ὑπέρ" and means "up, over, trace". This is a process directly related to the function of setting links in the hypertext composition. 1941 Jorge Luis Borges wrote and published his short story "The Garden of Forking Paths". This material is remembered in history as a story that inspired the creation of hypertext. This is because, in the work, the author gave information about the invisible ways and their algorithms that connect the inter-text communication in space and time.



Influenced by this, Vannevar Bush wrote the article "As We may think" in 1945. There W. Bush wrote about a futuristic proto-hypertext called Memekh. It explains the Memekh system, which allows communication with each other through coded signs. However, due to flaws in the memekh algorithm, its history did not last long. However, this idea inspired Theodore Nelson and Douglass. In 1965, Theodore Nelson conducted research on texts connected by lines. Although the hypertext is not taken into the literal language, the idea of the structure and appearance of the text is thrown into the middle. After that, the reason for the emergence and success of the Internet was attributed to hypertext, which was invented by someone. The first comprehensive hypertext system for personal computers was developed by Peter J. Brown at the University of Kent in 1982. In it, two texts are interconnected and create a hyperlink. This feature had a great impact on the emergence of hyper communication in the Internet system. As a result, an opportunity to establish

communication between texts was created. Then, in 1989, Tim Berners-Lee proposed a new, improved form of hypertext "worldwide" in response to the demands of the information exchange. Later he created its prototype. At first glance, this problem can be understood more by computer or mathematical technicians, but journalism also performs the service of creation and content creation due to the capabilities of the techniques. That's right, he should be evaluated not only as a *duretiyshilik*, but also as a *duretiyshilik-technician*. M. McLuhan, in his article titled "Victory media itself is content", says that he believes that electronic technologies feed and motivate journalism. In his opinion, "Electronic communication is changing the rule of "time" and "space" and is gradually turning into content." That is, technical measures are an indicator of the four-step process.

A lot of research has been conducted on hypertext in the West. S. Xanadu, T. Nelson" [2], G. Lelia, S. Douglas, H. Mishael, D. Andries" [3], J. Conklin, S. Sissoni" [4], J. David, B. Scientists such as Belinda and A. Sosnin studied hypertext and hypertextuality issues, its implementation methods, and its own characteristics. K.I. Robertovna"[5] studied it as a communication tool, while S.A. Stroikov"[6] sees the peculiarities of the use of hypertext in contexts. And, while A. Sosnin studies hypertext in terms of artistic literature, T. Gornyakova dwells more on the issue of hypertext in linguistics. A. Ulbert wrote that "hypertext is a natural extension of text space" in his article devoted to the advantages of hypertext in modern journalism. This means that any text can have certain characteristics than other texts. In his view, hypertext is used to enhance the hierarchical meaning of vertical order in two interconnected text landscapes. In Yu. Kristeva's classic work "Bakhtin, word, dialogue and novel", we can see that the term hypertext, which refers to the theory of intertextuality, is defined at the "phase, vertical" level. According to him, the most important thesis is that every word in the text has different projections. The universal theory of hypertext, which is widely used among scientists, is a solution to intertextuality using computer technology. E.G. Sokolov sees hypertext "... as a satisfactorily discrediting the aesthetic and informational content of the text" [7].

This grandfather should be an international thinker and learn it in a variety of subjects. Therefore, research related to the distribution of hypertext is becoming more and more popular today among foreign countries. In the theory of Uzbekistan journalism, the number of those who tackled the topic is a minority. Only D. Rashidova, N. Qosimova briefly touched on the concept of hypertext and its impact on Internet journalism. At this point, we think it is appropriate to look at the theoretical versions of the term from a journalistic point of view, and create a concept of size based on its own characteristics and signs. For this purpose, we will present its theoretical definitions between chapters.

In our opinion, the term hypertext should become a symbol of the text itself. The changed text is copied to the desktop monitor screen and then transferred to the electronic branches. Hypertext consists of the following texts:

- Non-linear;
- multimedia;
- interactive.

The combination of these views leads to a change in the author's service. The composition, the beginning and the end of the material, where the author expresses his opinion, loses the traditional forms, and the authorship remains conditional. In addition, you can have other options: transition between texts, high-quality visualizations, video and animation, audio input. As a result of similar changes in the methods of "publishing" and publishing texts, the author can have his own work with the most original appearance.

Hypertext is one of the most suitable and adequate models of system information presentation, which visually conveys semantic branch trends. As a result, not only the text, but also its compositional units and fragments can have connections and informational value. From this point of view, hypertext has a great significance in checking the objectivity of visible messages.

In the description of the most common type of hypertext, it should be noted that it is different from links. Hypertext is a link that contains hyperlinks and connects the relevant text to

another destination, the text of the information in the space. That is, "Hypertext is a new form of creating a collection" [8]. At the same time, it affects the appearance of text, audio and visual forms based on hyperlinks. It creates a wide opportunity for interactivity. Hypertext links are connected to other materials, and news that branches to each other becomes a new semantic context and a crystallisation of the topic. It consists of a collection of potentially unlimited texts combined in a systematic way.

As already noted, hypertext has interdisciplinary definitions. For example, in computer terminology "... hypertext is a markup language used from hyperlinks" [9]. In short, it is the code of reading language for intertextual communication. Hypertext links are becoming more and more characteristic of online journalism. For that reason, many scientists associate hypertextuality with the inherent properties of Internet media. Hypertextuality is the most important feature of Internet journalism, and as we mentioned earlier, it refers to improving the flow of information with the help of hyperlinks. "Hyperlink is a text (from one character to the full text) selected in a graphical way to the next row of information (internal links) or to another site (external) links to its work" [10]. It has four fundamental characteristics related to Internet media:

- as a technical element of web design;
- defining the purpose of the site;
- information base;
- as a characteristic of the content.

Hypertext is a logical element that allows to expand the context of clear communication. It creates conditions for the student to understand what he has been given and helps to control the flow of information. Also, it is a method of combining information sets in one or more linear ways. And, in fiction, such a text is "... a book with internal links, that is, it is sent from one part to another" [11]. In this work of art, the intertextuality of the intertextuality technique is intensified in the character of broadcasting. And in journalism, the concept of hypertext changes the conceptual information landscape. Along with that, it is also necessary to mention its role in changing traditional writings. "Many people consider hypertext to be an important part of victory communication tools. Its uniqueness is the lack of hierarchy" [12], says R.K. Potapova. In the hypertext landscape, all objects have the same meaning and are at the same level for the user. Therefore, hypertext in journalism is also a semantic system, connecting any content based on the structure of internal communications, technical conditions, and a set of tools, giving a person the opportunity to change the composition of semantic communications and overcome the transition in the environment of interconnected elements.

According to T. Nelson, "hypertext builds an information system, makes information available on demand" [13]. The researcher also calls hypertext information branching. In this case, the continuous connection of the text with the texts in the context of other clauses is not taken into account. Also, the Oxford dictionary defines the term as "... a collection of documents that includes other information such as text, audio, video linked to one text by means of mutual links"[14]. That is, it is noted here that several texts are combined to form a long-read format database. "Hypertext is a bridge text of information on the Internet. In other words, it is a direct connectivity tool. The communication component specifies the synergy of the branch's communicative features" [15]. In this case, the text pages are controlled by special commands and actions given to the screen. In addition to the relevant text, it is possible to add diagrams, pictures, and videos. Hypertext is defined as "... a combination of properties and relationships in the environment of pre-created texts" [16]. According to the theory of A. Sosnin, "... it is a labyrinth between texts" [17]. A hyperlink leads to the same labyrinth. According to E.V. Zykova, "... this is the process of combining information with other information" [18]. But, in our opinion, it is the opposite. The combination of information gives a face to a single idea. This connects the materials to each other. This transformative idea greatly strengthens the connectivity between texts and ensures that the materials are connected to each other according to the content compatibility. As a result, the reader will be able to read the article in a complex way and get a wider acquaintance. At this point, it should be

noted that hypertext is a communication between texts, which is content-related, but differs from each other in terms of form, genre, structure, language, and intertextuality. This also creates an opportunity for the audience to get acquainted with the branched complex materials at the same time or to read the text in the original. For example, the news "Six countries of the EU have joined declarations on guarantees for Ukraine" published on the website of "Ria Novosti" on December 24, 2023 linked to the website "Political country" of Ukraine and established a semantic connection. This site has given a link to "Monokol" internet publication. It is possible to see that the material on the three web sites connected by links is different from one another in terms of genre and structure. "Ria Novosty" used the form of a report to reveal the topic, "Political country" reported it, and "Monokol" website presented it in the form of an article. This can prove to us that hypertext is a thematic unity, and genre, language, and style are subject to rapid change. Also, R. K. Potapova notes that it is "a type of text that is not linear, but contains only a few pieces of information" [19]. The opinion that "the text is composed by several authors working together and writing it properly" [20] is also increasing.

In short, hypertext is an electronic text format that defines the way to create a multimedia work. It can be considered a large text.

Among the opinions expressed about hypertext, we like the theories that it is more of a structure than a volume. "Hyper is not a volume, but a structure. That's right, it's a structured text" [21], prove our opinion. Among the unique features of this text, it can be mentioned that its volume combines various materials and performs structurally adequate creation service for each material. That is, it connects all kinds of information in the form of a branch of nodes, which the user can see at his own discretion, and how to enter them. "Hypertext provides a unique user interface for many large classes of stored information, such as databases, computer documents, and interactive help systems" [22]. As a structure that is more appropriate to the specific features of the ISS, it acts as branches or meta-templates of potential texts. The importance of hypertext in computer and web-connected form is that it helps to find scattered information faster, collects, selects, searches and distributes information. Online text gives the journalist the opportunity not only to read information in a complex way, but also to work on the text and edit it.

Hypertext news means that communication nodes and information exchange processes are strengthened. In this process, the material can be connected to each other in space and time by links, and it can acquire its own identity, as if it tends to fill or replace the relevant news content.

We distinguished the following characteristics of hypertext from a journalistic point of view:

1. Harmony of hierarchical linear.

The text created by the journalist is linear. However, the materials written by several authors in the hypertextual process are not linear, they are hierarchical. During reading, the previous text linearity disappears due to the link, and a new text linearity appears. A joint harmony of two text types appears.

2. Structural elements of hypertext.

Hypertext elements can be electronic written texts of any length. The author's opinion is presented in the first pages. In general, the structure of the text of the second and third authors is linear. It consists of various graphic structures. It should be noted that although there is a possibility that they consist of a graphic structure, and there is semantic coherence in the communication between texts, there is no possibility that structural changes will lead to changes in terms of genre requirements. And traditional text builds a unique system with its own structural elements - sections, paragraphs. However, in this system, all elements are arranged in order of readability. Hypertext elements are in any case an autonomous box outside of it. Due to this autonomy, they can be included in different semantic lines and read in different searches.

A method of transition between non-linear texts

There is no need to separate the need to read the next fragment next to it after reading the linear text fragment that is to be read step by step. More precisely, the linear text is essentially continuous, and it does not explain the way to stop the reading in order to select the next reading.

Fragments in the material serve only to give the reader the opportunity to choose according to the purpose of the study. In this case, the reader stops reading the text step by step and abruptly moves to another fragment - another element of the hypertext.

1. Content communication

In hypertext, transition is possible only if the fragments are content related. As a rule, this type of hypertext acts as a supplement to the information or advocating for another content-related article, tends to prove facts, and acts as a copyright infringement. That's right, as the most fundamental feature of hypertext, we can point out that its content-related materials are branched.

2. Visual representation of hypertext structure.

Intertextual transition and one meaning is directly related to its visual appearance. It should also provide the service of combining the video or other multimedia format illustrations with the text as a structural part of the text. This background text expands and combines with information from other sources to create a whole material. For example, on November 24, 2023, the article "Man rescued from burning building in England" was posted on the "" agency website. There, the reporter included in the text structure a video report published on another social channel of the agency. To watch this video, the audience must go to that location. The reason is that it is a part of the text, and we can see that a visual text connection is provided with a larger video report.

3. The author has changed the character of the reader

In hypertext, the author should create a technical system of intertextual transition. In this process, the reader cannot fully follow the logic of the author's text. This is because it is possible that the reader will follow the path shown by the author with the help of links and go to other additional information. If in a traditional text the reader accepts information based on the author's logic and linear ideas drawn by the author, this tendency may disappear in the hypertext. That is, it is possible for the student to accept the information as much as he wants and not to follow the path indicated by the author based on references. Therefore, hypertext allows the reader to choose the way to read, while the author preserves the sovereignty of the text landscape. From this point of view, it is too early to talk about fully verifying the concept of authorship in the field of hypertext. For example, A. N. Baranov writes that "hypertext does not have an author in the traditional sense - it has many authors, and the group of authors for hypertext is always changing" [23]. Also, the reader can have freedom of action in the hypertext landscape.

At the present time, the priests support and provide information in the form of hypertext. This point of view is often emphasized in the theory of RK Potapova. We can cite several reasons for this:

- creates an opportunity for the hypertextual journalist to establish communication between texts;
- opens the way to multimedia text creation, i.e. offers services for combining video, audio, slide shows;
- plays a big role in copyright enforcement;
- enables the audience to choose and read different materials with the same content, but from a structural point of view;
- offers complex materials on the topic.

These features of hypertextuality are important in journalism in the areas of text structure, information collection, copyright, inter-text communication.

In hypertext, context, link, illustration are evaluated as separate structural elements. An article written by the author and placed on the website in electronic form forms a contextual unit. The fact that there is a link in the material, and the connection of the relevant page with other information, also means its structural integrity. At the same time, we can evaluate the illustrations that serve as an extension to the text as structural features of the hypertext itself. These three symbols define a hypertext structure.

That's right, hypertext journalistic problems are not reduced to solving the problems of the field, as we have seen with the emergence of such branch technologies. An important part of

modern Internet journalism is the theory of hypertext, the structure of its content, compositional units, communication trends, etc. These and other questions will be discussed in other paragraphs of this scientific work.

In short, hypertext is a technical and organizational difference of the Internet. It is recommended to reduce the number of additional hyperlinks added to the text in order to solve the difficulties that arise in the communication processes related to the structural differences of the hypertext, to avoid using "For Information" appendices to relevant information as much as possible, to place multimedia signs in the norm, and to leave the relevant versions of the texts in the internal links unchanged according to the unity theory. let's play . Also, the absence of the number of recent hyperlinks on the sites obtained during the special analysis showed that there is a situation of changing and reprinting the text in the chapter.

References:

1. Nelson T. Brief words on the hypertext. 1967 y. 23-January
2. <https://dl.acm.org/doi/10.1145/800197.806036>
3. https://cs.brown.edu/memex/HT_87_Keynote_Address.html
4. <https://www.cisnet.com/cisnet/writing/essays/hypertextuality.htm>
5. <https://cyberleninka.ru/article/n/gipertekst-kak-sposob-kommunikatsii>
6. <https://cyberleninka.ru/article/n/izuchenie-giperteksta-i-gipertekstualnosti-v-kontekste-sovremennoy-lingvistiki>
7. Sokolov 2000: 146
8. Журналистика билим бериў бағдарламалары модельдери. Халықаралық Журналистика форумы материаллары жыйнағы. Өл-Фарабий атындағы Қазақ улттық университети. Алматы. 2018-жыл, 51-бет
9. Колпакова Г.В. Текст и гипертекст//Филологические науки. – 2016 https://www.elibrary.ru/ip_restricted.asp?page=https%3A%2F%2Fwww%2Eelibrary%2Eru%2Fitem%2Easp%3Fid%3D25794940
10. Герасимович А. Истории разумного компьютера: Internet. А.Герасимович// - “Переходный возраст», № 17 (45), Минск, 1997. – С. 76-82
11. Никифорова Ж.А. К проблеме определения понятия гипертекст// Самарский государственный социально-педагогический университет. — 2015.
12. Потапова Р.К. Новые информационные технологии и лингвистика. М., 2022. Гл. V., Гипертекст в помощь лингвисту. <https://gigabaza.ru/download/99784.html>
13. <https://dl.acm.org/doi/10.1145/800197.806036>
14. Оксфорд тиллер хэм атамалар сөзлиги. Оксфорд университет пресс. 2023 ж.
15. Orgenhaffen M. Multimedia, Interactivity and Hypertext in Online News: Effect on News Processing and Objective and Subjective Knowledge. – Belgia: “Lines”, 2009. -P. 44.
16. Дедова, О.В. Лингвосомиотический анализ электронного гипертекста (на материале русскоязычного Интернета) [Текст] / О.В.Дедова: автореферат дис. докт. филол. наук. – Москва, 2006. – 48 с
17. Соснин, А. В. Аллюзивный процесс при прочтении гипертекста / А. В. Соснин // Теория и практика лингвистического описания разговорной речи : сб. материалов Междунар. науч. конф. «Скребневские чтения» (16–17 апр. 2014 г.). – Нижний Новгород : НГЛУ, 2014. – С. 181–190
18. Зыкова, Е.В. Организация гипертекста в сети Интернет (на материале англоязычных сайтов) [Текст] / Е.В.Зыкова: автореферат дис. канд. филол. уаук. – СПб, 2006. – 19 с.
19. Потапова, Р.К. Новые информационные технологии и лингвистика [Текст] / Р.К.Потапова: Учебное пособие. – М.: МГЛУ, 2002. – 576 с.
20. Усы дерек: Потапова, Р.К. Новые информационные технологии и лингвистика [Текст] / Р.К.Потапова: Учебное пособие. – М.: МГЛУ, 2002. – 576 с.
21. <https://hmong.ru/wiki/Нипertext>
22. Т. Бернерс-Ли, Р. Кайо, 12 ноября 1990 г., ЦЕРН
23. Баранов А. Н. Введение в прикладную лингвистику. М., 2003.

Rezyume: *Gipermatnning xususiyatlari va uning modeli masalasi lingvistika, axborot texnologiyalari, tarixiy nuqtai nazardan o'rganilgan bo'lib, ammo jurnalistikada to'liq tahlil etilmagan. Biz uning boshqa internet jurnalistikasining xususiyatlaridan ajratib olib o'rganib chiqishni maqsad qildik. Gipermatn bu bir nechta matnni semantik jihatdan bir biriga bog'lash amaliyoti hisoblanadi.*

Резюме: Характеристики гипертекста и вопрос его модели изучались с лингвистической, информационной и исторической точек зрения, но не были до конца проанализированы в публицистике. Мы стремимся отличить его от других функций интернет-журналистики. Гипертекст — это практика семантической связи нескольких текстов вместе.

Kalit so'zlar: Gipermatn, gipermedia, algoritm, ommaviy axborot vositalari, kontent tahlili, giper, Teodor Nelson, giperhavola, ulanish

Ключевые слова: Гипертекст, гипертекстуальность, алгоритм, СМИ, контент-анализ, гипер, Теодор Нельсон, гиперссылка, связь.

UDK: 294.321.94

THE STRUCTURE OF THE THEORY OF CRIME INVESTIGATION IN EMERGENCY CONDITIONS

Buronov Sh.R.

Samarkand State University named after Sharof Rashidov

Summary: *This article emphasizes that, as the development of events shows, various cataclysms occur quite regularly in society with objective inevitability, various kinds of events from the category of emergencies occur. Therefore, it is necessary to constantly maintain an optimal level of preparedness for such situations, and to maintain a special system for this. One of the elements of such a system is an extensive structured concept of investigating crimes in emergency conditions.*

Key words: *investigation, operational investigative activity, forensic version, investigative element, investigation of crimes in emergency conditions.*

Methodology as a natural basis for the theory of crime investigation in emergency conditions. The main content in the structure of the theory of investigation of crimes in emergency conditions consists of scientifically sound and proven in practice theoretical provisions concerning the planning of an investigation, the selection and application of technical and forensic tools and forensic techniques, taking into account the specific conditions of activity. In this understanding, they fit the definition of a private forensic technique [1], which forms the basis of the theory under consideration. However, the theory of investigating crimes in emergency conditions is not limited to methodology alone. The latter is only one of the components of the theoretical concept.

Other structural elements of the theory of investigation of crimes in emergency conditions. In addition to the methodology, the theory of investigating crimes in emergency conditions includes as structural elements theoretical provisions on specific patterns of legal support and organization of investigation caused by emergency conditions, in the resulting specific situation, as well as the theoretical foundations of such an investigation.

Legal support as a structural element of the theory of investigation of crimes in emergency conditions. Law is reasonably considered in the legal literature as a determining factor and a source of methodological recommendations of criminology [2]. In the concept under consideration, it is assigned another place, where it forms an independent element that exists along with the methodology. This is due to the fact that in emergency conditions, the investigation, along with the usual legislative regulation, needs special legal support adequate to the prevailing conditions.

The organization of crime investigation as a structural element of the theory of crime investigation in emergency conditions. The organization of crime investigation in a number of works is considered as an integral part of the forensic methodology [3]. At the same time, we are talking about traditional measures that are undertaken at the level of individual planning of the investigator's work, providing qualified leadership to the operational investigation team, selecting normative and other material and other organizational measures in the criminal case necessary for the successful disclosure of crimes. When investigating crimes in emergency conditions, it is necessary to take other kinds of organizational measures that go beyond the scope of individual criminal cases. Among them are the formation of investigative teams to work in emergency conditions, their logistical supply, ensuring the real participation of various subjects in the criminal process, organizing interaction with local government and management bodies, units of the internal troops, educational institutions of the Ministry of Internal Affairs and the Armed Forces, etc. Unlike in ordinary situations, where all these issues are sufficiently resolved, in emergency conditions, due to the disorganization of the vital activity of the region, they come to the fore and become particularly acute.

Organizational measures of the second kind, which go beyond the scope of individual criminal cases, by their very nature do not fit into the criminalistic methodology. They tend to a greater extent to managerial activities in the field of public order protection and crime control [4]. Scientific provisions on them have become an independent branch of the theory of management in the field of law enforcement, the subject of which is the specifics of the management process in the field of crime investigation carried out by investigative apparatuses and bodies of inquiry, as well as organizational aspects of improving the effectiveness of their activities to perform this function [5]. This branch of management theory is known in the legal literature as the organization of crime investigation.

Consequently, one part of the scientific provisions on the organization of the investigation of crimes in emergency conditions is included in the content of the forensic methodology, the other is an independent, "managerial" element of the theoretical concept that exists along with legal support and methodology.

Theoretical foundations of crime investigation as a structural element of the theory of crime investigation in emergency conditions. The basis for the allocation of a set of methodological recommendations for the investigation of crimes in emergency conditions are these specific conditions of activity, which play the role of a factor determining the specific patterns of crime investigation.

The above-mentioned as the basis for the allocation of a set of methodological recommendations, emergency conditions form the theoretical basis for the construction of other components of the concept of crime investigation – legal support and organization of activities. Therefore, the characterization of emergency conditions is beyond the scope of the methodology. It is more appropriate to preface it to all three other parts of the theoretical concept, highlighting in the first section of the theory devoted to the theoretical foundations of the investigation of crimes in emergency conditions.

The same arguments apply to the criminalistic characterization of crimes that are the subject of investigation in emergency conditions. It is essentially a continuation of the characterization of emergency conditions and applies equally to all three components of the theoretical concept under consideration. Therefore, it should be placed in the same section, following the description of emergency conditions.

The structure of the theoretical foundations of the investigation of crimes in emergency conditions. The theoretical foundations of the investigation of crimes in emergency conditions include, as noted above, the characterization of emergency conditions as a factor determining the specific patterns of crime investigation, the criminalistic characterization of crimes that constitute the subject of investigation in emergency conditions, as well as the conceptual foundations of the theory of investigation of crimes in emergency conditions. The content of the conceptual foundations of the theory of investigating crimes in emergency conditions includes ideas and theoretical provisions about the object of research, the system of the concept, the content of its individual elements, its place in the system of scientific knowledge, the importance for the theory and practice of investigative work, the tasks of the most important scientific research.

The structure of legal support for the investigation of crimes in emergency conditions. Legal support as an element of the concept of investigating crimes in emergency conditions presupposes, first of all, an adequate resolution, taking into account the existing international experience of criminal procedural problems that arise when applying the usual investigative procedure in emergency conditions. However, it cannot be identified with the establishment of special forms of investigative activity, as is sometimes believed. We are talking only about some changes and additions to certain elements of the existing investigation procedure that do not affect its foundations, but take into account the extraordinary conditions of activity.

In addition to the specifics of the criminal procedure procedure, the legal support of the investigation includes a special legal regime that is introduced in the region under extraordinary circumstances. In practice, this is usually a state of emergency. Its main purpose is to create the

necessary conditions for stabilizing the situation, restoring law and order. Among the activities that are being undertaken for this purpose is the investigation of crimes that caused, created conditions or otherwise related to extraordinary circumstances. Therefore, the introduction of a special legal regime essentially contributes to the proper investigation.

The specifics of the current situation, finally, necessitates the need for special regulatory prerequisites for the investigation. In emergency conditions, more often than in ordinary ones, one may encounter opposition to the investigation from certain social groups, bodies under their influence and officials who are not interested in establishing the truth. Recently, for this purpose, it has often been used, for example, the declaration of sovereignty of individual administrative-territorial entities. Therefore, it seems necessary to provide a number of additional regulatory prerequisites for the investigation, which would contain a legal mechanism ensuring the mandatory conduct of a proper investigation of extraordinary circumstances.

As follows from the above, legal support consists of adequate regulation of relations arising in emergency conditions in connection with the investigation of crimes by the norms of various branches of law. In such a situation, it would be inaccurate to talk about the legal regulation of the investigation of crimes in emergency conditions. Firstly, there is simply no single such regulation. Secondly, the legal norms relate not so much to the investigation itself, but mainly to other relations arising in connection with it. In this situation, in relation to the investigation of crimes in emergency conditions, it seems more accurate to talk about its legal support.

The structure of the organization of the investigation of crimes in emergency conditions. The organization of crime investigation concerns the formation and maintenance of specialized investigative groups and characterizes: special rapid response units as the basis of the system for organizing the investigation of crimes in emergency conditions; the procedure for creating specialized investigative groups to work in emergency conditions; their resource provision; involvement of necessary participants in the process; the organization of the interaction of the investigation team with the internal affairs and federal security agencies; the system of prosecutorial supervision and judicial control. The set of theoretical provisions on these issues is a management element of the concept of investigating crimes in emergency conditions.

Other management-level issues of organizing the investigation of crimes in emergency conditions, related to information and analytical work, organization of control, accounting, reporting, etc., are derived from the above conceptual issues. The successful solution of the latter largely determines the success of the investigation as a whole.

The structure of the methodology for investigating crimes in emergency conditions. The methodology as an element of the concept of investigating crimes in emergency conditions consists of two components. Here, the usual method of investigating certain types of crimes – murders, rapes, arson, robberies, etc. - retains its importance. Along with this, an unconventional methodology of a greater degree of generality has been formed, which is based on the specifics of the situation, expressed in the fact that the investigation is conducted in emergency conditions. It belongs to those relatively new methods that are characterized in the legal literature as a set of private methodological criminalistic recommendations of a greater degree of generality, covering several types and even types of crimes, but committed not at all, but in special conditions of place and time, either by persons characterized by one or another distinctive feature for them, or against a certain categories of persons, etc.: "Such complexes differ from traditional private forensic techniques both in their structure and in their content. In essence, they should consist of a characteristic of the basis of the complex (conditions of criminal encroachment, a group of subjects of crime, etc.) and the disclosure of those features of the investigation methodology that are conditioned by this characteristic and in which it manifests itself" [6].

The basis for the allocation of a set of methodological recommendations for the investigation of crimes in emergency conditions are these specific conditions of activity, acting as a factor determining the specific patterns of crime investigation. The actual methodology of

investigating crimes in emergency conditions also has specifics, differing from traditional methods both in its structure and content.

The structure of the methodology for investigating crimes in emergency conditions includes: peculiarities of proving the circumstances of crimes committed in emergency conditions; initiation of criminal cases and collection of primary information about crimes; the organization and tactics of the initial actions of the investigative teams; features of criminal proceedings in subsequent stages.

As you can see, compared with traditional methods, the structure of this technique has certain specifics. In particular, it lacks the characteristic of the basis of this set of methodological recommendations noted by R.S.Belkin, as well as such usual elements of the methodology as criminalistic characteristics and crime prevention. These elements of knowledge have been incorporated into other theoretical systems mentioned above.

Certain elements of the methodology for investigating crimes in emergency conditions have been slightly modified in comparison with other methods used in ordinary situations. This applies, in particular, to the specifics of proving the circumstances of crimes, collecting primary information and initiating criminal cases about them.

Traditionally, the methods of investigation of certain types of crimes include such an element as the circumstances to be proved. When investigating crimes in emergency conditions, not only the circumstances themselves that are subject to proof have significant features, but also the procedure for their establishment, which differs in subjects, sources of information, ways of obtaining them and ways of substantiating individual circumstances. Therefore, this element of the methodology has a broader content here, which is adequately reflected in its name: instead of the circumstances to be proved, there are features of proving the circumstances of crimes committed in emergency conditions.

Equally traditional for the methodology of investigating crimes under normal conditions is such an element as a preliminary check of primary materials. In emergency conditions, where the facts of mass riots, attempts to forcibly change the constitutional order, and other crimes related to extraordinary circumstances are quite obvious, there is no need to conduct a special preliminary check. However, due to the unusually large number of crimes committed, such individual elements as collecting primary information about crimes and deciding whether to initiate criminal proceedings are of particular importance here. It is this activity that is included in the structure of the methodology for investigating crimes in emergency conditions.

The specifics of such elements of the above methodology for investigating crimes in emergency conditions, such as the organization and tactics of the initial actions of investigative teams and the specifics of investigating crimes at subsequent stages, lies mainly in their content.

Thus, the section on the organization and tactics of initial actions of investigative teams in emergency conditions, along with traditional urgent investigative actions, includes an analysis of actions during military operations and search activities, as well as when organizing work on specific facts of crimes. This is preceded by information about investigative situations and the main directions of the initial stage of the investigation of crimes in emergency conditions.

The subsequent stage of the investigation includes such an unusual element as the revision of the materials of urgent investigative actions. Its necessity is caused by unavoidable shortcomings in the organization and accounting of the work done in emergency conditions, which are aggravated by an unusually large number of crimes committed, the comparative duration of the initial stage, staff turnover and other unfavorable circumstances. The analysis of the activities of investigative groups to ensure the consideration of criminal cases in courts is also new to the methodology. Quite traditional elements are also presented here – the specifics of the organization and tactics of conducting some investigative actions and sending criminal cases to court.

Approbation of the provisions on the structure of the theory. United by one object, ideas and theoretical provisions on the theoretical foundations, legal support, organization and methodology

of investigating crimes in emergency conditions form an integrated theoretical system, which is an independent concept.

As part of the above structure, the theory of investigating crimes in emergency conditions was developed in the 90s of the last century and has already been tested in a number of scientific studies. It is clearly visible in the structure of dissertations devoted to various areas of development of this theory, in particular, the investigation of mass riots and interethnic conflicts [7], the investigation of crimes in a combat situation [8], the investigation of crimes committed by military personnel in a combat situation [9], the investigation of crimes in the zone of international armed conflict [10].

The importance of the structure of the theory of crime investigation in emergency conditions. The theoretical provisions on the structure of the theory of investigating crimes in emergency conditions, in addition to the obvious scientific significance, are also important in an applied sense. First of all, they provide a scientific basis for the systematization of theoretical and practical material, various recommendations and suggestions. In addition, they allow researchers, without inventing a bicycle, to compile a fairly complete research program for one or another direction in the development of the theory of crime investigation in emergency conditions, not to miss any important elements of it.

As the development of events shows, various cataclysms occur quite regularly in society with objective inevitability, various kinds of events from the category of emergencies occur. There is no guarantee that after some time they will not reappear, and in the most unexpected, sophisticated forms. Therefore, it is necessary to constantly maintain an optimal level of preparedness for such situations, and to maintain a special system for this. One of the elements of such a system is an extensive structured concept of investigating crimes in emergency conditions.

References:

1. Belkin R.S. Criminalistics: problems, trends, prospects. From theory to practice. – M.: Yurid. lit., 1988. p. 170.
2. Ibid. p. 201.
3. Vozgrin I.A. Criminalistic methods of crime investigation. – M.: Higher School, 1983. p. 114; Criminalistics: Textbook / Edited by I.F.Panteleev, N.A.Selivanov. – M.: Yurid. lit., 1988. pp. 334-336; Zelensky V.D. Organization of crime investigation. Forensic aspects. Rostov-on-Don: Publishing House of the Rostov University, 1989. p. 56.
4. Petelin B.Ya. Organization of crime investigation as a type of social management // Sociological research. 1991. No. 4. pp.68-69; Theory of management in the field of law enforcement: Textbook / Edited by V.D.Malkov. - M.: Academy of the Ministry of Internal Affairs of the USSR, 1991. p. 32.
5. Petelin B.Ya. The place of organization of crime investigation in the fight against crime: Lecture. - M.: Academy of the Ministry of Internal Affairs of the USSR. 1989. p. 21; Aka: Introduction to the course. The subject, tasks and system of the course "Organization of crime investigation": Lecture. - M.: Academy of the Ministry of Internal Affairs. RF, 1991. p. 22.
6. Belkin R.S. Criminalistics: problems, trends, prospects. From theory to practice, p. 199.
7. Grigoriev V.N. Investigation of crimes in emergency conditions (legal support, organization, methodology): Diss. ... doct. Jurid. Sciences. – M.: Academy of the Ministry of Internal Affairs of Russia, 1993.
8. Malikov S.V. Investigation of crimes in a combat situation (legal support, organization, methodology): Diss. ... cand. Jurid. Sciences. – M., 1998;
9. Malikov S.V. Legal and organizational foundations of the investigation of crimes committed by military personnel in areas of armed conflict: Diss. ... doct. Jurid. Sciences. – M., 2004.
10. Antonov A.N. Some issues of the organization of interrogations of witnesses in the investigation of crimes in Kosovo // Modern law. 2008. No. 2 (1). pp. 121-123.

Rezyume: *Ushbu maqolada ta'kidlanganidek, voqealar rivoji shuni ko'rsatadiki, jamiyatda muqarrar ravishda turli kataklizmlar muntazam ravishda yuzaga keladi, turli xil favqulodda hodisalar ro'y beradi. Shu sababli bu kabi vaziyatlarga optimal tayyorgarlik darajasini saqlab qolish va buning uchun maxsus tizimni yaratish lozim. Bunday tizimning elementlaridan biri favqulodda vaziyatlarda jinoyatlarni tergov qilish uchun keng tuzilgan kontseptsiyadir.*

Резюме: В данной статье подчеркивается, что как показывает развитие событий, в обществе с объективной неизбежностью достаточно регулярно проявляются различные катаклизмы, происходят разного рода события из разряда чрезвычайных. Поэтому следует постоянно поддерживать оптимальный уровень готовности к подобным ситуациям, содержать для этого специальную систему. Одним из элементов такой системы является разветвленная структурированная концепция расследования преступлений в чрезвычайных условиях.

Kalit soʻzlar: *tergov, tezkor-qidiruv faoliyati, kriminalistik versiya, tergov elementi, favqulodda vaziyatlarda jinoyatlarni tergov qilish.*

Ключевые слова: *следствие, оперативно-следственная деятельность, криминалистическая версия, следственный элемент, расследования преступлений в чрезвычайных условиях.*

UDK 347.4

STATUS OF A LOCAL COUNCIL MEMBER

Mambetnazarov G.Dj.

Independent researcher at Karakalpak State University named after Berdakh

Summary: *In recent years, in our country, the powers of local Councils of People's Deputies have been expanded to resolve pressing issues related to the socio-economic development of regions, social protection of the population, and comprehensive reforms have been implemented to fully realize people's power. A legal framework has been created aimed at strengthening the control activities of local councils. Councils of People's Deputies, in particular, received appropriate powers to expand control over the activities of local executive authorities. The role of deputies as political representatives of the population in the organization of state power and its legal basis have improved somewhat. Based on this, this scientific article provides a detailed scientific and legal analysis of the status of people's deputies of district and city councils on the basis of relevant legislation.*

Key words: *deputy, council, status, powers, immunity, control.*

The legal status of any entity is determined by its tasks and powers, as well as the system of activity guarantees. That is, these elements within the framework of the legal status, in turn, are the main means of ensuring the activity of the entity.

In particular, there are specific scientific views and concepts in the constitutional-legal theory regarding the category of the status of the deputy of the District and City Council of People's Deputies covering the rights, obligations and guarantees of the deputy's activities and other issues.

The lack of a unified approach to the status of a deputy of the local council requires a more extensive study of this scientific category and, as a result, the development of proposals and theoretical rules for the current legislation. It depends on the qualitative and comprehensive implementation of the tasks by the deputy, the extent to which his legal status and guarantees are defined.

An important issue is "the legal status of a deputy of the Council of People's Deputies. The legal status determines the totality of their tasks, rights and duties and the system of guarantees of their activity" [1].

According to legal scholar A. Tolaganov, "the legal status of deputies is the scope of their rights and duties, as well as the powers they can exercise. The main part of the powers of the deputy is implemented through the activity of the body to which he was elected" [2].

R. Qayumov stated that the legal status of a deputy is a sum of the rights, obligations and duties of deputies, the forms of their activity and powers [3].

Professor O. Khusanov also touched on the issue of the status of the deputy and noted that "the status of the deputy is characterized by the existence of special guarantees for his activity and these guarantees enable the deputy to carry out his activities independently without any hindrance" [4].

Sh. Zulfikarov, in his research work, touched on the legal status of the deputy and its socio-political essence in detail and gave the following, i.e.: "the socio-political essence of the legal status of the deputy is that the deputy is, firstly, an authorized representative of the people, secondly, a representative of the state power, and thirdly, a collegial member of the representative body. The legal regulation of issues related to the status of a deputy ensures the unhindered and effective implementation of the deputy's activities, in addition to guaranteeing its socio-legal protection, it strengthens the deputy's obligation to the people and society" [5].

Some foreign legal scholars have pointed out other aspects of the category of legal status of the deputy of local representative bodies.

For example, according to A.Ya. Sukharev, the concept of "deputy status" is the political and legal nature of the mandate of the deputies of representative bodies of state power, its origin, termination and validity period, and the legal status of deputies, which is determined by a set of legal norms that regulate social relations related to the powers of deputies. can be defined as [6].

M.A. Radjabova and A.A. Makhmudov stated that "the deputy must have thoroughly studied the situation in the district where he was elected, the mood of the population, the shortcomings in the socio-economic development of that district, the issues that are waiting for their solution and the opportunities that are not fully used, and he has a clear idea about them. it is important to have. In a word, people's deputies must be able to effectively use their rights and fulfill their obligations under the Law "On the Status of Regional, District and City Council Deputy". Only then, the deputy can identify territorial problems, consider them through the permanent commission of which he is a member, and bring them up to the Council session" [7].

It should be noted that theoretical scientists have not sufficiently analyzed the differences between the concepts of "status of the deputy" and "legal status of the deputy" and the scientific-theoretical description of these categories in their research work.

In our opinion, in a general sense, that is, regardless of affiliation to local or higher representative bodies, the term "status of a deputy" can be understood as the general status of a deputy in relation to all powers, obligations, immunity, guarantees of activity, professional ethics and provisions given to a deputy by law.

The legal status of the deputy is the legal status of the deputy, which includes only the rights and obligations of the deputy, the right to immunity.

Based on the description of these concepts, it can be noted that the fact that all general issues related to the activity of a deputy are presented within the scope of his status is also reflected in the current legislation, in particular, in the name of the Law of the Republic of Karakalpakstan "On the status of the deputy of the district and city council of people's deputies" dated May 14, 2005. the status of the deputy is presented in the style.

Based on the above, the elements related to the status of the deputy of the local council can be analyzed as follows:

1) Rights and obligations of the deputy. According to the legislation [8], the deputy of the local council has the following rights:

- "to elect and be elected to permanent and temporary commissions of the relevant Council of People's Deputies;

- to propose issues for consideration at the meeting of the relevant Council of People's Deputies;

- to submit suggestions and comments on the agenda of the meeting of the relevant Council of People's Deputies, the procedure for considering the discussed issues, and the essence of these issues;

- to express an opinion on the candidates of officials elected, appointed or approved by the relevant Council of People's Deputies;

- to participate in discussions at the meeting of the relevant Council of People's Deputies, to ask questions to the speaker and the chairperson;

- to address the request of the deputy;

- to speak in order to justify their proposals and to comment on the reasons for voting;

- to submit the text of his speech, proposal or opinion on the issue discussed at the meeting to the chairperson of the meeting of the relevant Council of People's Deputies;

- to state his point of view at a meeting of the relevant Council of People's Deputies or to inform the head of the said Council of People's Deputies about it in writing if he disagrees with the decision of the body of which he is a member;

- control over the implementation of development programs of the respective regions;

- to submit a proposal to the relevant Council of People's Deputies to hear the report or information of any body or official accountable to or under his control at the meetings of the Council of People's Deputies;

- to propose issues for review on the implementation of the Laws of the Republic of Uzbekistan and Karakalpakstan, as well as the implementation of relevant decisions of the Council of People's Deputies;

- to get acquainted with transcripts of meetings of the relevant Council of People's Deputies;

- to hold meetings with voters, citizens' self-management body, political party organization;

- has the right to appeal to relevant bodies and officials in case of violations of the rights and interests of citizens protected by law or other cases of violation of laws and regulations, with the demand to take immediate measures to put an end to them."

In this regard, A. Tolaganov stated that the most important part of the powers of the deputy is exercised through the activity of the elected body. Since the deputy is a member of the community body, his constant and disciplined participation in the work of this body is of great importance [9].

According to the legislation, the term of office of the deputy and the grounds for its termination are established, that is, the deputy is elected for the term of office of the relevant Council of People's Deputies.

The powers of the deputy are terminated before their term in the following cases: if he submits a written application to abdicate his powers; if he is elected or appointed to a position that is incompatible with the exercise of his powers as a deputy according to the law; in the event that the court's conviction against him enters into legal force; if it is recalled; if he is found incompetent by the court; if he/she is declared missing or declared dead based on a valid court decision; if he loses the citizenship of the Republic of Uzbekistan; in the event of his death.

In some cases, the powers of a deputy may be terminated earlier by the decision of the relevant Council of People's Deputies. Behavior that tarnishes the high title of deputy may be the basis for consideration of such a matter. The powers of the deputy cannot be transferred to another person.

Within the scope of the powers assigned to the deputy, the deputy of the relevant Council of People's Deputies communicates with the voters of his district, the political party that nominated him as a deputy and the self-government body of citizens, represents their interests in the relevant Council of People's Deputies. The deputy considers appeals received from voters in accordance with the procedure established by law, takes measures to solve them, accepts individuals and representatives of legal entities. The MP periodically, but at least four times a year, informs the voters about his activities.

The following are the duties of a deputy, i.e., a deputy must participate in the meetings of the relevant Council of People's Deputies and any commission formed by this Council, participate in the meetings of that commission, participate in voting in accordance with the procedure established by the regulations of the relevant Council of People's Deputies. If the deputy is not able to participate in the meeting of the relevant Council of People's Deputies and any commission he is part of, the deputy must inform the Council of People's Deputies or the head of the commission about this in advance.

2) Guarantees of the deputy's activity. The set of conditions that make it possible to implement guarantees of deputyship are called guarantees of deputyship[10].

S. Nietullaev touched on the issue of guaranteeing the activities of the deputies and said, "Each deputy is guaranteed conditions for performing his duties without resistance and at a high level, his rights, reputation and honor are protected. "People who touch their position and reputation will be prosecuted according to the law"[11].

Sh.Zulfikarov suggested that "guarantees of deputies' activity should be studied into the following types: immunity of deputies; labor rights guarantees; material guarantees; organizational and legal guarantees; social guarantees" [12].

When the guarantees of a deputy's activity are interpreted broadly, it includes the rights (authorities) of the deputy and the conditions for their implementation, and when interpreted narrowly, the rights (authorities) themselves are meant. Guarantees of the deputy's activity can be divided into organizational, material guarantees, labor rights, personal privacy guarantees [13].

In our opinion, the guarantees of the deputy's activity can be divided into 2 types, i.e. legal and organizational guarantees.

In particular, the legal guarantees of the deputy's activity can include issues such as "protection of the rights, honor and dignity of the deputy", "right to immunity of the deputy", "exemption from military training".

The organizational guarantees of the deputy's activity include: "the right of the deputy to be immediately accepted by officials", "conducting the deputy's activity in a manner consistent with production or the performance of official duties", "informational and material-technical support of the deputy's activity", "the right of the deputy to travel for free in transport" " can be entered.

Legal guarantees of deputy activity. Every deputy is guaranteed conditions for the unhindered and effective exercise of his powers, his rights, honor and dignity are protected. Persons who attack the honor and dignity of the deputy shall be held administratively, criminally or otherwise liable in accordance with the law. Insulting a deputy, as well as slandering him, is a cause of liability established by law. It is not allowed to influence the deputy in any way in order to prevent him from exercising his powers as a deputy. Officials who do not fulfill their duties to the deputy, obstruct his work, knowingly provide him with false information, violate the guarantees of the deputy's activity shall be held responsible in accordance with the law.

This type of responsibility is defined in Article 193 of the Code of Administrative Responsibility of the Republic of Uzbekistan, according to which: "non-fulfillment of their duties to deputies by officials of state bodies, citizens' self-government bodies, enterprises, institutions and organizations regardless of the form of ownership, obstructing their work, deliberately giving them false information, violation of the guarantees of the deputy's activity, as well as leaving the deputy's request unconsidered by officials, or violating the terms of their consideration without good reason, or knowingly providing false information about them, shall be the cause of appropriate administrative responsibility.

Also, the deputy of the Regional and District Council of People's Deputies will be exempted from military training during the period of his powers.

Organizational guarantees of deputy activity. When exercising his powers, the deputy shall show his certificate and use the right of unimpeded access to enterprises, institutions and organizations located in the territory of the relevant district and city, as well as the right to be immediately received by their leaders and other officials. The procedure for a deputy's access to enterprises, institutions, organizations whose activities are state secrets and other secrets protected by law is determined by law.

The issue of carrying out deputy's activities in harmony with production or performance of official duties is clearly expressed in the legislation. The deputy performs his powers without separation from production or service duties. Heads of enterprises, institutions and organizations must release a deputy from work while he is performing his duties as a deputy, keeping his workplace (position). The average salary of a deputy is maintained while performing the duties of a deputy.

The issues of informational and material-technical support of the deputy's activities are entrusted to district and city hokims in the regions. In particular, district and city governments provide the deputy of the relevant Council of People's Deputies with documents, necessary information and reference materials, as well as organize expert consultations on issues related to the activities of the deputy.

Also, the deputy enjoys the right to travel for free in railway, automobile passenger transport (except for taxis and city passenger transport) in the territory of the relevant district and city, as well as to buy road tickets without waiting in line.

3) Immunity of the deputy. Immunity is the legal expression of the most important guarantee of the status of a deputy, which means that he cannot be prosecuted, arrested or subjected to administrative punishment by the court without the consent of the representative body that elected the deputy. The parliamentary immunity is effective during the entire term of office of the deputies, and after the end of this term, it is terminated. Such a guarantee of the status of deputy is aimed at preventing unjustified criminal or administrative prosecution of a person who is a deputy. However, it should not be understood as a means of saving the deputy from certain punishment[14].

The issue of immunity of the deputy has been scientifically analyzed by legal scholars as one of the guarantees of the deputy's activity.

In particular, according to Sh. Zulfikarov, "deputy immunity is a unique legal system of the activity of a deputy, which means not to shirk responsibility, as well as not to allow groundless accusations" [15].

According to the legal scientist S. Nietullaev, "immunity is the inviolability of a deputy, that is, it is the most important fair legal form of the service of deputies"[16].

According to Article 11 of the Law of the Republic of Karakalpakstan dated May 14, 2005 "On the Status of the Deputy of People's Deputies, District and City Councils", the deputy has the right to immunity during his term of office. Without the consent of the relevant Council of People's Deputies, a deputy may not be held criminally responsible, detained, imprisoned or subject to administrative punishment imposed by court. A deputy cannot be held responsible for expressing an opinion or expressing a point of view during the voting in the relevant Council of People's Deputies, or for other actions related to the exercise of his powers. Including, they cannot be held accountable even after the expiration of their powers. If, in connection with such actions, the deputy committed insults, slanders or other violations for which liability is provided by law, he shall be held liable in case of deprivation of the right to immunity.

Immunity of MPs is expressed in the fact that it is forbidden to arrest or bring to court responsibility for all actions of the MP, including those committed while he is not performing his parliamentary duties. The deputy enjoys immunity only during the term of the deputy's mandate. A deputy may be deprived of immunity by the chamber of which he is a member. Immunity is automatically waived if the deputy is caught in the act of committing a crime (in which case the chamber can only demand that the prosecution of the deputy cease) [17].

"Clear procedures for depriving a deputy of the right of immunity are established, according to which the issue of depriving a deputy of the right of immunity is decided by the Council of People's Deputies within ten days based on the presentation of the relevant district, city prosecutor or senior prosecutor. A presentation submitted by a lower prosecutor on obtaining consent to prosecute a deputy can be summoned by a higher prosecutor. The prosecutor's submission on obtaining consent to prosecute, detain, imprison a deputy or to apply an administrative punishment against him in a judicial procedure is considered by the relevant Council of People's Deputies, and during the period between sessions, it is considered by the head of the said Council of People's Deputies or an official who performs his duties. , the adopted decision is later approved by the relevant Council of People's Deputies. The decision of the Council of People's Deputies on the issue of consent to the deprivation of immunity of the deputy is immediately sent to the relevant prosecutor. The prosecutor, who has received consent to deprive the deputy of his right to immunity, must inform the relevant Council of People's Deputies about the results of the investigation and court hearing within three days from the end of the proceedings. Refusal of the relevant Council of People's Deputies to give consent to the deprivation of the right of immunity of a deputy is considered a case that excludes the conduct of a criminal case against him or the case of an administrative offense involving a court-ordered administrative penalty, and is the reason for the termination of such cases. In case of disagreement with the decision of the Council of People's Deputies, the high-ranking prosecutor has the right to make a submission to the Jokargy Kenes of the Republic of Karakalpakstan to cancel the decision and submit the matter for reconsideration by the relevant Council of People's Deputies. If a deputy has committed a crime or an administrative

offense outside the district or city where he is a deputy of the Council of People's Deputies, it is not required to obtain consent to bring the deputy to criminal responsibility, detain him, imprison him, or apply an administrative punishment against him in a court order.

Also, according to Article 223 of the Code of Criminal Procedure of the Republic of Uzbekistan, a deputy may not be included in the category of persons enjoying the right of immunity during the arrest, detained and brought to the internal affairs body or other law enforcement body.

4) Deputy request. It is known that in the legislation, there is an institution of a deputy's request to the executive bodies for explanation and clarification of problems in the regions, that is, "deputy request". The request of the deputy is a public request, according to which it is an appeal of a representative body to organizations and agencies for the purpose of solving various issues that are bothering the population in the region.

According to the Law of the Republic of Karakalpakstan "On the Status of the Deputy of the People's Deputies, District and City Councils", the deputy has the right to send a request to the officials of the state power and management bodies located in the relevant area with the request to give a reasoned explanation or to state their point of view. The officials of the state power and management bodies shall send the answer to the deputy's request no later than ten days from the date of receipt of the said request. Deputies' requests addressed to presidents of courts, prosecutors, heads of inquiry and investigative bodies cannot be related to specific cases and materials in their work. Information on deputy requests can be discussed at a meeting of the relevant Council of People's Deputies.

Deputies of the local Councils of People's Deputies are not able to effectively use the institution of deputation polls, which is considered an important tool for resolving issues of urgent importance in the regions and solving problems raised by citizens' appeals. Research has shown that in many cases, the officials of the local executive authorities are not taking appropriate measures to eliminate the problems raised by the deputies' requests, and the deputies' requests are not being answered on time or in full. The results of a public survey conducted among the chairmen of the local Councils of People's Deputies confirm this [18].

Accordingly, leaving a deputy's request unconsidered by officials or violating the terms of their consideration without good reason, or knowingly providing false information about them, entails the appropriate responsibility according to Article 193 of the Code of Administrative Responsibility of the Republic of Uzbekistan.

A. Makhmudov, who conducted research in this field, pointed out the following as factors that have a negative effect on the effectiveness of the institution of parliamentary elections: firstly, officials of local executive authorities act as deputies contrary to the requirements of the Law "On Elections of People's Deputies to Regional, District and City Councils" is walking; secondly, most deputies do not have enough practical skills and knowledge in formulating a request, the requests sent to officials are too shallow or do not fall within the scope of the authority of the organization to which the request is sent[19].

5) Deputy etiquette. A deputy must strictly observe the rules of etiquette. It is not allowed for a deputy to use his position in a way that harms the legitimate interests of citizens, society and the state. In case of violation of deputy's etiquette, the issue of deputy's behavior may be considered by the relevant Council of People's Deputies or by the body of the relevant Council of People's Deputies on its behalf.

The code of conduct of deputies of district and city councils of people's deputies approves. For example, on August 22, 2023, the Xujayli District Council of People's Deputies approved the "Code of Conduct of the Xujayli District Council of People's Deputies" by Resolution No. VI-71-164-13-191-K/23. This document defines the rules of conduct that must be observed in the exercise of the deputy's powers. In his activities, a deputy must strictly adhere to the principles of ethics generally accepted in society, respect the rights, honor, dignity, or business reputation of citizens, officials, as well as conduct that tarnishes the name of the deputy and harms the authority of the

Council of People's Deputies and the interests of the state in general. should refrain from actions [20].

In the case of behavior by a deputy that grossly violates generally accepted norms of etiquette, deputation etiquette, tarnishes the high name of the deputy, harms the reputation of representative bodies of state power, in the event of misconduct, he will be recalled in accordance with the law, or his powers will be terminated according to the decision of the Council. may be terminated earlier.

On December 26, 2018, the Law of the Republic of Karakalpakstan "On Recalling the People's Deputies of the District and City Councils" was adopted. According to this Law, the following are grounds for recalling a deputy:

- the fact that the deputy violated the current legal documents in a way that could lead to criminal, civil, administrative and other types of responsibility provided for by law;
- that the deputy has committed actions and misdemeanors that grossly violate the generally recognized standards of ethics and deputy manners, tarnish the name of the deputy, and damage the reputation of representative bodies of state power;
- the fact that the deputy did not regularly perform his duties provided for by the law, without good reason, including not participating in the meetings of the Jokargy Kenes of the Republic of Karakalpakstan and the relevant Councils of People's Deputies, in the work of their bodies, and not fulfilling their assignments;
- failure of the deputy to fulfill his obligations to the body (political party) that nominated him for the position of deputy.

To review the issue of recalling a deputy, the request of the law enforcement agencies, submitted in accordance with the law, as well as the proposal of the body (political party) that nominated him as a candidate for deputy, can be the basis.

According to what was mentioned, deputies carry out consistent and systematic activities aimed at improving the living conditions of the population in each region, increasing their well-being, comprehensive development of the regions, harmonizing the interests of the regions with the processes of national growth and development [21].

In conclusion, it should be noted that in order for the deputies to effectively perform their tasks and powers as representatives of the people, it is considered an important basis for their legal status to be adequately guaranteed and to ensure their full inviolability.

References:

1. Бабаджанов А.Д. Маҳаллий давлат ҳокимияти вакиллик органлари ва унда сиёсий партиялар иштироки. – Т.: ТДЮУ, 2021- Б.26.(Babadjanov A.D. Representative bodies of local state power and participation of political parties in it. - T.: TDUU, 2021)
2. Тўлаганов А. Давлат ҳокимиятининг вакиллик ва ўзини ўзи бошқариш органлари фаолиятини ташкил этиш. Дарслик. - Т.: ТДЮИ, 2002 йил. – Б.150.(Tolaganov A. Organization of activities of representative and self-management bodies of state power. Textbook. - T.: TDYuI, 2002).
3. Қаюмов Р. Ўзбекистон Республикасининг Конституциявий ҳуқуқи Тошкент, «Адолат», 300-бет.(Kayumov R. Constitutional law of the Republic of Uzbekistan Tashkent, "Adolat").
4. Husanov O.T. Konstitutsiyaviy huquq. Darslik. – Т.: Yuridik adabiyotlar publish, 2022.- В.322.(Husanov O.T. Constitutional right. Textbook. - T.: Legal literature publishing, 2022).
5. Зулфикаров Ш.Х. Ўзбекистон Республикаси Олий Мажлиси Қонунчилик палатаси депутати фаолиятини такомиллаштириш (киёсий-ҳуқуқий таҳлил). Юридик фанлар доктори (DSc) диссертацияси автореферати. – Т. 2020 й.- Б.23 (Zulfikarov Sh.Kh. Improving the activity of a deputy of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan (comparative legal analysis). Doctor of Legal Sciences (DSs) thesis abstract. - T. 2020)
6. Сухарев А.Я. Большой юридический словарь. – М., 2001. – С.587 (Sukharev A.Ya. Large legal dictionary. – М., 2001)
7. Сенат ва маҳаллий кенгашлар. амалий ва услубий кўмак, ўзаро ҳамкорлик: илмий-амалий кўлланма. / М.А.Раджабова, А.А.Махмудов. – Т.: Baktria press, 2013 й. – Б.22. (Senate and local councils. practical and methodological support, mutual cooperation: scientific and practical guide. / M.A. Radjabova, A.A. Makhmudov. - T.: Baktria press, 2013)
8. <https://joqargikenes.uz/oz/> ()

9. Тўлаганов А. Давлат ҳокимиятининг вакиллик ва ўзини ўзи бошқариш органлари фаолиятини ташкил этиш. Дарслик. - Т.: ТДЮИ, 2002 йил. – Б.151. (Tolaganov A. Organization of activities of representative and self-management bodies of state power. Textbook. - T.: TDYuI, 2002).

10. Тўлаганов А. Давлат ҳокимиятининг вакиллик ва ўзини ўзи бошқариш органлари фаолиятини ташкил этиш. Дарслик. - Т.: ТДЮИ, 2002 йил. – Б.151. (Tolaganov A. Organization of activities of representative and self-management bodies of state power. Textbook. - T.: TDYuI, 2002).

11. Nietullaev S.D. Qaraqalpaqstan Respublikasinin' Konstitusiyaliq huqiqi, No'kis. "Qaraqalpaqstan" baspasi, 2005-jil. – B.30.(Nietullaev S.D. Constitutional law of the Republic of Karakalpakstan, Nokis. Karakalpakstan publishing house, 2005 volume)

12. Зулфикаров Ш.Х. Ўзбекистон Республикаси Олий Мажлиси Қонунчилик палатаси депутати фаолиятини такомиллаштириш (киёсий-ҳуқуқий таҳлил). Юридик фанлар доктори (DSc) диссертацияси автореферати. – Т. 2020 й.- Б.19.(Zulfikarov Sh.Kh. Improving the activity of a deputy of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan (comparative legal analysis). Doctor of Legal Sciences (DSs) thesis abstract. - T. 2020)

13. Конституциявий ҳуқук. Энциклопедик луғат. Масъул муҳаррир ва муаллифлар жамоасининг раҳбари Б. Мустафоев - Тошкент: «Ўзбекистон нашриёти», 2006 йил. - Б.156.(Constitutional right. Encyclopedic dictionary. Responsible editor and head of the team of authors B. Mustafoev - Tashkent: "Uzbekistan publishing house", 2006)

14. Конституциявий ҳуқук. Энциклопедик луғат. Масъул муҳаррир ва муаллифлар жамоасининг раҳбари Б. Мустафоев - Тошкент: «Ўзбекистон нашриёти», 2006 йил. - Б.150. (Constitutional right. Encyclopedic dictionary. Responsible editor and head of the team of authors B. Mustafoev - Tashkent: "Uzbekistan publishing house", 2006)

15. Зулфикаров Ш.Х. Ўзбекистон Республикаси Олий Мажлиси Қонунчилик палатаси депутати фаолиятини такомиллаштириш (киёсий-ҳуқуқий таҳлил). Юридик фанлар доктори (DSc) диссертацияси автореферати. – Т. 2020 й.- Б.19. (Zulfikarov Sh.Kh. Improving the activity of a deputy of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan (comparative legal analysis). Doctor of Legal Sciences (DSs) thesis abstract. - T. 2020)

16. Nietullaev S.D. Qaraqalpaqstan Respublikasinin' Konstitusiyaliq huqiqi, No'kis. "Qaraqalpaqstan" baspasi, 2005-jil. – B.30. (Nietullaev S.D. Constitutional law of the Republic of Karakalpakstan, Nokis. Karakalpakstan publishing house, 2005 volume)

17. <https://www.xabar.uz>

18. Махмудов А.А. Ўзбекистон Республикасида маҳаллий вакиллик органларининг назорат фаолиятини такомиллаштириш. Фалсафа доктори (PhD) диссертацияси автореферати. – Тошкент, 2019 й. – Б.16.(Makhmudov A.A. Improving control activities of local representative bodies in the Republic of Uzbekistan. Doctor of Philosophy (PhD) thesis abstract. - Tashkent, 2019)

19. Махмудов А.А. Ўзбекистон Республикасида маҳаллий вакиллик органларининг назорат фаолиятини такомиллаштириш. Фалсафа доктори (PhD) диссертацияси автореферати. – Тошкент, 2019 й. – Б.17.(Makhmudov A.A. Improving control activities of local representative bodies in the Republic of Uzbekistan. Doctor of Philosophy (PhD) thesis abstract. - Tashkent, 2019)

20. e-qaror.gov.uz

21. Сенат ва маҳаллий кенгашлар. амалий ва услубий кўмак, ўзаро ҳамкорлик: илмий-амалий кўлланма. / М.А.Раджабова, А.А.Махмудов. – Т.: Baktria press, 2013 й. – Б.25.(Senate and Local Councils. practical and methodological support, mutual cooperation: scientific and practical guide. / M.A. Radjabova, A.A. Makhmudov)

Rezyume: *Mamlakatimizda so'ngi yillarda xalq deputatlari mahalliy Kengashlarining hududlarni ijtimoiy-iqtisodiy rivojlantirish, aholini ijtimoiy himoya qilishga oid dolzarb masalalarni hal qilish bo'yicha vakolatlari kengaytirilib, xalq hokimiyatchiligini to'laqonli ro'yobga chiqarish borasida keng qamrovli islohotlar amalga oshirildi. Mahalliy Kengashlarning nazorat faoliyatini kuchaytirishga qaratilgan huquqiy asoslar yaratildi. Mahalliy ijro etuvchi hokimiyat organlarining faoliyati ustidan xalq deputatlari Kengashlarining, xususan deputatlik nazoratini kengaytirish maqsadida ularga tegishli vakolatlar berildi. Deputatlarning aholining siyosiy vakili sifatida davlat hokimiyatini tashkil qilishdagi roli va unga oid huquqiy asoslar bir muncha takomillashtirildi. Shundan kelib chiqqan holda, mazkur ilmiy maqolada xalq deputatlari tuman va shahar kengashlari deputatlarining maqomiga oid masala sohaga oid qonunchilik asosida batafsil ilmiy va huquqiy tahlil qilingan.*

Резюме: *В последние годы в нашей стране расширены полномочия местных Советов народных депутатов для решения актуальных вопросов, связанных с социально-*

экономическим развитием регионов, социальной защитой населения, реализованы комплексные реформы по полностью осознать народную власть. Создана правовая база, направленная на усиление контрольной деятельности местных советов. Советы народных депутатов, в частности, получили соответствующие полномочия по расширению контроля над деятельностью местных исполнительных органов власти. Несколько улучшилась роль депутатов как политических представителей населения в организации государственной власти и её правовая основа. Исходя из этого, в данной научной статье произведен подробный научно-правовой анализ статуса народных депутатов районных и городских советов на основе соответствующего законодательства.

Kalit so'zlar: *deputat, kengash, maqom, vakolat, daxlsizlik, nazorat.*

Ключевые слова: депутат, совет, статус, полномочия, неприкосновенность, контроль.

THE CONCEPT OF SAYINGS IN MODERN LINGUISTICS

Seytjanov J.E., Urazniyazova G.

Karakalpak State University named after Berdakh

Summary: *The article deals with the concept of a saying in modern linguistics and folklore, various structural-semantic types of phraseological units. namely, communicative phraseological units of a non-proverbial nature,*

Key words: *proverbs and sayings, colloquial speech, combinations of words, structural-semantic types*

The science of language has not yet developed a generally accepted view of proverbs and sayings. Most often, proverbs and sayings were understood as “an apt figurative saying (usually of a common noun nature), typifying a wide variety of life phenomena and having the form of a complete sentence.” A proverb expresses a complete judgment. A proverb is a short figurative saying that differs from a proverb in the incompleteness of its conclusion.[1].

A similar definition can be found in all explanatory dictionaries, as well as in many special articles and studies. Proverbs are usually understood as “short sayings applied to various aspects of life that have become part of colloquial speech.”

A proverb is always a sentence. It pursues a didactic goal (to teach, learn, warn, etc.). Proverbs are often complex sentences. In context, a proverb acts as an independent sentence or part of a complex sentence. In context, proverbs are semantically realized by attaching to variable clauses. Proverbs are often realized in a superphrasal context.

The concept of a saying in modern folklore is vague, including different structural and semantic types of stable figurative combinations of words. Essentially, the only thing that unites these various combinations of words is that they are not proverbs, although the closeness of both in individual cases cannot be denied.

In English and American linguistic literature there is also no clear distinction between a proverb and a saying. This explains why English dictionaries of proverbs also include phrases of a clearly non-proverbial nature. With the modern development of the theory of phraseology, it is inappropriate to use the concept of saying in its broad sense, as is customary in folklore.[2].

Since various structural-semantic types of phraseological units already have names, a proverb can be used only for one of them, which does not yet have a name, namely, communicative phraseological units of a non-proverbial nature, regardless of whether they are associated with proverbs or not. We classify as proverbs the type of stable formations that have been referred to as proverbs since the time of V.I. Dahl, that is, for over a hundred years. An expanded interpretation of this term in linguistics is ineffective.[3].

After these considerations of a terminological nature, we move on to a brief description of English proverbs, their structural types, their grammatical and semantic features and the euphonic figurative means used in them.

It should be noted that we do not classify proverbs with the literal meaning of all components: all is well that ends well; appearances are deceptive; better late than never, etc. These proverbs refer to stable formations of a non-phraseological nature.

In some works on phraseology, the main difference between a proverb and a saying is seen in the fact that a proverb expresses a general judgment, and a proverb expresses a partial judgment. According to these linguists, not only proverbs, but also sayings can take the form of a complete sentence.

A proverb is a stable sentence with the same structure as a proverb, but devoid of didactic content. Proverbs serve as a means of characterizing a character, conveying his thoughts, feelings, and emphasizing his connection with the people. The heroes of the works turn to proverbs and

sayings when they need to confirm, compare, convince the listener, or prove that they are right. This function contains the following expressions:

There's no use crying over spilt milk.

What is done cannot be undone.

We still need proverbs and sayings today; they, first of all, decorate our speech. They are the liveliness of our language, the intelligence and erudition of the speaker, they are necessary in our communication. And their correct use in our speech reflects the level of good manners, education and culture. Proverbs and sayings, being part of the culture of a given people, have always remained and will remain relevant, despite the development of the economy and technology, and progress. [4]. At any time, proverbs and sayings will be a characteristic feature of a given people, an object of attention and research. [5].

References:

1. Backman G. Meaning by metaphor. - Uppsals: Studia anglistica upsaliensia, 1991.- 203 p.
2. Coates Richard. Proper hood // Language. – 2006. - № 8. – P.356–382
3. Конисов, Г. (2023). The use of prepositions in expressing the syntactic attitude in the sentence. Ренессанс в парадигме новаций образования и технологий в XXI веке, 1(1), 189–190. <https://doi.org/10.47689/XXIA-TTIPR-vol1-iss1-pp189-190>
4. Конисов, Г., & Уразниязова, Г. (2023). Роль глобальной сети в процессе изучения иностранным языкам. Ренессанс в парадигме новаций образования и технологий в XXI веке, 1(1), 395–396. <https://doi.org/10.47689/XXIA-TTIPR-vol1-iss1-pp395-396>
5. Fernando Chitra. Idioms and Idiomaticity. - Oxford: Oxford University Press, 1996. – 126 p.

Rezyume: *Maqolada zamonaviy tilshunoslik va folklorshunoslikdagi matallar tushunchasi, frazeologik birliklarning turli tarkibiy va semantik turlari va bir xil xususiyatga ega kommunikativ frazeologik birliklar ko'rib chiqiladi.*

Резюме: *В статье рассматривается понятие поговорок в современном языкознании и фольклоре, различные структурно-семантические типы фразеологизмов, а именно коммуникативные фразеологизмы тождественного характера.*

Kalit so'zlar: *maqol va matallar, so'zlashuv nutqi, so'z birikmalari, struktur-semantik turlari.*

Ключевые слова: *поговорки и пословицы, разговорная речь, словосочетания, структурно-семантические типы.*

THE ROLE OF NEEDS ANALYSIS IN EFL COURSE DESIGN

Ismailova A.K., Rakhmetova I.I.

KIMEP university, Almaty, Karakalpak State University name after Berdakh

Summary: *In the context of Uzbekistan's evolving educational landscape, needs analysis plays a pivotal role in understanding and addressing the language requirements of learners or groups. This systematic approach aids in identifying and prioritizing language needs, thereby informing the development of language teaching plans. As the demand for English language education burgeons in Uzbekistan, a shift towards personalized teaching methods emphasizing practical, experiential learning has been observed. However, there remains a research gap in remote areas such as Karakalpakstan, particularly in Nukus. This study aims to explore how needs analysis influences English course design at a selected lyceum in Nukus, focusing on types of needs analysis employed by teachers and its impact on teaching methodologies and resources. Thematic analysis of interviews with EFL teachers revealed recurring themes such as understanding student characteristics, ongoing progress monitoring, and integrating technology into teaching methodologies. Findings suggest a comprehensive approach to EFL course design, highlighting the importance of understanding students' needs and integrating technology while addressing curriculum authenticity and relevance. However, formal applications of needs analysis in developing course design were not evident. This study underscores the significance of needs analysis in shaping effective language education strategies amidst Uzbekistan's educational transition.*

Key words: *Needs Analysis, English Language Education, Course Design.*

In the process of understanding and meeting the language requirements of learners or groups, known as needs analysis, plays a vital role as Uzbekistan transitions in its educational landscape. This systematic approach helps in identifying and prioritizing the language needs of learners, which then informs the development of language teaching plans. As the demand for English language education grows in Uzbekistan, there has been a notable increase in private language centers, universities, and schools offering personalized teaching methods. This shift reflects a move away from traditional, theory-based learning towards practical, experiential learning that emphasizes skills applicable in real-life situations [1,2].

Scholars have extensively discussed the importance of needs analysis in shaping English as a Foreign Language (EFL) courses [3]. Recent attention has also focused on understanding students' needs and expectations regarding technology, materials, assessment, and teacher-student interaction [3]. However, there remains a gap in research, particularly in remote areas such as Karakalpakstan, specifically in Nukus.

To address this gap, this research aims to explore how needs analysis influences the development of English course design at a selected lyceum in Nukus city. The research objectives are twofold: firstly, to identify the various types of needs analysis employed by EFL teachers, and secondly, to assess how needs analysis impacts the selection of teaching methodologies and resources at the lyceum.

These objectives give rise to two research questions: What types of needs analysis do EFL teachers use? And how does needs analysis shape the choice and adaptation of suitable teaching methods and resources? These questions serve as a guide for the study to delve into the specific aspects necessary for a comprehensive examination of the research area.

There was analyzed the interviews transcript with about 40 minutes interview with two EFL teachers at lelected lyceum in Nukus. However, there will be analysed only main points from the inteviews. The volume of the interview transcript is about 15 pages. The type of the employed data analysis technique is thematic analysis. Approach to analysis are Deductive approach, preconceived themes, categories

Table 1 – data analysis grid

RQ#1: What types of needs analysis are employed by EFL teachers

Quotes from participant	Codes	Category	Themes
<i>“Students come first to our lesson, we try to, to know, to get to know them in two ways, for example, versus for , and then their educational knowledge, because we need to, we need to know how to work with them, how to treat them”.</i>	Students characteristics, their educational knowledge	Identifying Students' Characteristics Educational Knowledge Assessment	Understanding Student Characteristics
<i>“we test them according to the difficult, this difficulty of the level, for example, test, we, we take some tests based on the four skills and plus grammar, because maybe some students are not good at grammar or maybe some others are not good at skills. That's why we should identify”.</i>	Test Four skills tests, Grammar tests	Initial Placement Tests	Assessment Strategies
<i>“we can notice, according to their progress also, we always try to, yeah, we always try to try to take notes, according to their progress, what they are doing well, or what they are finding it difficult. And also when they make more mistakes on some parts, we talk to them and try to figure out the problem, and try to give them advice to do this better, and in this way we can help them overcome these challenges”.</i>	Their progress, Take notes according their progress, Figure out the problem Give advice	Ongoing Progress Monitoring	Progress Monitoring and Feedback
<i>“At the beginning of the year, we ask them to, what purpose they need this subject, and that's, it is necessary for us to divide them, to ask, in order to divide them into the ones who need certificates, and the ones who passed their, let's say, DTM, or the test, that's the national test. As you say, that's, that's the way we prepare them, for example, for, the test speakers, we for, the ones who want to get the certificates, we prepare them in other ways, and for, the national test-takers, we prepare them in another way. That's why, we prepare them, we teach them grammar for national test takers. We mainly focus on the skills, and that's why we, firstly, when they come to our class, we ask them, where are we going to enter, what are we going to be, and why you need the, the language? “But the main objective we are preparing for them is to help them to enter for example, the universities or institutes, which they want. And the certificate gives them the bonus to represent, and all of them, not to pass the exam from this subject, that's why we are preparing”.</i>	Ones who Need certificates, National test takers Other students, focus on the skills to get intenational certificates	Identifying motivations for learning English	Motivational Approaches

Table 2

RQ#2 How does needs analysis affect the selection and adaptation of suitable teaching methodologies and resources at the selected school?

Quotes from participant	Codes	Themes
<p>✓ 30% curriculum modifications ✓ adopt something that's very challenging to their age or to their interests. ✓ change some topics.</p>	Curriculum Flexibility	Partial Curriculum management
<p><i>“The main reasons I faced with in order to change or in order to adopt anything something to my curriculum is the difficult difficulty, first of all, and not relevance to their social life because something may not be similar to their social background or to the to their life. I need to change or I need to adopt something in order to be authentic, more authentic for them”.</i></p>	Authenticity in Curriculum Relevance to Social Life	Enhancing Relevance and Authenticity
<p><i>we have interactive boards in each classroom, which is connected with the internet, and that's why we can, we can use the internet for our purposes, like showing videos, or showing the pictures, what I, what we are explaining to them, for example, when we are teaching new vocabulary, they can show them with the picture, and we can also show them the, slides, for example, PowerPoint slides, and also we can give them, for example, we can sometimes play the games that are related to grammar, for example, when we are teaching grammar, grammatists online, for example, or other quizzes using the computers. And in each lesson, we should, we use such kind of technologies, for example, Canvas, interactive boards.</i></p>	Technological Components Showing videos PPT Canva Quiz online	Technological Integration
<p><i>I have such kind of students who want to work with him individually, either on their writing or their vocabulary. Okay, mostly writing and speaking can be done individually, because when we are preparing for the exam, our students for the exam, at that time, I'm going to prepare the whole task, for say, and while teaching the subject, not mentioning the student who is finding it difficult, and at that time, I will teach it to the whole class. And then, I prepare another activity to work in groups, in the small groups. And, if it is even difficult, I will try to work with him individually, and then I call him individually, and try to explain his mistakes to him, and also sometimes put marks, not sometimes, but I always put marks, points, let's say, to their writing. And I always try to show them, try to show them the increase in their writings, for example, I compare their first writing to the last writing. I mean, your essays, or letters, or texts</i></p>	Use of Interactive Boards Utilization of Online Resources Technology in Lesson Execution	Materials Integration Individual vs. Group Learning Balance

The findings highlight the teachers' emphasis on knowing students' characteristics and tailoring assessments to their educational knowledge. Ongoing progress monitoring is considered crucial, with a personalized approach to address difficulties. The teachers identifies motivations for

learning, aligning with the goal of preparing students for exams or helping them enter universities. However there is not formative way of conducting NA on developing course design.

The teacher demonstrates flexibility in curriculum management, allowing up to 30% modifications annually to ensure authenticity and relevance to students' lives. Integration of interactive boards and online resources enhances teaching methodologies, catering to different learning preferences. The balance between individual and group learning is recognized as essential for effective lesson planning.

Thematic analysis revealed recurring themes of student characteristics, assessment strategies, ongoing progress monitoring, and motivational approaches.

Insights indicate a thoughtful integration of technology to enhance teaching methods and adaptability in curriculum design.

In conclusion, the preliminary findings suggest that the teachers' practices align with the research aims nevertheless formally knowing NA applications. The emphasis on understanding students' needs, ongoing assessment, and integrating technology reflects a comprehensive approach to EFL course design.

References:

1. Hutchinson, T., & Waters, A. (1987). English for specific purposes: A learning-centered approach. Cambridge University Press.
2. Kosimov A & Gulomova N. (2022). The role of needs analysis in language teaching. International Multidisciplinary Conference "Innovative Research on Modern Scientific World". file:///C:/Users/Aygul/Downloads/67-71-the-role-of-needs-analysis-in-language-teaching%20(1).pdf
3. Trendak-Sušlik, O. (2023). What every EFL Instructor Needs to Know: Effective Implementation of Needs Analysis. Research in Language. Ps.20. DOI - 10.18778/1731-7533.20.3.05.

Rezyume: *O'zbekistonning rivojlanayotgan ta'lim muhiti sharoitida ehtiyojlarni tahlil qilish talabalar yoki guruhlarining til ehtiyojlarini tushunish va qondirishda asosiy rol o'ynaydi. Ushbu tizimli yondashuv til ehtiyojlarini aniqlash va ustuvorligini aniqlashga yordam beradi va shu bilan til o'qitish rejalarini ishlab chiqishga rahbarlik qiladi. O'zbekistonda ingliz tilini o'qitishga bo'lgan talab ortib borayotganligi sababli, amaliy, tajriba asosida o'rganishga urg'u beradigan shaxsiylashtirilgan ta'lim usullariga siljish kuzatilmoqda. Biroq, Qoraqalpog'iston kabi chekka hududlarda, xususan, Nukusda tadqiqot sohasida bo'shliq bor. Ushbu tadqiqotning maqsadi Nukus shahridagi tanlangan litseyda ingliz tili kursini loyihalashda ehtiyojlar tahlili qanday ta'sir qilishini o'rganish, o'qituvchilar tomonidan qo'llaniladigan ehtiyojlarni tahlil qilish turlari va uning o'qitish usullari va resurslariga ta'siriga e'tibor qaratishdir. EFL o'qituvchilari bilan suhbatlarning tematik tahlili o'quvchilar xususiyatlarini tushunish, taraqqiyotni doimiy monitoring qilish va texnologiyani o'qitish amaliyotiga integratsiya qilish kabi takrorlanadigan mavzularni aniqladi. Natijalar ingliz tili kursini loyihalashda integratsiyalashgan yondashuvga ishora qiladi, talabalar ehtiyojlarini tushunish va texnologiyani integratsiyalash, shuningdek, o'quv rejasining haqiqiyli va dolzarbligini ta'minlash muhimligini ta'kidlaydi. Biroq, kursni ishlab chiqishda ehtiyojlarni tahlil qilishning rasmiy qo'llanilishi yo'q edi. Ushbu tadqiqot O'zbekistonda ta'limga o'tish sharoitida samarali til ta'limi strategiyalarini shakllantirishda ehtiyojlarni tahlil qilish muhimligini ko'rsatadi.*

Резюме: *В контексте развивающейся образовательной среды Узбекистана анализ потребностей играет ключевую роль в понимании и удовлетворении языковых потребностей учащихся или групп. Этот систематический подход помогает выявить и определить приоритеты в языковых потребностях, тем самым определяя разработку планов по обучению языку. Поскольку спрос на обучение английскому языку растет в Узбекистане, наблюдается сдвиг к персонализированным методам обучения, акцентирующим внимание на практическом, опытном обучении. Однако существует исследовательский пробел в отдаленных районах, таких как Каракалпакстан, особенно в Нукусе. Цель данного исследования - изучить, как анализ потребностей влияет на*

проектирование курса английского языка в выбранном лицее в Нукусе, сосредотачиваясь на типах анализа потребностей, используемых учителями, и его влиянии на методики преподавания и ресурсы. Тематический анализ интервью с преподавателями английского как иностранного языка выявил повторяющиеся темы, такие как понимание характеристик студентов, непрерывное мониторинг успехов и интеграция технологий в методики обучения. Результаты указывают на комплексный подход к проектированию курса английского языка, подчеркивая важность понимания потребностей студентов и интеграции технологий, а также обеспечение аутентичности и актуальности учебной программы. Однако формальное применение анализа потребностей при разработке курса не наблюдалось. Данное исследование подчеркивает значимость анализа потребностей в формировании эффективных стратегий языкового образования в условиях образовательного перехода Узбекистана.

Kalit so'zlar: *Ehtiyojlar tahlili, ingliz tili ta'limi, kurs dizayni.*

Ключевые слова: *Анализ потребностей, образование по английскому языку, дизайн курса.*