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STUDENT SATISFACTION SURVEY ON E-LEARNING ON THE EXAMPLE OF TBILISI STATE UNIVERSITY

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ABSTRACT

The presented article refers to the study of students' satisfaction with the quality of e-learning and the services offered by Tbilisi State University in this process. It should be noted that e-learning has existed at TSU since 2010, but it was not used extensively in the teaching process, although it became the only form of teaching under the Covid-19 pandemic. The full implementation of e-learning was instantly implemented at the university, followed by changes in university regulations and educational resources and their delivery forms. Multiple student satisfaction surveys were conducted to evaluate the changes made. Quantitative research methods were used in the research process.

The results of the research showed that the majority of students are fully involved in the e-learning process. Satisfaction of fully involved students with e-learning is significantly higher than the level of satisfaction of partially involved students. The study also identified the reasons for the partial and incomplete involvement of students in the e-learning process, such as the lack of Internet, computer equipment and appropriate workspace, the elimination of which will help increase student satisfaction. In addition, more than a third (39.2%) of fully engaged students neutrally evaluate the effectiveness of e-learning, which is the subject of further in-depth research.

Introduction: Online learning is widely introduced in various high-income countries and is associated with the vast possibilities of modern technology (Shirky, 2008), therefore there is a long experience of online learning in these types of countries (Shachar, et al, 2010; Means et al 2013). It is recognized that there are many factors involved in the successful completion of online programs, including student readiness, lecturers, and the learning environment. Student satisfaction is one of the most important indicators (Smith, 2010; Dray, 2011).

The main form of teaching in higher education institutions in Georgia was in-classes teaching. The first case of Covid-19 in Georgia was recorded on February 26, 2020. In the spring semester of 2020, teaching at all higher education institutions was conducted remotely. The pandemic proved to be a significant challenge for both students and academic staff.

TSU is the first higher education institution in the Caucasus, founded in 1918. University education covers almost all fields. The structure of TSU, in addition to the governing bodies defined by the Law of Georgia on Higher Education (Rector, Academic and Representative Councils, Head of Administration, Quality Assurance Service, Dissertation Council, etc.) includes 7 faculties, 7 auxiliary educational units, 16 independent scientific research Units, 8 auxiliary scientific units, 20 administrative structural units, TSU library and National Scientific Library. According to 2020

data, the total number of students is: 22,606 students with active status. There are undergraduate and postgraduate studies at TSU. A total of 238 academic and vocational education programs are implemented (including 63 undergraduate, 99 postgraduate, 47 doctoral, 1 Georgian language training courses, 3 one-cycle programs, 2 integrated teacher training programs, 1 teacher training program and 22 vocational education programs). The number of academic staff at TSU is 728, scientific staff - 856, and teachers - 116.

In the spring semester of 2020, e-learning was introduced at TSU. The transition to a new form of teaching was carried out in a very tight time frame due to forced circumstances. Despite the obstacles, TSU governing bodies (structural departments) responded immediately to the challenges posed by the e-learning process, which was initially reflected in changes in university regulations and orders.

Moodle platform has been operating at TSU since 2010, although its use was only fragmentary and most of the professors and students did not have online learning experience. In the process of introducing e-learning, guidelines and video instructions for the use of LMS, Zoom and Moodle platforms were prepared and updated for administrative, academic staff and students; targeted intensive trainings and consultations were carried out for relevant target groups; In addition, educational infrastructure has been adapted, educational programs have been updated, and textbooks have been digitized.

Regular surveys of student satisfaction with various services are an integral part of the TSU learning process. These includes student satisfaction with training courses, learning process, lecturers and infrastructure. It is equally important to study the satisfaction of the academic staff with the services offered by the University. After the introduction of the new form of teaching, the content of the survey has changed and put on the agenda a study of student and academic staff satisfaction with the new online environment.

The research is focused on the study of content and technical factors necessary for the implementation of the e-learning process, such as adaptation of teaching and assessment methods, material and technical serviceability, readiness and satisfaction of professors and students, identification of factors hindering the e-learning process, etc.

Aim: The aim of the research is to evaluate the quality of e-learning at TSU through a quantitative research tool, in particular to study the progression of student satisfaction during e-learning.

Methodology: Quantitative research methods were used to conduct the survey. A population-based approach was chosen that is widely used in education (e.g. National Survey of Student Engagement (NSSE); Student Experience in the Research Universities (SERU); the National Student Survey in the UK (NSS) and the Dutch National Student Survey in the Netherlands (NSE)) [1]. The strength of this approach is considered to be the wide field of coverage of the survey when all members of the population are invited to participate in the survey. The questionnaire was sent to all students with active status and to academic and invited staff.

A special questionnaire was prepared for the survey, which included both closed and open-ended questions. The questions related to demographic data (age, gender, faculty, educational program, study level) as well as questions about satisfaction. The 5-point Likert scale, where 1- means "strongly disagree" and 5 - "strongly agree", was used to assess the questions in the questionnaire.

The survey was conducted online using the Google Questionnaire. Students questionnaire was uploaded to the electronic management system (LMS.TSU.GE). Information about the survey was

also sent to the students in the form of notifications. Also, the academic staff were provided with a questionnaire link to the university email address. Additionally, students and academic staff were provided with information on research objectives, voluntariness, confidentiality, and survey completion times. The survey was conducted in November 2020.

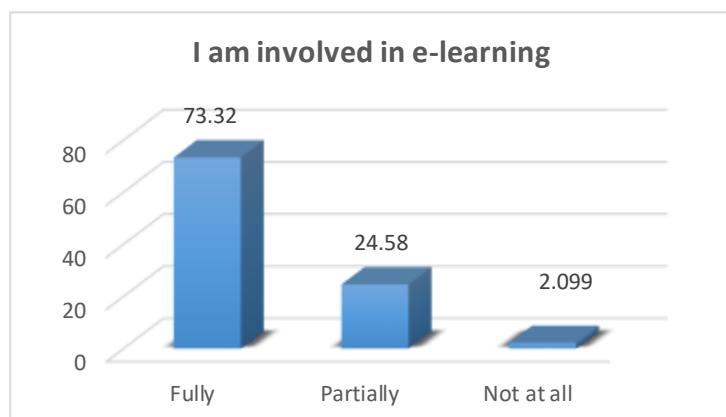
The data obtained as a result of the research were processed in the statistical program SPSS20. Frequency and cross-tabulation analyzes were used to process the quantitative data. Qualitative data obtained through open-ended questions were processed using qualitative content analysis, grouped thematically, and then processed in the form of frequency and cross-tabulation analyzes.

Results of Student Satisfaction Survey

2104 fully completed questionnaires were used for analysis. The overall response level for December 2020 was 9%, while the rate varies from 6% -14% according to the faculties. It should be noted that the overall response rate for a similar survey conducted in April 2020, in which 2488 respondents participated was 14%, and varied from 3% to 20% according to the faculties.

The survey reveals that the majority of students surveyed (73.3%) are fully involved in the e-learning process (Chart N1).

Chart 1 Index of student involvement in the e-learning process



Respondents who are partially or not at all involved in the e-learning process were required to specify the reason (Table 1).

Table 1 Factors preventing student involvement in the e-learning process

Specify why you are not fully involved in the e-learning process?	N	Percent
I do not have a computer / smartphone or other technological device	106	16.4%
I do not have internet	130	20.1%
I do not have a workspace	282	43.5%
I have no motivation	33	5.1%
Due to a busy work schedule	36	5.6%
Due to health condition	10	1.5%
For personal reasons	15	2.3%
The e-learning method does not allow me to be active in seminars	27	4.2%

The study schedule is not flexible	9	1.4%
In total	648	100.0%

Among the factors that prevent full involvement in the e-learning process are the most common:

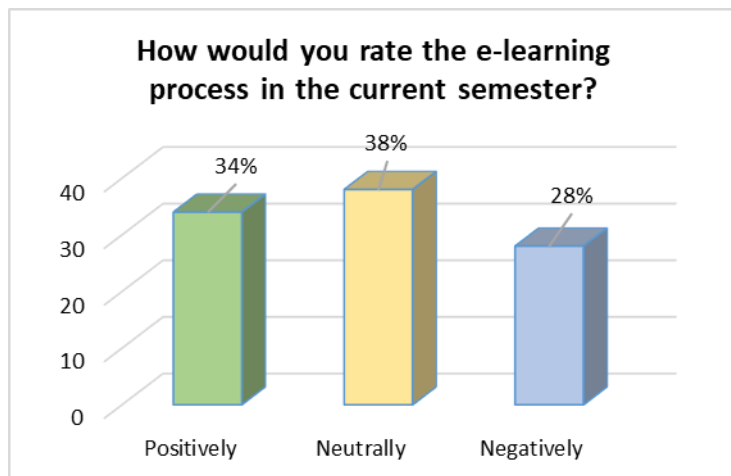
1. Lack of work space (43.5%);
2. Problems with the Internet (20.1%);
3. Lack of computer / smartphone and other technological devices (16.4%).

It should be noted that the following other reasons were also named:

- Busy work schedule - 5.6%
- Lack of motivation - 5.1%
- Less opportunity to participate in electronic seminars - 4.2%
- Personal reasons - 2.3%
- Health condition - 1.5%
- Inflexible study schedule - 1.4%

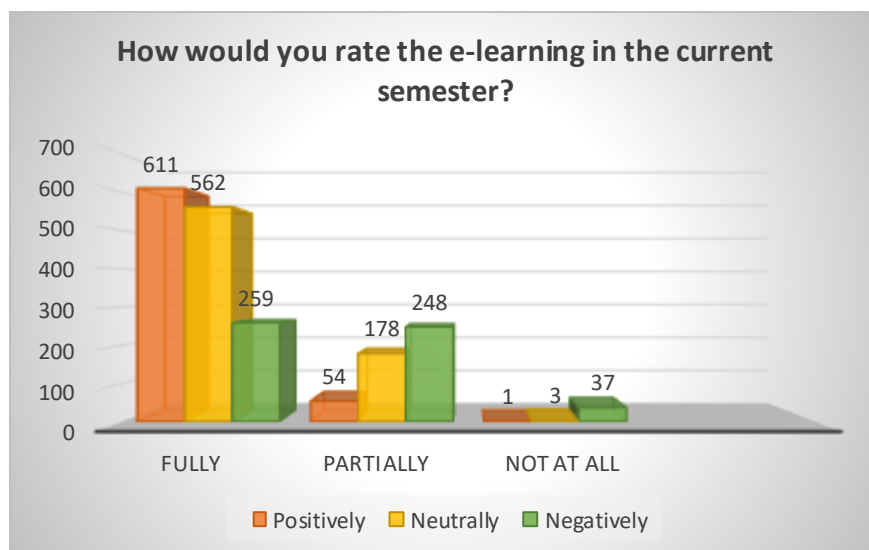
The survey revealed that the majority of students surveyed (38%) rated the e-learning process as neutral in the current semester (Chart N2) while the same question was rated positively in the case of 64.4% of the academic staff.

Chart 2 E-learning assessment rate by students



Cross-tabulation analysis revealed that the majority of students fully involved in the e-learning process (42.7%) positively assess the e-learning process in the current semester, while the majority of partially involved students - negatively (51.7%). The majority of students who are not involved in the e-learning process also evaluate the e-learning process negatively (Chart N3).

Chart 3 Evaluation of the learning process by students involved in the e-learning



In the fall semester of 2020, compared to the previous semester, students evaluated: e-learning process, lectures and seminars, teaching and assessment methods, spreadsheets, etc. In data analysis, 1 and 2 points - were considered as negative attitudes, 3 - neutral, and 4 and 5 - positive attitudes.

The majority of students surveyed believe that zoom lectures are conducted without delay (56.1%). Also, according to the majority, LMS and E-learning.tsu.ge portals have been adapted to the needs of e-learning (49.2% and 46.7%). As for the following statement - "All course materials are available on E-learning.tsu.ge" - the majority of students agree with this statement (43.4%), although at the same time the rate of rejection of this provision is high (39.4%).

The study evaluated the adaptation of teaching and assessment methods to e-learning. It is noteworthy that the question "Assessment methods are adapted to e-learning" - an equal number of students agree and disagree while the share of neutral students is 18.5%. As for the adaptation of teaching methods, 27.4% of the respondents think that the teaching methods are fully improved compared to the previous semester (Table 2).

Table 2 Comparison of fall and spring semesters of 2020

Compared to the previous semester in the current semester:	I totally disagree	2	3	4	I totally agree
The study schedule was arranged	14.6%	11.9%	17.7%	19.0%	36.8%
Teaching methods are adapted to e-learning	20.4%	15.3%	17.8%	19.0%	27.4%
Assessment methods are adapted to e-learning	25.3%	15.5%	18.5%	16.7%	24.1%

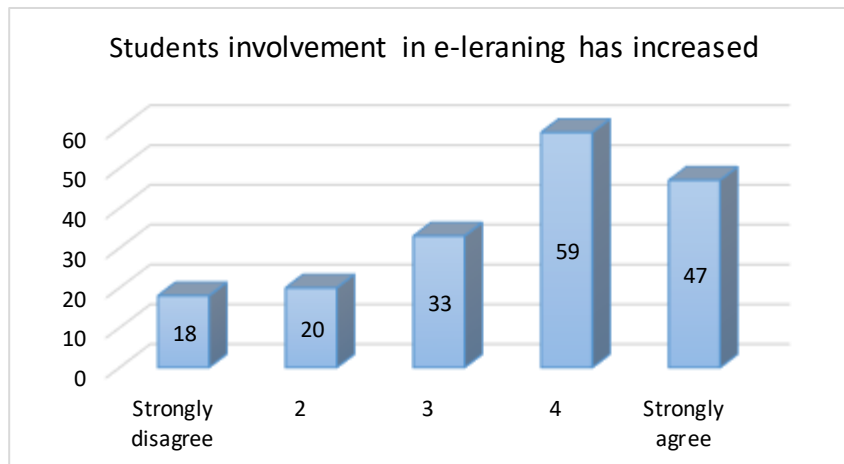
It should be noted that the survey of academic staff on this issue showed a different situation. The results of the respondents indicate some problems, although 40.3% of the respondents completely agree with the opinion that the teaching methods have been adapted to e-learning. However, 12.5%

report a neutral attitude, while only 4.6% indicate a negative one. As for assessment methods, 42.1% of respondents fully agree with the statement that the adaptation of assessment methods has improved compared to the previous semester, while 13.4% neutrally assess this improvement, and 6.9% negatively.

The majority of students surveyed (48.1%) do not agree with the statement - "Student involvement has increased compared to the previous semester". Respondents believe that student enrollment has decreased in the current semester. In addition, according to the majority of study participants (44%) the number of students attending lecture-seminars has decreased in the current semester compared to the previous semester.

A survey of academic staff on increasing student engagement in e-learning showed a different result. In particular, 49.1% of respondents respond positively to the above-mentioned statement, of which 21.8% of respondents fully agree and 27.3% agree. The same question was answered neutrally by 25.5% of respondents and negatively by 8.3% (Chart N4).

Chart 4 Survey of academic staff on student involvement in e-learning



Respondents' answers to the question - "In your opinion, which of the following needs to be improved in the e-learning process?" - are presented in accordance with the data given in Table N3. It should be noted that the respondents could choose several answers and/or express their opinion in the "other" option for open answer.

Table 3 Aspects of improvement named by students in the e-learning

		N	Percent
What needs to be improved?	Nothing can improve e-learning	21	0.3%
	Nothing needs improvement	5	0.1%
	E-learning technologies	811	12.2%
	Competencies of professors/lecturers in terms of the use of computer technology	804	12.1%
	Teaching methods	879	13.3%
	Assessment methods	1036	15.6%
	Communication with the administration	957	14.4%

	Communication with program academic staff	542	8.2%
	Timely feedback from professors/lecturers	646	9.7%
	Student Support Services	913	13.8%
	Asynchronous training	16	0.2%
Totally		6630	100.0%

The analysis of the data reveals that the four most commonly named issues are:

1. Evaluation methods - 15.6%
2. Communication with the administration - 14.4%
3. Student Support Services - 13.8%
4. Teaching methods - 13.3%

In addition, the content-analyses of open-ended answers showed the following needs: Anonymity of exam papers on e-learning; Possibility of appeal; Increase exam time; Development of asynchronous learning - recording and uploading lectures on e-learning; Offering a flexible schedule for the master's degree; Improving the assessment system - "Attendance points should not be written".

Conclusion: The results of the research showed that the majority of students are fully involved in the e-learning process. The satisfaction of fully involved students with e-learning is significantly higher than the satisfaction of partially involved students.

The research also identified the reasons for the partial and incomplete involvement of students in the e-learning, such as the lack of Internet, computer equipment and appropriate workspace, the elimination of which will help increase student satisfaction. In addition, more than a third (39.2%) of fully engaged students neutrally evaluate e-learning, which is the subject of further in-depth research.

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PROBLEMS OF INNOVATIVE DEVELOPMENT OF MACHINE BUILDING IN AZERBAIJAN

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ABSTRACT

At the beginning of the article, the priority directions of development of Azerbaijan are shown. At the moment, a new innovative industry is being formed in Azerbaijan, which supports increasing the potential of the non-oil sector, in particular, its export component, as well as ensuring regional development.

In the context of globalization, Azerbaijan is implementing a purposeful policy aimed at forming the competitive advantages of national economic systems on the basis of the effective use of all types of intellectual resources and high technologies. At the end of the article, ways of overcoming the problems associated with innovative development are shown. The article deals with the problems of the development of the national machine-building complex of Azerbaijan. As a result of the analysis, the main components of the problem of strategic innovative development of machine-building enterprises were identified, including: insufficient funding for the development of industry; high level of global competition in the field of mechanical engineering; imperfect formation of a strategy for innovative development of machine-building enterprises.

The article also shows the priority areas of development. At the moment, a new innovative industry is being formed in Azerbaijan, which supports increasing the potential of the non-oil sector, in particular, its export component, as well as ensuring regional development.

In the context of globalization, Azerbaijan is implementing a purposeful policy aimed at forming the competitive advantages of national economic systems on the basis of the effective use of all types of intellectual resources and high technologies.

At the end of the article, the ways to overcome the problems associated with innovative development are shown.

Keywords: machine-building complex, non-oil sector, innovative development, sustainable economic development, potential, export component, intellectual resource.

Problems on the way of development of mechanical engineering in Azerbaijan:

The machine-building complex, as an object of research, is generally considered the base of machine-technical support for the development of the economy. It produces not only tools of labor, but also consumer goods, ensures the country's defense and employment of a significant part of the working population. At the same time, the machine-building complex suffered great damage during the radical market reforms carried out in Azerbaijan. There are a number of factors that are

an obstacle to the sustainable development of machine-building enterprises. These factors include the technological backwardness of many enterprises and the machine-building industry as a whole, the absence of a long-term industrial policy of the state, a very low level of investment support, and an outdated production and technical base.

At the enterprise level, "sustainable economic development" is the least studied issue. At the same time, it should be noted that the solution of economic problems, namely, ensuring sustainable economic development of macrosystems is impossible without a full study of the issue of sustainable development of the enterprise.

Previously, a high level of labor force and knowledge in the field of non-oil engineering provided the ability to produce a huge range of products. The collapse of the USSR and the loss of traditional sales markets led to a deterioration in financial relations and cooperation, the loss of the consumer market and, ultimately, to a decrease in production rates. According to the State Statistics Committee of the Republic of Azerbaijan, in 2015 compared to 2005, the level of production of mechanical engineering increased.

For sustainable economic development of national engineering, it is required to renew fixed assets, i.e. nomenclature of products. The dynamics of production is important here. Ensuring sustainable development of machine-building enterprises in Azerbaijan is impossible without a comprehensive step-by-step technological restructuring of machine-building enterprises and modernization of obsolete metalworking equipment. [2]

At the same time, it should be borne in mind that the solution of the issues of renewing the machine tool park of the Azerbaijani industry through exports is unrealistic, since, according to expert estimates, this requires at least 10 years and 3 billion US dollars a year.

Another important problem in the development of mechanical engineering is associated with the rise in prices for manufactured products and services rendered. The insignificant role of products manufactured by Azerbaijan's machine-building enterprises in exports, the rise in prices for products, significantly reduces the competitiveness of national goods in the "price-quality" ratio.

One of the existing problems is the incompleteness of structural transformations in the field of mechanical engineering. A decisive step in this direction is the creation of a company in the field of non-oil engineering. However, these integrated structures must ensure efficient operation and regulate interaction with individual enterprises in this sector.

At the same time, large transnational corporations in the world and domestic markets compete with Azerbaijani producers and, using their financial and organizational advantages, seize markets that previously belonged to Azerbaijani enterprises. The low level of staffing in mechanical engineering is also an important problem that must be taken into account in order to achieve sustainable economic development. Low wages are forcing many qualified specialists to leave the country, and it is difficult to attract young personnel with low wages. [5]

As a result, enterprises, research institutes and design bureaus of machine-building profile lose the ability to manufacture many high-tech products, use high technologies and introduce sophisticated equipment. Without high volumes of orders for new complex equipment and without improved wages, it will be very difficult to attract highly qualified specialists to the enterprises of the machine-building complex. The lack of mechanisms for the flow of funds in mechanical engineering also remains one of the important problems. Despite the implementation of a number of comprehensive measures, banking capital still does not have "long-term" money, i.e. relatively affordable resources for investing in investment and innovation projects in mechanical engineering.

It should be noted that the profitability of such projects in mechanical engineering is lower compared, for example, with the fuel and energy sector.

Generalized problems associated with the development of enterprises in the machine-building complex of Azerbaijan are shown in Table 1.

Priority directions for the development of the non-oil sector in Azerbaijan:

Today Azerbaijan is intensively moving forward, having defined its development goals and with a clear understanding of the direction in which it is going and what future it intends to create for future generations. The modern world has become global. The most competitive in it will be only those nations that master the latest technologies, invest in the all-round human development. Modernization of the nation, increasing its competitive potential is an irreversible phenomenon if we want to achieve further prosperity of Azerbaijan. [4]

The data of the CSB of Azerbaijan indicate that the industry has over two thousand business entities and about 18 thousand individual entrepreneurs who are engaged in industrial activities.

However, the innovative activity of these subjects remained at a low level. Proceeding from this, the problem of innovative development in the non-oil sector lies in the mainstream of the more general problem of the development of entrepreneurial relations. Small innovative activity annually in the republic leads to the closure of several dozen business entities.

The depreciation of fixed assets at many enterprises is about 60%. Low labor motivation provokes employee turnover, which exceeds more than four times the acceptable 5% value.

Table 1.

№	Problems hindering the development of enterprises of the machine-building complex	Components of the problem
1	The underestimated level of development of the machine-building complex as a whole	Low growth rates of production volumes in the main industries - consumers of engineering products.
		Violation of technological chains established during the existence of the USSR
		Insufficient use of the potential of many industrial enterprises
		The rate of reduction of renewal of fixed assets by machine-building предприятиями
		Low rates of renewal of the assortment of products of industrial enterprises.
2	Problems caused by the structure and technological backwardness of the country's economy	For a long time, machine-building enterprises were focused on strengthening the military-industrial complex and subsequently were not marked by the necessary re-profiling of the industry's enterprises.
		Structural imbalances in the development of basic industries in relation to мировых тенденций
3	Problems of ensuring the competitiveness of engineering products	Relatively low ratio of price and quality of engineering products.
		Low level of reliability of local products of the machine-building complex
		The overwhelming majority of local engineering products do not meet the requirements of world standards.
4	The problem of effective specialization and cooperation of local	The low level of specialization of machine-building enterprises, the increase of which will increase the capacity of efficient production equipment, will increase the level of automation of production processes.

	engineering enterprises.	Insufficient level of cooperation of local machine-building enterprises, ensuring the participation of several enterprises in the production process.
5	The problem of the low level of knowledge-intensive production of local machine-building enterprises	Domestic machine-building enterprises need to develop the production of the most modern technologies at the level of international standards, to produce high-quality products that are competitive in foreign markets.
6	The problem of high labor intensity of production of local machine-building enterprises.	The high level of labor and labor costs in mechanical engineering is partly due to the technical and technological backwardness of local engineering production.
7	The problem of high metal consumption in the production of machine-building enterprises.	The high level of material consumption of local engineering is due to the technical and technological backwardness of engineering production, as well as the creation and use of resource-saving technologies, insufficient development of the quality level of engineering products.

Development problems of local engineering enterprises (compiled by the author)

Azerbaijan has long-standing scientific traditions in the field of mechanical engineering, but the contribution of science to the economy is limited by the underestimated level of application of scientific achievements in production and economic activities. Investment in R&D is minimal in both the public and private sectors.

Enterprises are more likely to specialize in producing products that are “around” the product space map, which indicates their comparative competitive advantage in the commodity and forestry industries, but creating new products in these areas is difficult, as well as skills that can be used in other areas.

In addition, investment in R&D in the country generates less commercial income for the “knowledge” product. The innovative activity of enterprises of the machine-building complex in Azerbaijan is still low,

Table 2. Let's make a comparative analysis of the existing machine-building enterprises in Azerbaijan

	2013	2014	2015	2016	2017	2018	2019
Number of operating enterprises - total	59	61	59	58	58	64	77
state	19	17	17	17	14	14	17
frequent	40	44	42	41	44	50	60
Average annual number of employees, thousand people	4.8	4.3	4.0	3.9	3.8	4.3	
as a percentage of the previous year	106.7	89.6	93.0	97.0	97.8	113.3	
Share of workers in the industry in the total number of people employed in industry, in percent	2.5	2.2	2.1	2.0	1.9	2.0	
Average monthly wage of an employee, man.	345.7	366.8	367.3	373.5	403.0	412.2	
Fixed capital investments, mln. Man.	1.7	0.1	19.5	10.0	0.2	0.3	8,1
The share of investments in the industry in the total value of investments in the industrial sector, in percent	0	0.0	0.2	0.1	0.0	0.0	0,1

Key performance indicators of enterprises producing machinery and equipment. Source: Azerbaijan State Statistical Committee No. 18.19.

According to the GSKA [12], it can be seen that compared to 2013, where the number of enterprises was 59, their number in 2019 reached 77. Among the main factors that influenced this change are the following:

- state support in the development of sectors of the economy, through the adoption of various decrees, laws, concepts, etc .;
- introduction of scientific and technological progress;
- privatization policy;
- creation of industrial towns, parks, special economic zones, etc.

The average annual number of employees in comparison with 2013 decreased from 4.8 to 4.3 thousand people. The main reason for this was the STP.

The most important indicator of the innovative development of the industry can be considered investment in fixed assets. Since 2013, where investments in fixed assets amounted to 1.7 million manats, they increased to 8.1 million manats. The main factors preceding this process:

- development, improvement and modernization of the logistics network;
- opportunities to improve the productivity of operating enterprises;
- increasing the effectiveness of anti-corruption legislation;
- simplification of administrative procedures in the creation and operation of enterprises;
- creation of transparency in the system of state regulation of entrepreneurship;
- access to foreign markets.

Nevertheless, the machine-building enterprises of Azerbaijan have certain drawbacks, for the elimination of which the following recommendations are indicated in a number of State Programs and Strategic Road Maps for the period of 2025: [9]

- transfer of advanced technologies;
- development of high-tech and knowledge-intensive industries;
- use of modern financial and credit mechanisms;
- improvement of regulatory legal acts in order to expand the innovative activity of entrepreneurial entities.

Innovation is the final result of scientific research, which allows the development of the latest product at a single enterprise, the production of which will bring economic benefits (profit) to this organization. An innovation can act as a technology aimed at improving the quality of a well-known product. At the same time, the costs of its production are reduced. But be that as it may, an enterprise that adopts an innovation policy takes a benchmark on the competitive situation in the market, adequately evaluates it and reacts, operating with all components of the production cycle. Specialists also highlight social innovation - these are the results of scientific activities that are aimed at improving the life of workers, rural workers, office workers and other segments of the population who are engaged in socially useful activities.

Innovation is very important for Azerbaijan, and therefore the country has established the production of competitive products by innovation entities in industrial parks and neighborhoods. Also, a Research Institute has been specially created in the country, in which the necessary research is carried out. The purpose of the research is to support and regulate macroeconomic stability, ensure sustainable development, develop regions and entrepreneurship, diversified development of economic sectors in order to increase the export potential of the non-oil sector. The Institute develops models and methods for drawing up short-term, medium-term and long-term forecasts and plans for the development of the national economy. [1]

Innovative development of the machine-building complex of Azerbaijan: For the efficient functioning of the economy, an innovative infrastructure is needed. The ongoing reform of the

country's scientific and technical sphere should not imply breaking the existing system, but supplementing it with new elements designed to fill the vacuum between the creators and consumers of scientific and technical products. This will allow innovatively active enterprises, with the support of the state, to master new technological solutions and to launch the production of high-tech products in the shortest possible time. [7]

To create objective conditions for innovation, one must strive to build the foundations of the intellectual property market. It is required to engage in the development of the concept of innovative development of the republic, legislative and regulatory frameworks for innovative activities. The most important premise is that it is necessary to concentrate efforts on attracting non-state funds. The state has already paid for the production of a scientific product, and now it can count on the participation of non-state funds. The experience of leading agricultural organizations shows that with the support of federal and regional authorities, it is possible to successfully manage agricultural production using innovative technologies. Also, the republic has an economic, scientific and human potential for further innovative development of the industry. At the same time, it is currently necessary on the part of the Government to take a number of measures (adoption of an innovative strategy, building an innovative infrastructure, improving lending, insurance), which will serve as an additional impetus for the intensive development of agriculture. The ultimate goal of the innovative development of the industry is the formation of an agricultural economy of an innovative type.

As we all know, there are two types of innovation: product innovation and process innovation. If the production of a new product is carried out with old equipment, then this production of innovation is called product innovation. At present, the type of innovative products is widespread in Azerbaijan. If the production of a new product is carried out with the introduction of new technologies, then this type of innovation is considered an innovation process. [10]

According to the priorities of the State Programs and Strategic Road Maps, the main goal of introducing innovations in the field of mechanical engineering of the republic is:

- increase in profit (income) with the least material and labor costs;
- development of new types of products of a wide range;
- increasing the competitiveness of products;
- expansion of the sales market;
- improvement of working conditions for employees;
- introduction of new equipment and technology into production;
- creation of a highly paid job;
- reducing the volume of emissions into the environment.

The current stage of development of the world economy is characterized by a high degree of globalization. Here, the main place is given not to the size of the country's foreign trade balance, but to the place of the country's economy in the global "chain" of added value creation. Today, the economy of Azerbaijan has a small level of export diversification; competitive advantages are ineffectively used in the export of products of science-intensive industries. Due to the lack of communication between science and production, the economy of Azerbaijan cannot compete with high-tech areas and receive high income and added value. At the moment, there is a low level of introduction of scientific developments into production in Azerbaijan. In order to solve these problems, the country's authorities must in the future adopt many reforms to stimulate economic growth and implement institutional reforms. It is urgent to take measures to improve the institutional environment, which ensures an increase in the level of trust of all subjects of economic

and political activity in the society of the republic, the creation and approval of fair "rules of the game" - for all members of this society.

The economic processes of Azerbaijan assign a significant role to industrial sectors. This is due to the fact that the industrial sectors of Azerbaijan have ample opportunity to apply capital-intensive and innovative projects. In the latter, according to world experts, modern elements of high-tech developments, innovations, the use of new economic means, including innovative clusters and special economic zones, are successfully combined.

The openness of Azerbaijan's economy is a significant factor in the movement towards post-industrialization. It is precisely on the post-industrial breakthrough, and not on the usual protection of "domestic producers" that negotiations on accession to the WTO should be oriented. The necessary measures should set the goal not to protect inefficient industries, but to ensure the penetration of promising industries and high-tech services into world markets. [11]

The Republic of Azerbaijan needs a special program for economic growth, which will contain both long-term measures of structural, demographic, scientific and technical policy, and short-term measures: stimulating aggregate demand, stimulating supply by changing the quality of the factors of production used. In the future, even under the most favorable scenario, high prices and an increase in the export of raw materials will be able to provide GDP growth of no more than 0.5% per year. In the opposite course of events, this value will be negative. So, in the short term, the entire GDP growth can be obtained only through the expansion of non-resource companies.

The growth of Azerbaijan's economic development in the near future will largely depend on its macro-financial stability. Official data from the Azerbaijani government say that the country can greatly diversify its national economy in the next 10 years, reduce its dependence on the oil industry, create new powerful sectors of the economy, such as ICT and tourism, and thus ensure a stable flow of government revenues and financial resources.

International experts say that Azerbaijan can strengthen the role of a regional leader and become one of the most competitive countries in the world in the next 10-15 years. Scientists of Azerbaijan have achieved great scientific success, which can be applied in different sectors of the country's economy.

The country's main goal is to minimize the economy's dependence on oil.

The policy of innovative development in Azerbaijan is built on three pillars called the "golden triangle" - human resources, favorable environment and capital. [8]

The main directions of the state innovation policy of Azerbaijan are:

- 1) development and improvement of regulatory support for innovation and mechanisms for its stimulation;
- 2) development of a state strategy aimed at an innovative way of developing the country's economy;
- 3) ensuring the coordinated activities of state bodies, economic and scientific organizations, aimed at an innovative way of development.

Of no small importance are the development of innovative structures of various forms of ownership, support of small innovative entrepreneurship, the allocation of priority areas in the innovation sphere of the state, sectoral and regional levels for the long term, stimulation of the development of fundamental research in the field of science and technology, support for the functioning and development of modern innovation infrastructure and etc.

And finally, the development of mechanical engineering is impossible without:

- 1) state support, laws that provide real guarantees and incentives for local and foreign investors in innovative activities
- 2) incentives for investors who invest in knowledge-intensive, high-tech industries;
- 3) direct government subsidies;
- 4) competitive placement of budgetary funds for the implementation of innovative projects;
- 5) development of a system of venture investment in the scientific and technical sphere;
- 6) establishment of preferential taxation of subjects of innovation activity;
- 7) expansion of markets for goods;
- 8) increasing the prestige of scientific work, protecting the intellectual property rights of researchers and creating decent living and working conditions for scientists and specialists.

It should be noted that the most important task of state policy in Azerbaijan in this period is to determine the priorities for the development of scientific, technical and innovation spheres, which have an impact on increasing the efficiency of production and the competitiveness of products. [4]

Ways to minimize the impact of negative factors on sustainable development and increase economic efficiency: In order to increase the number of high-quality, import-substituting and exported mechanical engineering products, it is necessary to gradually update the technical and technological park of business entities by applying targeted innovative projects, actively attracting investments from foreign companies, and creating joint ventures.

To reduce the influence of negative factors on innovation activity, it is urgently required to create a system for monitoring the effectiveness of the use of innovative infrastructure facilities, implement pilot projects to process mechanisms for supporting large-scale innovation programs of business structures, in particular, support cluster initiatives, and widely implement international standards.

The low innovative activity of small and medium-sized enterprises also brings to the fore the measures to improve the incentive mechanism for workers, attracting highly qualified specialists to the manufacturing industry, where the level of staff turnover is several times higher than the threshold value. [6]

It seems that the development and implementation of a targeted, long-term, innovative program for sub-sectors of the machine-building industry will contribute to a noticeable increase in their innovative activity. A similar program, first of all, must be developed for other industries, on the innovative development of which the sustainable development of other subsectors of the manufacturing industry depends, using their products as raw materials and materials.

In a market economy, the strategic management of a small and medium-sized innovative enterprise, which focuses production on the preferences of consumers, is of great importance for the economies of developing countries.

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IMPROVEMENT OF WORKING PERFORMANCE OF THE GAS COMPRESSOR STATION

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ABSTRACT

The working performance of compressor unit for compressing of gas to required pressure for injection of gas to underground reservoir and for transportation of it is considered. Performance data of compressor station for 2018 and 2019 analyzed. Dependencies of power consumption, specific consumption of gas which uses as fuel for compressor is designed. Changes in noted above parameters during given two years are found based on detail analysis. The expediency of processing the signals of the sensors connected to the monitoring and control system of the compressor station, using fuzzy logic algorithms and digital signal processing for increasing of efficiency entire system is shown.

Keywords: gas compressor, working performance, power consumption, signal processing, algorithms

Introduction: Compressor unit, is as one of the most important types of technological machines, are used in many traditional areas of the economy, such as oil, gas, chemistry and mechanical engineering, transport, metallurgy, geology, construction, agriculture, etc. techniques and technologies.

Natural gas is used as the most environmentally friendly fuel and is also an invaluable raw material for the production of chemical products, for example, carbamate - fertilizers for plants, and has the best environmental and heat engineering indicators, to maintain the pace of development of the industry, new developments are required to take into account gas. The significance of natural gas in comparison with other mineral sources of energy is determined by its easier processing, transportation, distribution and storage. The level of extraction and consumption of natural gas is constantly growing, its share in the consumption of energy among all mineral sources is 24%.

One of the most important problems of the steady development of the fuel and energy complex is to increase the efficiency of use and save energy resources, reduce the energy intensity of operation by an optimization of the operating modes of technological equipment and improving the power supply system.

CU in Garadagh Compressor Station (GCS) is intended for injection of natural gas to underground reservoir and for further transportation of gas. The efficiency and reliability of these systems as a whole depends on the efficiency and reliability of the very same machines. The long-term operating experience of the compressor units shows that due to low level of technical support, lack of the equipment self-diagnostics and lack of timely malfunction detection, the cases of emergency shutdowns of the compressor plants occurs 4-6 times a year, provided that the service personnel is present. In this regard, the issues of increasing the technical level of the compressors, especially

their efficiency and reliability take on great economic importance [1]. The main criteria for determining the efficiency of the station is the volume of compressed gas, as well as the amount of fuel used for this process. An analysis of performance parameters of CU makes it possible to determine the optimal modes of natural gas compression with the selection of equipment characteristics, calculate fuel consumption, and adjust equipment regarding to technical requirements. The effectiveness of the compressor station depends mainly on the effectiveness of the compressor itself, as well as the operating modes of the entire station.

Study of the technical condition of the compressor unit allows us to assert that the available capacity of the station during the overhaul period decreases by 10-20%, and the efficiency is by 5-10%. Technical difficulties in direct measurement of power lead to the need to determine it indirectly, using measured parameters, such as pressure, temperature, gas consumption.

An important problem of transportation and distribution of natural gas is the implementation of control of parameters of gas and transport equipment, measurements of gas consumption, as well as stopping or reducing the required amount of gas in emergency case.

Statement of the problem: The main task of the GCS is to increase the gas pressure to the required predetermined level, for pumping to underground gas reservoir. The failure and inoperability of the compressor units at the station can lead to the cessation of all gas reservoir system or at least the main part of it, to large losses and breakdowns in gas supply, which can be accompanied by a disruption in the technological process in the related industries. Reducing repair costs, extending the inter-repair period and increasing the reliability through troubleshooting facilitation require constant activity monitoring of the existing stations, regular improvement of the technical and operational performance of the units that make up them through analysis.

The CU technical service personnel provide for constant monitoring of its operation and in the meantime keeps the standard operational performance of the main assembly units in line with the requirements. However, the instability of the load, environmental parameters (temperature and pressure), which the CU is exposed to, leads to a decrease in both the total working hours and the inter-repair operating period of the equipment.

Solution of the problem: The application of modern control and measurement means and actuators greatly improves the reliability, stability, and economic performance indicators of CU. However, initially performance data should be analyzed. However, initially performance data should be analyzed. That is why for definition real indicators of working of CU during 2 years let us consider and analyze data performance of one of them.

The main performance of the one compressor unit in station during 2018-2019 and corresponding change graphics of these performance data were presented in Table 1 and in Figures 1-3 respectively.

As is seen from the table, relevant data for each two years were provided only for the period of May-October, which is due to the fact that the Garadagh Compressor Station provides gas supply to the underground gas reservoir in the warm months of the year. As is seen from the graphics, the pressure change in the inlet and outlet of the compressor station was not critical, it did not exceed the limits set for the system [2]. It is necessary to note that last 2 years in Europe the process of gas injecting to underground reservoir takes the long period due to an anomaly cold weather situation. It requires more analyzing of the performance of CU for improving of working efficiency of it.

As is seen from the graphics presented in Figure 3, the specific consumption of fuel gas for the turbo-compressors operation in 2018, that is, the amount of fuel gas spent for pumping every 1000 m³ of gas, changed around 14.0 l/10³m³ in May and October, and in 2019 this estimate was in the range of 14-16.

Table 1. Performance data of compressor station per month in 2018-2019

Month	Volume of pumped gas, 10 ³ m ³	Pressure, Bar		Monthly fuel gas consumption, m ³	Specific consumption of fuel gas, l/10 ³ .m ³
		inlet	outlet		
2018					
May	147154.6	21.62	40.37	2094420.0	14.2
June	150932.5	21.52	40.95	1961145.0	13.0
July	165008.0	22.06	39.88	2066390.0	12.5
August	174277.2	22.27	40.11	2103652.0	12.1
September	99378.2	22.55	41.01	1262787.0	12.7
October	36590.0	21.21	40.54	497282.0	13.6
2019					
May	130810.7	18.94	35.06	2094422.0	16.01
June	158165.0	19.64	36.42	1971210.0	12.46
July	126096.9	20.75	39.68	1722384.0	13.66
August	156215.4	20.04	37.88	1998263.0	12.79
September	106122.3	20.17	39.49	1648537.0	15.53
October	158402.7	20.29	40.47	2259919.0	14.27

The specific consumption of fuel gas in May and September amounted to 16,01 and 15.53 l/10³m³ respectively, which greatly exceeded in comparison with 2018. But in the meantime, the total power consumption per station (Figure 4) was less than 30000-50000 kW-h, which reflects itself in the reduction of total operating costs.

In such units it is recommended to apply equipment with a wide range of functional capabilities, acceptable measurement accuracy and control algorithms, which has been tested and demonstrated better performance [2]. The control and measurement system of a compressor station is a hierarchical system of operational control and management, located in the central control room, and should provide the following control levels:

- the level of operational and production services - the upper level of the control system;
- the level of the automated control system of technological objects - the low level of the control system.

The operational and production service level performs the following functions:

- formation of a human-machine interface;
- registration and visualization of the state of technological objects;
- real-time control;

- generation of a signal about the deviation of technological parameters from the limits of normative warning and emergency;
- remote control of actuators and units (turbine and compressor);
- recording and archiving changes in the cost of activities and technological parameters in the database;
- formation and printing of technological reports, accounting and reporting documents.

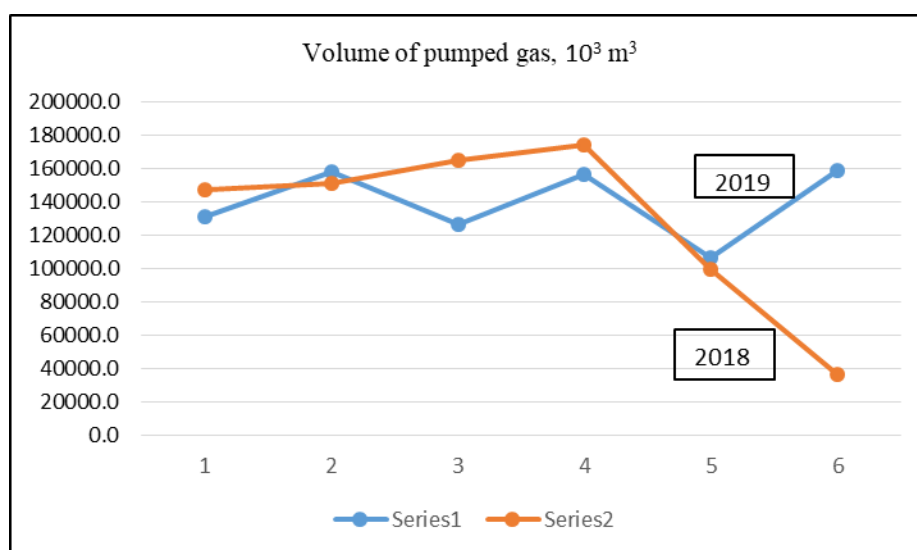


Figure 1. Volume of pumped gas per month

The principle of operation of the general system is aimed at the implementation of the following tasks:

- automatic control and monitoring of the technological process of compression and transportation of gas in real time, as well as regulation and support at the required level;
- to ensure a high level of safety of the technological process;
- constant analysis of the dynamics of parameter changes on the side of critical values and forecasting of possible accidents;
- start, stop and all necessary switching operations without accidental;
- forming of control effects, stopping the development of accidents;
- uninterrupted control and management of the status and modes of operation of technological equipment and devices ASU TP, preparation of warning and emergency alarms when deviating from operating parameters of regulated mechanisms and tasks, remote control of tasks, technology, remote control. and devices, calculation of technical and economic indicators, provides archiving of data, formation and printing of technological protocols, urgent messages and personal documents.

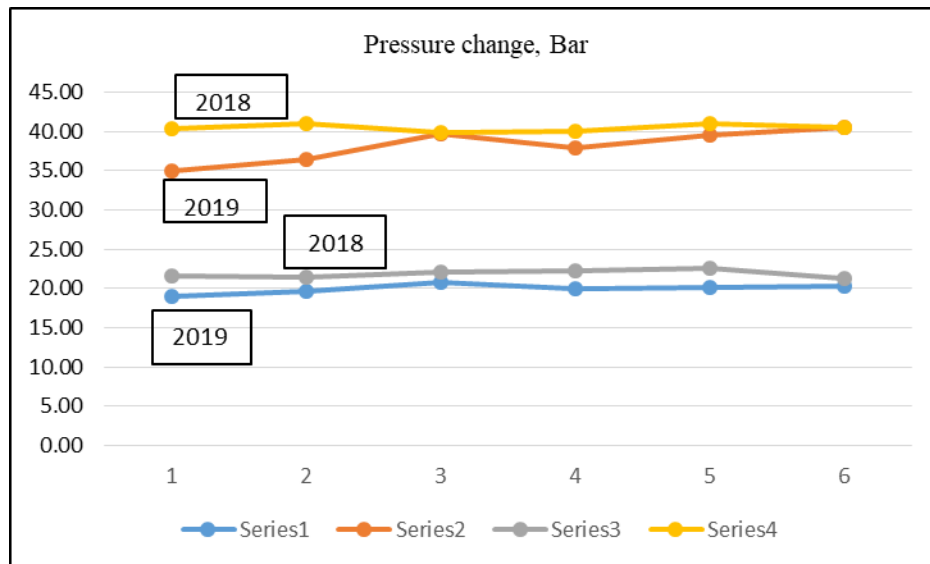


Figure 2. Change of inlet and outlet pressure

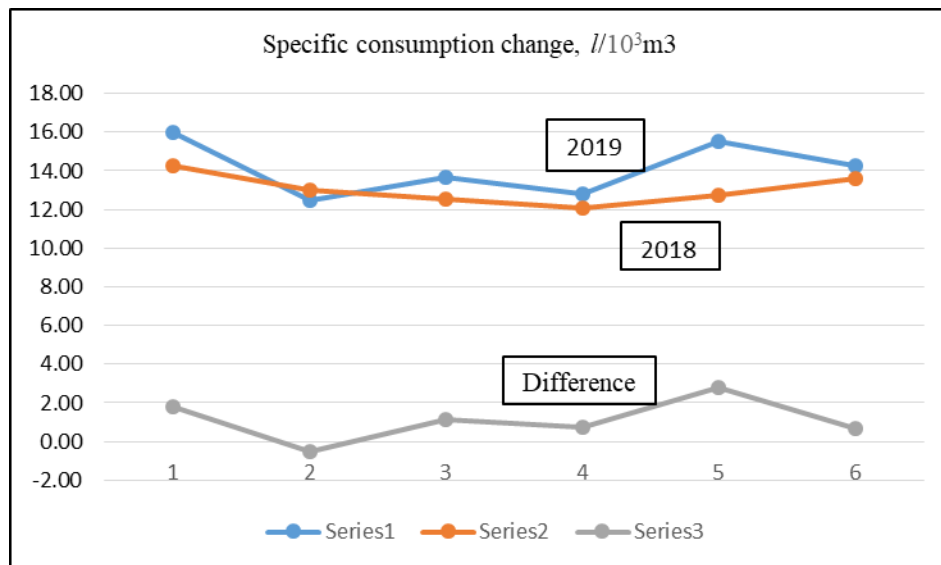


Figure 3. Specific fuel gas consumption

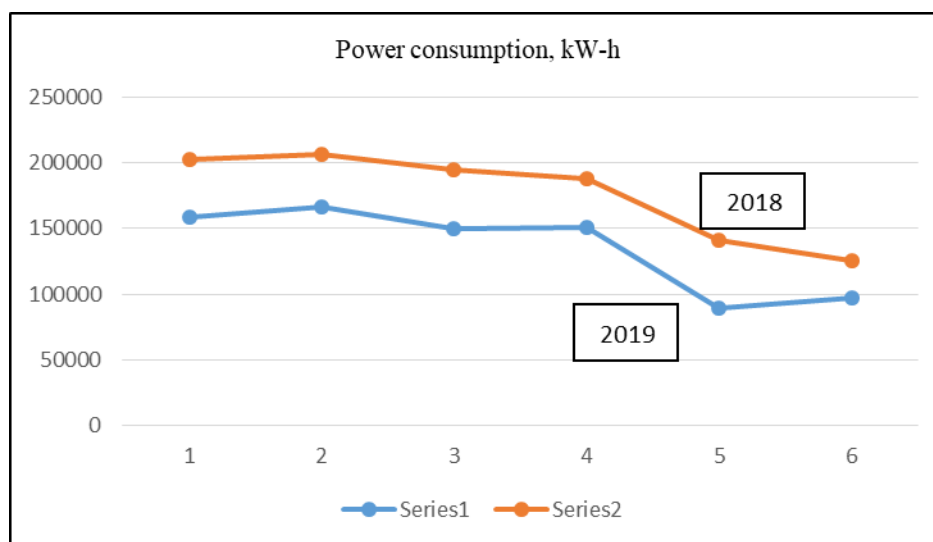


Figure 4. Change in power consumption per station

The values of the input and output pressure is determined by the pressure sensor, the output signal which enters the control system in the form of whole numbers after conversion into a digital signal in a twelve-story analog-to-digital conversion. To control the pressure at the compressor outlet, a signal is set to set the pressure with the output of the digital-to-analog converter control system. The frequency change of the rotation of the shaft compressor is ensured by the output of the control signal.

Application of the automatic control system of the compressor unit should solve the following tasks:

- a fully automatic control system with a compressor unit does not require human intervention in its work;
- reduces the frequency and complexity of service;
- the reliability of the management system increases.

The controller sends the corresponding signals to the controller, the transmitter and sensors to all objects in the class of actuators and control signals to the compressor-turbine class device. The request of the transmitter is performed by the controller in the calculated moments of time and in succession, provided by the program, and in the case of moments of time determined by interruptions on the basis of the received signals received. During the process, the signals received from the transmitters are processed continuously, indicating that the system is active. Repetition of data and external reports facilitates process management.

In addition, applying of digital signal processing algorithms [3] and algorithms based on fuzzy logic for processing of transducers signals [4] by using existing fuzzy operators, allows to decrease measurement errors via filtering of signals and increasing of signal-noise ratio.

Thus, the processing of the output signals of the sensors connected to the system can be done as follows. The sensor output signal is fed to an analog signal processing device - usually to the analog filters with different characteristics (low and high pass filters, band pass filters, notch filters). Analog filters are used to suppress signal noise, separate the main measuring signal and increase the signal-to-noise ratio. Further, the signal enters the analog-to-digital converter where the analog signal is converted into a digital signal in the form of a binary code, convenient for

processing by a computing device (microprocessor or a special microcircuit (chip) - a signal processor). To apply a fuzzy processing algorithm according to fuzzy rules introduced into the system knowledge base, a fuzzifier is used that converts the certain signal value into a fuzzy number. After processing by a fuzzy algorithm, the result obtained in the form of a fuzzy number is converted using a defuzzifier into a certain value, which is used for its intended purpose.

Conclusion: The analysis of the results of the experience-test modes shows that after all signals coming from the station and units are converted into corresponding (digital) signals, and the issues regarding the connection in the new system are resolved, given signals will be processed by applying fuzzy logic algorithms, the remote control and management of the station operating process in the “on-line” mode will meet the required criteria, and the compressor station will provide the required efficiency, providing the given performance parameters of gas pumping into the underground reservoir, which is proved the results of computer experiments with algorithms noted above.

It is necessary to update the software support of the control system for operating at the Garadagh compressor station, to develop and apply a new algorithmic and program software, directed to the solution of new tasks, with the whole set of requirements of current standards.

Artificial intelligence systems can be used in addition to traditional automated control and management systems for compressing and transportation of natural gas. The application of artificial intelligence methods leads to change of hard control process into "soft methods".

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INTERNATIONAL BRANDS OF TRANSMITTAL COMPANIES IN THE FMCG MARKET

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ABSTRACT

The paradox of the present is the simultaneous intensification of the processes of integration and fragmentation in various spheres of public life. Along with transnational companies, more and more new sellers are emerging trying to penetrate the country's markets. This can be achieved by creating a world-renowned brand. Currently, the main trend in the management of brands of an international company is the confrontation between globalization strategies and the adaptation of brands to the world market. This trend leads to a number of factors that need to be taken into account in the brand management of international companies. These factors are the emergence of global segments in the organization and the market.

Organizational factors affect the brand management of an international company. Unexplored segments do not have a hereditary value system. Everything here needs to be recreated and the brand can fulfill this mission. When choosing a brand name, international companies tend to look for the best name that can be used in the world.

In addition to the intercultural differences of consumers in different countries, there is also economic diversity. The level of economic development of different countries can vary significantly. Therefore, a company's brand management policy should take this factor into account. There are several approaches to solving this problem.

In different countries, the same product may belong to different segments. In this situation, he builds relationships with different competitors and focuses on different goals. The success or failure of introducing a brand to foreign markets is also related to the competition between local companies. For this reason, one of the main tasks of managing an international company's brands is to combat entrenched regional prejudices that favor local brands over international brands, which is particularly typical of the UK and the US.

There are a number of other factors in international branding. Each factor affects the performance of a particular company in different ways. Buyers compete in the sector by lowering prices, bargaining for better quality and more services, and pitting competitors against each other. The current stage of development of international companies is characterized not only by the emergence of global companies, but also by qualitative changes in the organization of activities.

Keywords: Transnational companies, globalization strategy, brand, international company, competitors, competition, segments, integration.

FMCG (Fast moving consumer goods) are products that are used and felt by the whole society worldwide. In the context of the growing role of leading multinational companies and the competition between them, effective branding is one of the key measures to increase a company's

competitiveness in world markets. The variety of trade areas and products enhances competition in different markets. From the point of view of the company's success, branding is more difficult and important.

In the modern world arena, globalization is deepening and more and more companies are entering international markets. Companies that start an international business face a number of challenges, as it is necessary to take into account a number of international factors that are different from those that exist in the company's local market. Brand management of international companies has a number of features related to the international environment, which are also important to meet these needs.

The paradox of the present is that there is a simultaneous intensification of the processes of integration and fragmentation in various spheres of public life. With the intensification of globalization, competition in the world market is intensifying. Along with transnational companies, more and more new sellers are emerging trying to penetrate the country's markets. This can be achieved by creating a world-renowned brand. At the same time, every nation has a system of values, attitudes and norms of behavior, expressed in a certain way within the socio-cultural environment. In such conditions, it is extremely important to ensure brand activity and adapt.

If a product is released or will go international in the future, a number of changes to the brand management policy that the company is forced to make are necessary for its success for the following reasons:

to differentiate the socio-cultural environment of different markets;

know that different markets are in different economic situations and at different levels of development;

know the different levels of development of brands;

know how to use goods in different ways;

accept the difference in the reaction of consumers to the same products, etc.

At the same time, a brand should ideally have the same name in every market, the same packaging, the same target group in each country, and be easily accepted by the population. For example, in about 80 countries around the world, Colgate-Palmolive toothpastes have the same product with the same name, motivation, advertising, packaging. A corporation that manages to apply the meaning of "One product, one application", which is optimal for an effective international brand, saves a lot of money. [1]

Currently, the main trend in the management of brands of an international company is the confrontation between globalization strategies and the adaptation of brands to the world market. This trend leads to a number of factors that need to be taken into account in the brand management of international companies.

All factors of the international brand management environment are divided into two main groups. (picture 1)

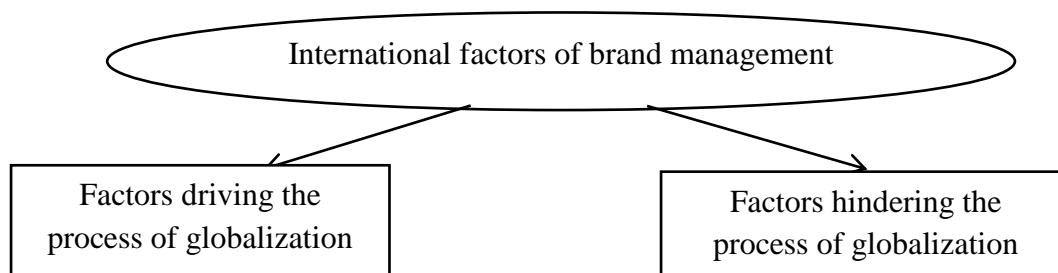


Figure 1. International factors of brand management.

The first group includes the factors that lead to globalization. One of these factors is the emergence of global segments in the market. All socio-cultural research emphasizes the convergence of lifestyles. There is less difference between executives and employees in Germany and Germany than among top executives in Germany and Germany. In addition, they operate worldwide as identification models. [2]

Organizational factors affect the brand management of an international company. For example, the centralization of the management of an international company directly affects brand policy. Concentrating the production of detergents for Procter & Gamble in one factory in Europe allows a standard product offer to be used everywhere, while at the same time spreading technical innovations to all countries. In markets where product preferences are the key to brand positioning, production, research, and development limit local differentiation [3].

Among the factors influencing the process of globalization are unexplored market segments. New, unexplored segments do not have a hereditary value system. Everything here needs to be recreated and the brand can fulfill this mission. Therefore, nothing can hinder the global marketing of high-tech goods, computers, the Internet, photographic equipment, electronic goods and telecommunications or services brands. The only point of reference in such markets is the brands themselves. The change only affects the themes of advertising campaigns, which are related to the need to take into account the level of economic development of the country. In general, globalization is possible and, of course, desirable in the markets around mobility. It is used for various media, hospitality, car rental, airlines, video and audio transmission [4].

In addition to the factors of globalization, there are also factors that hinder the process of globalization. These factors directly affect the brand management of an international company.

Intercultural differences are a key factor in consumers. Each national environment has certain customs, traditions, stereotypes, and therefore consumer preferences that are unique to that environment. This factor must be taken into account when choosing a brand name, packaging design, placement and marketing.

In modern conditions, a brand name has evolved from a simple identification of goods to a specific communicator of different values of the company in general and the brand in particular. [4]

When choosing a brand name, international companies tend to look for the best name that can be used in the world. But sometimes there are difficulties in choosing the optimal brand name. In the world practice, there are a number of examples of failed brand names when entering the markets of certain countries:

The Mitsubishi Pajero in Spain is an expression of "a slap in the face";

Ford Pinto in Latin America sounds like a "spy";

Fiat Uno in Finland means "pacifier";

The Fiat Regatta in Sweden is very similar to the word "crusher";

Fiat Marea in Spain is similar to the term "seasickness";

The Chevrolet Nova in Spain corresponds to the "immovable" combination.

In different cultures, even primary colors often have different meanings, which makes the task of achieving a common combination of color solutions very difficult. For this reason, when introducing a product to different countries, especially in the preparation of packaging and labels, it is necessary to find compatible solutions that are quite acceptable to consumers and acceptable to them in as wide a geographical area as possible.

In addition to the intercultural differences of consumers in different countries, there is also economic diversity. The level of economic development of different countries can vary significantly. Therefore, a company's brand management policy should take this factor into account. There are several approaches to solving this problem.

The first approach is to adapt products to markets. No one sells the same cars in China and Europe. For the Chinese market, car manufacturers are using simpler models.

The second approach is related to product line segmentation. For example, Arc International, the world's leading group of glassware, has divided the entire range into three sub-categories - casual, modern and formal, each with a positive name.

The third approach is the gradual introduction of innovations. Thus, the Danone group is positioned entirely in accordance with the concept of "health". This is a concept that is not broad enough to convey the same meaning in India and Scandinavia. In fact, Danone distinguishes three levels of development according to the three levels of market maturity: quality and safety, health and nutrition, and active health. Markets at each of these stages are offered to produce products that conform to a broader concept, such as 'health'.

In addition to the international aspects of brand management listed above, there is also a factor such as differences in categories. Although goods have the same name, they do not have the same meaning in any country. Thus, the same obvious product in different countries must be placed according to the meaning of a particular category that exists there.

For example, at first glance, Danone Yogurt, Danone Kid or Danone Bio can be sold to all customers in Europe in the same way. In France, simple yogurt is the standard - a symbol of health, fruits and flavorings were added later. In Anglo-Saxon countries, where there were no French-style pharmacies, yogurt was initially presented as a low-fat product with added fruit for enjoyment, and in this sense was a product for adults. As a result, the motivation to buy goods in the yogurt market in different countries is formed by completely different motives, which is related to how this market is created in these countries. Moreover, it is the result of excellent motivations that the same product is perceived differently in different countries [2].

In different countries, the same product may belong to different segments. In this situation, he builds relationships with different competitors and focuses on different goals. In Italy, for example, the small family car is the main vehicle in the automotive industry, yet it can accommodate all family members. The fact that this segment corresponds to the second and even third car of the family determines the emergence of structural expectations that are different from those in France. There is another problem with Germany: such a segment simply does not exist in this country.

Another factor hindering globalization is the problem of semantic differences. Sometimes, when the situation is completely different, you may get the impression that you understand the same

words. Simple words like "nature" and "prosperity" do not have the same meaning in such different countries. But even if they are understood in the same way, it is important to make sure that the same presentation of the concept is the best way to communicate in each country. For this reason, while Procter & Gamble remained in the overall strategy, the symbols of the concept of "shine" changed according to the culture of the country. In France, this was reflected using the idea of a mirror, while in the United States, the reflection of light from water was emphasized.

Another factor that companies entering foreign markets inevitably need to take into account is the difference in the laws and regulations of different countries. The laws governing the definition of products, the right to sell, the permitting, execution, and use of alcohol advertising vary considerably. Thus, none of the products sold by Danone USA can be presented as yogurt in the European Union - these products contain excessive starch and stabilizers, which does not allow the product to be classified as yogurt under the law.

In addition, there is competition between local companies. The success or failure of introducing a brand to foreign markets is also related to this. For this reason, one of the main tasks of managing the brands of an international company is to combat the entrenched regional prejudices that favor local brands over international brands, which is typical of the United Kingdom and the United States [6].

There are a number of other factors in international branding. Each factor affects the performance of a particular company in different ways. Everything depends on the organization's own characteristics, brand characteristics, geographical coverage. However, any degree of the above factors should be taken into account when managing the brands of an international company.

Thus, the following development trend can be observed in the management of brands of an international company. As in other functional areas of company management, the impact of two opposite processes - globalization and localization - can be traced in brand management. Every company that introduces its brand in a foreign market is faced with choosing one of these two directions and therefore develops a specific brand management strategy.

Intensity of Competition Among Existing Competitors: Competition between existing competitors is a way to deal with tactics such as price competition, advertising battles, new product launches, extended customer service, or guarantees to gain a favorable position. Competition arises when one or more opponents feel pressured or see an opportunity to improve their position. In many industries, a firm's competitive actions have a significant impact on its competitors, and thus the firm can retaliate or retaliate; In other words, firms are interdependent. The larger the number of companies, the more likely they are to find independent operators. On the other hand, if there are only one or very few companies in the sector, they can play a major role in regulating the sector. In addition, foreign competitors in the sector also play an important role in competition in the sector.

One of the important factors for effective competition in the sector is to reduce the costs of all activities of the enterprise while meeting the needs and expectations of customers with the products and services produced and the prices formed in the market. The point here is that the goal is not to lower the price given to the customer. In fact, in some cases, customers may be offered goods and services at low prices to increase the market share of the enterprise or to increase the share turnover ratio. But these are within marketing strategies and functional strategies. In a financial management strategy within trade management / competitive strategies, it is important to reduce costs in all activities, not to lower the prices of goods and services. Thus, the gap between prices and costs in the sector will increase, and the company will gain an advantage over its competitors by earning an average income. The main theme that defines the strategy is the low level of work in

general costs. For this reason, while other areas of competition, such as quality, time, and service, are not overlooked, management focuses on cost control. Therefore, it defines strategies for the production and distribution of goods or services by realizing operating costs at the lowest level compared to its competitors. Financial leadership includes the creation of economic-scale enterprises, strong cost discounts based on experience, strict cost and additional control, evasion of small customer accounts and R&D, service, sales staff, advertising, etc. Includes. In some areas, costs are minimized. In this regard, the implementation of financial leadership strategies.

High market share;

Access to raw materials so easily;

The products are relatively standard;

The economic scale of the work and the decline in the learning curve depend on the high price elasticity of the market. [7]

In its overall financial leadership strategy, the company seeks to operate at the lowest possible production and distribution costs to lower its price from competitors and expand market share. Businesses that follow this strategy should be good at engineering, procurement, manufacturing, and physical distribution.

Being in a cheap position provides the company with an above-average profit in the industry, despite the large competitive forces. Achieving a low overall cost position often requires advantages such as a higher share than competitors or easy access to raw materials.

The differentiation strategy encompasses development efforts based on quality. Differentiation aims to create something that is unique to the entire industry by differentiating the product or service that the business offers. Distinguish; can be a brand name or design, technology, features, customer service, retailer network or other dimensions. Ideally, the enterprise distinguishes itself in different dimensions.

Businesses that adopt a differentiation strategy strive to gain a competitive advantage by creating a unique product or service. Some common features of such organizations are strong marketing skills, great emphasis on product engineering and research and development, a corporate reputation for quality products, and the ability to easily attract highly qualified employees to the organization. There are different approaches to differentiation strategy: These are; design or brand image, technology, design, customer service and distribution networks. [8]

Being able to differentiate can sometimes prevent you from gaining a high market share. This requires an exception that is often incompatible with high market shares. However, more commonly, if activities such as intensive research, product design, high-quality materials, or intense customer support, which are required to achieve differentiation, are naturally costly, the difference is a cost concession.

A focused firm can potentially generate above-average returns for the sector. Attention means that the firm has a strategic goal, a high diversity, or a low-value position in relation to both.

Buyers compete in the sector by lowering prices, bargaining for better quality and more services, and pitting competitors against each other. If a small number of buyers buy a significant part of the product, if the products from the sector are standard or indistinguishable, if there are very few transition costs, there is little profit, if there is complete information, the market power buyers are high.

The current stage of development of international companies is characterized not only by the emergence of global companies, but also by qualitative changes in the organization of activities:

The main purpose of the activity in the conditions of the scientific and technological revolution and fierce competition is not to get the maximum profit. This indicator is currently ranked 5-6 in terms of priority. The main goal is to ensure financial sustainability and "market maximization".

It is important to create a global network of production and sales within the framework of a single global strategy of the company. At the same time, international companies are not satisfied with creating a complete production cycle in one country, but try to specialize each enterprise of the global network in the more rational production of individual parts and components. In this case, the final collection process is carried out in enterprises located in a more convenient location.

Expansion of the scale of the international division of labor within international companies will increase the production, research, sales, etc. of the company's scattered divisions around the world. based on horizontal and vertical integration of activities.

Material and intangible international production created by international companies has also acquired new qualities. Over the past decade, foreign direct investment by international companies in the service sector, including information, advertising, consulting services, and the development of science, has been growing rapidly.

The strategy pursued by international companies in the development of the extractive industry is based on a qualitatively new (global) combination of material, financial and human resources and is aimed at increasing labor productivity and increasing production efficiency. According to some estimates, the share of the extractive industry in 2025 will not exceed 10% of world GDP, but global needs will be fully met due to increased production efficiency.

Intra-company trade between divisions of international companies is developing intensively. It currently accounts for one-third of world trade.

Capital exports by international companies are aimed not only at increasing the number of foreign branches, but also at eliminating differences in the organization and technology of production in different countries. The quality of the company's products and services must meet world standards, regardless of the place of production.

International companies usually develop, transfer and use technologies within a closed corporate structure. At the same time, joint research centers and programs are being established to reduce the risks of competition, and cross-licensing with other companies (both partners and competitors) is being carried out.

International companies diversify their activities. Hybrid or complex forms of foreign economic activity are considered the most efficient form. In world practice, "lifreksding" - a complex combination of exchange of licenses, franchising, export of goods and foreign direct investment - is becoming more widespread. In the field of intangible production, there is a tendency to specialize in certain types of foreign economic activity (finance, sales, management, insurance, etc.).

There has been a merger and acquisition of international companies belonging to various national and international centers and the strengthening of their interaction in the form of strategic systems, families, alliances.

International companies trying to adapt to the world's three-pole model try to organize the activities of at least one large coordinator-enterprise in each center of the US-Western Europe-Japan triad.

Thus, modern international companies are large industrial and financial associations that are international in their areas of activity. They are based on the principles of centralized planning and management on a global scale and are actively involved in world trade, capital investment, technology exchange, production and scientific-technical cooperation, and labor migration. They

actively use the objective tendencies of the international division of labor, strengthen the process of internationalization in the world, and stimulate the emergence of new schemes in the global division of labor.

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SETTLEMENT DESIGN OF SETTLEMENTS

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ABSTRACT

The world's settlements cover an area of about 1 million square kilometers. The formation of settlements and their further development is primarily influenced by the geographical environment. That is why settlements differ from each other.

The main types of settlements are:

1. megacity,
2. conurbation,
3. agglomeration,
4. city, urban-type settlement and village.

In ancient times, people were nomadic because of their livestock. The development of agriculture and related settlements was a new stage in the development of the territories. However, in some parts of the world, some tribes are still nomadic, living in comas, tents, and hills.

Keywords: settlements, urban lands, public lands, land plot, urban, settlement and rural settlements, preparatory work, approval and discussion of the project, use of urban lands, rural farms.

Settlement - a part of the territory of the Republic of Azerbaijan (city, settlement, village) where the population is densely populated, has housing and other buildings and facilities necessary for their livelihood, a special island and the territory defined by the legislation. When designing residential buildings, as a rule, two levels of structural organization of the settlement area are taken into account:

- Micro-district (neighborhood) - residential area, 10-30 ha, not divided into main streets and roads, within which the service radius of daily use enterprises and organizations is not more than 500m (service radius determined by Table 5 of these norms) (except for educational and pre-school educational institutions), is a structural element of the living zone, the borders of which consist of main and residential streets, crossings and sidewalks, natural boundaries;
- The area of the residential area is a structural element of the settlement area of 80-150 ha. Within its boundaries, enterprises and organizations with a service radius not exceeding 1,500 m, as well as a certain part of urban facilities are located. The boundaries of the residential area, as a rule define natural and artificial boundaries, city-wide highways and roads.

Floor height (more or less high-rise) of buildings designed in the residential area should be determined on the basis of technical and economic calculations, taking into account the

architectural-compositional, social, hygienic, demographic requirements, relief and local conditions, construction base and level of engineering equipment. In cities located in 7-9-point districts, the floor of residential and public buildings should be determined taking into account the requirements of the city's architectural-planning and spatial solution and existing normative documents (CHuP II -7 and CH 429).

During the reconstruction of historically formed residential areas or neighborhoods, a comprehensive urban planning concept should be developed, which includes population density, national and local characteristics, location of engineering facilities and facilities, demolition of buildings that hinder architectural planning, floor heights of reconstructed buildings, the requirements for architectural solutions and construction materials to be used in their construction must be reflected.

Reconstruction of planning structure and streets, improvement of public service system, landscaping and beautification of the territory, maximum preservation of national identity of architectural appearance of residential and public buildings, their technical modification and overhaul, restoration of historical and cultural monuments during reconstruction of most residential areas and use in modern times should be considered. The volume of maintained or demolished housing stock is determined in accordance with the established procedure, taking into account its economic and historical value, technical condition, maximum maintenance of habitable housing stock and historically formed environment.

Depending on the existing conditions and local characteristics, the size of the land area of individual houses in cities and settlements should be agreed with the local executive or municipal authorities in the pre-project process and reflected in the duly approved Master Plan or detailed planning projects.

When determining the size of backyards, it is necessary to take into account the characteristics of urban planning (population density, relief, etc.), types of dwellings, the nature of the formed residential buildings and the conditions of their placement in the city structure.

Distances between residential, public and industrial buildings should be taken into account the requirements for insulation and lighting calculations based on insulation standards.

The distance between the long sides of 2-3-storey residential buildings (living space) should not be less than 15 m, on 4-storey - 20 m, and the distance between the long sides of these buildings and the side walls with windows in the living rooms should not be less than 10 m.

Residential buildings with apartments on the first floor, as a rule, should be located outside the red line, at a distance of not less than 6 m. Residential buildings located on the first floors or with public rooms attached to them, and in the case of reconstruction of the existing residential area, residential buildings with apartments on the first floor can also be located on the streets of local importance.

In the area of buildings with a yard area, houses can be placed on the red line, taking into account local traditions.

When designing residential areas in cities and settlements, the estimated population density (person / ha) in the territory of residential areas and micro-districts (neighborhoods) should be adopted on the basis of the indicators recommended in Annex 4 to these norms. However, the estimated density of micro-districts (neighborhoods), as a rule, should not exceed 450 people / ha.

When designing a residential area, the location of the sites should be taken into account, and their dimensions, distances to residential and public buildings should not be less than those shown in Table 1.

Lands of settlements include lands within the boundaries of cities, urban-type settlements and rural settlements. As indicated in the Land Code, urban lands include urban construction lands, public lands, lands used for agriculture within urban areas, and urban forest lands.

Residential, industrial, communal, cultural, household, commercial, administrative and other buildings and facilities have been built and the areas allocated for their construction constitute urban construction lands.

Squares, streets, crossings, roads, lands used for meeting the cultural and social needs of the coastal population and intended for such use (parks, forest parks, boulevards, stadiums, gardens, communes). is included in the composition of public lands.

Lands where agricultural lands are located, as well as lands used for the extraction of common minerals, are included in the composition of lands used for agriculture within urban areas.

The inclusion of the land plot in the boundaries of urban, settlement and rural settlements does not lead to the termination of the right of ownership, use and lease of the land. Administrative-territorial division and boundaries of settlements shall be determined and changed by the Milli Majlis of the Republic of Azerbaijan.

When conducting residential land cadastre, measures are usually limited to the registration of landowners and users. Only agricultural land, if required, is valued and economically valued.

The main feature of the land cadastre of settlements is that the measurement of their area requires very high accuracy, as it is given to landowners and users in very small areas. These measurements can be carried out only on large-scale master plans. Master plans of settlements also determine the main directions of use of lands of cities, settlements and rural settlements for the construction of housing, industrial, cultural and other facilities, identification and improvement of recreation areas of the population. Planning and construction projects developed on the basis of the master plan determine the use of land for construction. The total area of this category of lands in the country is 64,754 hectares, of which 63.5% falls on the Absheron and Aran natural-economic regions.

Identification and replacement of urban, settlement and rural settlements is a land management activity and has its own specifics. All lands within the boundaries of cities, settlements and rural settlements are under the authority of local governments.

Construction on the lands of cities, settlements, rural settlements; general use, agricultural use, nature protection, health, recreation and historical-cultural purposes; under forest, industrial, transport, communications, other lands.

City (settlement) boundary, border of rural settlements - are the external borders of a city, settlement, rural settlement that separate them from other categories. That land use is not borderline and has no appropriate legal or economic purpose; this is the administrative-territorial boundary (as the boundary of the administrative district). The lands within its boundaries are under the control of the administrative department, not in use or ownership. Within the boundaries of cities, settlements and villages, there are many areas of various purposes owned, used and leased. It does not include the so-called Buddhist areas used for the needs of a city or other settlement.

Sometimes land use includes part of the settlements and can be located on both sides of its borders. The inclusion of a land plot in the boundaries of settlements does not invalidate the right of ownership, use and lease of that land.

All lands of cities, settlements and rural settlements are used in accordance with the master plan, planning and construction project. Such plans and projects determine the main directions of their use for construction, landscaping and recreation of the population.

Land management works to determine the city (settlement) boundaries are carried out by the order of the city and settlement executive bodies with administrative-territorial status. The basis for this work is the decision of the relevant authorities.

Determination or change of city borders is carried out in the following order:

1. preparation of design assignment;
2. preparatory work,
3. project development;
4. Discussion and approval of the project.

1. It is specified in the design assignment:

- name of the project;
- basis for design;
- project customer;
- project developer;
- duration of project preparation or its separate stages;
- Information on the existing city boundary;
- information on modern use of the city's land fund;
- information on the territorial development of the city according to the approved master plan;
- Customer's proposal to determine or change the city boundary;
- sounding of research works indicating the area of their territory;
- environmental protection requirements;
- The content of the documents submitted to the customer, indicating the scale of the graphic part of the project.

Added to the soil:

- plan of the territory of the city and adjacent lands;
- speed of the general plan;
- information on the city's land use and intended lands not included in it (according to land registration documents);
- A list of available documents that can be used during design.

2. Preparatory work includes:

- collection of legal documents on the existing border;
- collection, preparation and unification of geographical documents;
- plan - extraction of the required number of speeds from cartographic documents;
- preparation of land registration documents or calculation of the city, land area by categories and land use, types of property;
- collection of statistical data on settlements included in the city border;
- study of the organization of the area and the management of the area close to the city;
- Clarification and study of the wishes and opinions of land management participants and other stakeholders;
- other work depending on the characteristics of the project.

The city boundaries project includes:

- project plan,
- Explanatory text
- Auxiliary drawings

The project plan is shown on a scale of 1: 2000, 1: 5000, 1: 10000, 1: 25000, depending on the area of the city.

When designing the project, special attention is paid to the following justifications:

- Possibility to include industrial enterprises, as well as residential areas located along urban lands within the city boundaries;
- Expediency of extracting agricultural ugodia from urban lands;
- The importance and expediency of expanding the territory of cities at the expense of agriculture.

The inclusion of agricultural enterprises in land boundaries may be rare. In this case, their agricultural use should be taken into account, and the principle of priority of agricultural land use should be followed. Once these lands are included in the city limits, they can often be used for their former purpose (sometimes for a long time), but sooner or later they may be needed for urban construction.

During the design, it is also necessary to check the justification of the size of the urban area, to determine how purposefully it is used.

The project plan of the city borders shows:

- Existing city boundary or existing boundary;
- Modern use of lands by categories, land users, forms of ownership;
- Modern use of neighboring lands included in the city boundary;
- Project solutions of the approved city master plan or other town-planning documents, which serve as a basis for defining and changing city boundaries;
- Designed city boundaries;
- Description of lands adjacent to the city;
- Explanation of the city's lands, indicating the existing and included areas.

The explanatory text includes:

- City,
- existing city boundaries,
- Categories of lands,
- land ownership,
- land use,
- information on the type of application;
- Explanation of the approved master plan and other urban planning documents justifying the development of the urban area;
- project solution and its justification:
- inclusion or removal of lands, inclusion of settlements, industrial enterprises, socio-cultural enterprises, engineering supply system;
- Explanation of included and removed lands;
- final balance of urban lands by project categories, land ownership and land use;
- description of the city project boundary.

Project review and approval documents are attached to the explanatory text. The project is agreed with local administrative, architectural and urban planning, land management bodies, land users and landowners. Within the city limits, two different project documents are prepared depending on the nature and content of its territory:

1. On lands occupied by constructions or intended for these purposes - perfect planning and construction project;
2. On lands with no buildings or temporarily not built - the project of land management of the city.

The project of land management of the city consists of two parts: the plan of land management of the city, covering the basic rules of use and development of the territory of the city, as well as

assignment and schedule schemes of engineering training of the area; Perfect land and economic project of the city structure, consisting of projects of internal structure of forest park zones, parks, gardens, floriculture and other farms, as well as working projects on construction and reclamation, agro-technical and other measures.

The land management plan determines the distribution of urban land plots by land ownership and land users according to their purpose, type and period of use. According to its content and purpose, this is an inter-farm land use project (scheme). This includes:

- Distribution of urban lands by type of use, duration of use, land ownership and land users;
- Organization of land ownership of agricultural enterprises and efficient use of agricultural lands;
- Location and organization of green plantations: forest parks, gardens, protective plantings;
- Organization of sports and recreation areas;
- Location of garden areas, sanatoriums, local resorts;
- Rational use of water and other resources;
- Construction of reservoirs, measures to protect against landslides, avalanches, washing away;
- Organization of suburban trunk network and utility roads;
- Other measures for the organization of land management in the city.

The perfect project of land and economic structure is a generalized form of on-farm project of the territory created on separate and existing objects in the city territory. They include:

- forest parks,
- culture and recreation parks,
- bonds,
- agricultural enterprises, etc.

Once the city's land management plan is approved, it is transferred to nature.

Settlement



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BILINGUALISM IN THE INDEPENDENT TURKISH STATES

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ABSTRACT

Bilingualism is one of the forms of language survival, development and functioning and differs from natural and artificial (taught) according to the nature of the conditions for mastering the second language. There are contact (contact) and non-contact (non-contact) types of bilingualism in Turkish languages. Contactless bilingualism in the global society is gaining wide scope in connection with the educational process. In all independent Turkic states there are forms of unilateral and bilateral bilingualism.

The natural bilingualism observed in the Turkic states is rapidly lagging behind artificial bilingualism. In the 21st century, the active mastering of the internet space, the rapid growth of communication in social networks lead to the intensive formation of a single dictionary consisting mainly of English vocabulary, terms and idioms.

In modern Azerbaijan, bilingualism remains a personal choice of the majority of the population. This once again confirms the fact that multicultural Azerbaijan, which is on the path of development at a high political, economic and cultural level, has the most democratic republican method of governance.

Despite the large number of ethnic groups in Turkey, the entire population is able to communicate with each other in Turkish. In Kyrgyzstan, the Russian language is used in official business communication, and in the field of higher education, the Kyrgyz language has only just begun to be used. In Turkmenistan, the upper and lower variants of diglossia are observed. And in Kazakhstan, bilingualism has established itself as the most important direction of the culture of interethnic communication in general, Kazakhs use Russian as their second native language.

Some researchers are trying to substantiate that those who speak different Turkic languages understand each other well enough. But in essence, this is not a fundamental idea. For many years, interactions between Turkic ethnic groups and non-Turkic ethnic groups have led to interference (cases of deviation from the norm). By creating a common Turkic alphabet, lexicography and terminology, it is possible to restore the linguistic unity of the Turkic languages and prevent the process of interference.

Keywords: functional division of languages, ethnic homogeneity, contact bilingualism, non-contact bilingualism, natural and artificial bilingualism

Introduction: As a result of the mutual influence of languages in a globalizing society, bilingualism has acquired a wide scope and is considered an urgent problem in linguistics. At present, almost all the countries of the Turkic world are multinational. Azerbaijan, Turkey, Kazakhstan, Kyrgyzstan, Uzbekistan and Turkmenistan are independent Turkic states. Russian (Cyrillic) alphabet and the Russian language were the main means of communication in the Turkic communities that were once part of the USSR (all except Turkey). At that time, the main idea was

to assimilate the turkish language, turkish culture and turkish writing in order to bring the turkic communities into slavery.

As a result of long-term formations in society, there were processes of crossing, merging, and interpenetration between languages, and these processes continue today. Bilingualism is one of the basic concepts of the theory of language relations and consists in the fact that certain groups of the population can speak two or more languages.

The basis of the modern theory of language and bilingualism in linguistics is the work of many scientists and researchers. Of these, L. Bloomfield, W. Weinreich, and E. Gaughan's works are specially selected.

At. Weinreich distinguished three types of bilingualism: composite or mixed (when the systems of two languages create something in common); coordination (when the systems of two languages are relatively independent); subordination (subordination-through the first system, the second language system is studied) [6, s.25].

According to B. A. Serebrennikov "the results of language relations are so diverse and significant that in some cases they lead to different types of word formation, in others-to the convergent development of mutual languages, to the formation of auxiliary "common" languages, and sometimes to language assimilation" [14, s. 285].

Under the concept of bilingualism, Uriel Weinreich means "the ability to communicate in two languages and use them alternately depending on the conditions of speech" [5, s.22], and Vereshchagin - "the ability to use two language systems for communication"[7, s.19]. A. Leontiev notes that "being a bilingual means being able to carry out speech activity based on"the closest social environment, the purpose of communication, the awareness of the interlocutor and the use of such language means, while having a more or less free choice of language for communication"[13, s.252-254].

Bilingualism is a form of language survival, development, and functioning. In practice, there is rarely a case of mastering two languages at the same level, since it is impossible to use two languages at the same level, both in the family, in education or in a team. In this regard, bilingualism by the nature of the conditions for learning a second language is distinguished between natural and artificial (learner). The formation of natural bilingualism occurs under the following conditions: the presence of a language environment, unlimited communication time, a natural state of communication, an abundance of speech experience in various situations.

In contrast to natural bilingualism, artificial bilingualism is formed in the absence of a language environment in teaching, when there is a systematic presentation of language phenomena within the framework of program topics, purposeful learning based on lesson situations, communication time, limited speech experience, in the conditions of a professional teacher who conducts purposeful work on errors in accordance with specific teaching methods [8, s.12].

V. N. Telia writes that "the words of artificial bilingualism are "dead", which have no signs for language consciousness, do not find an emotional response to the language of personality. This is a conversation "with a foreign voice", there are no cultural connotations behind such foreign-language words" [15, c. 27].

The main text. The object of research in linguoculturology is linguistics based on the material of bilingualism, sociology based on the internal reasons for its emergence and functioning in society, from the point of view of studying the worldview formed through a particular national language.

Bilingualism has its advantages and disadvantages. Bilingualism is a great advantage for native speakers of both languages. However, bilingualism should be monitored and intervened if necessary. Studies also show that bilingual people are more successful in social life. Bilingualism provides people with very important advantages for achieving success in both the economic, social and educational spheres. Bilingualism has a positive effect on children's mental abilities. Bilingual people are able to conduct more intensive language analysis and distinguish the meaning of words 3-4 years earlier than their sounds. In addition, bilingual people are more successful than others in finding contradictory structures, understanding and interpreting hypotheses [2, p. 29]. Bilingual people are more successful in terms of socialization than monolingual people.

The disadvantages of bilingualism are observed in the cultural and social spheres, which are more part of public life. People are unable to fully master the formal language they are learning, which in turn affects students' academic performance and their relationships with other people in society. Sometimes difficulties in the process of communication of an individual arise as a result of the fact that one language, acting on another language, weakens it. In addition, a person who is just beginning to learn a foreign language, first tries to learn the features of this language in accordance with the norms of their native language, and the first native language is manifested in two situations in relation to the language being studied. In the first case, both languages have similar characteristics, and these characteristics have a positive effect on learning a new language. In another case, the existing norms of the native language create obstacles to learning a new language, there are interference occurs.

Azerbaijan, the first democratic republic of the East, is a multinational state, and today more than 100 ethnic groups live in our country. More than 90% of the population is Azerbaijani. In Azerbaijan, which is a multicultural country, the Azerbaijani language has become the second native language not only for small ethnic groups, but also for such numerous and developed nations as Russians and Tatars living in our republic. Despite the fact that the Azerbaijani language is the state language in our country, the language in which the personality speaks, his free education is given to his choice and no restrictions are imposed on it.

In modern Azerbaijan, bilingualism remains a personal choice of the majority of the population. This once again confirms the fact that multicultural Azerbaijan, which is on the path of development at a high political, economic and cultural level, has the most democratic republican method of governance.

A. Rajabli distinguished the forms of one-sided and two-sided bilingualism [1, s. 356]. One-sided bilingualism-small peoples, mastering the language of the state in which they live, along with their native language, use its phonetic, lexical and grammatical norms in their speech, which leads to a violation of the norms of their native language. In Azerbaijan, all the few nations, due to good-neighborly relations, the educational process, television broadcasting and other reasons, master the Azerbaijani language, which is the official state language. Azerbaijanis living in Iran (South Azerbaijan), Dagestan, Georgia and Russia, master the official state language on their territory and live in conditions of contact one-sided bilingualism.

Bilateral bilingualism is when both parties learn each other's language. Russian freely communicate with Azerbaijanis in Russian in the capital of Baku and in a number of regions of Azerbaijan, which is an example of bilateral bilingualism. Note that unlike one-way bilingualism, two-way bilingualism does not involve the process of the mother tongue disappearing and changing the language.

There are contact (contact) and non-contact (non-contact) types of bilingualism. Contact bilingualism arises in the course of everyday life together, communication between the two peoples and is inherited by future generations. Contact bilingualism manifests itself in small-numbered natives. Non-contact bilingualism manifests itself through the special study of a second language (education). Languages (russian, english, chinese, german, arabic, etc.) taught in preschool, secondary and higher educational institutions of Azerbaijan, depending on the preferences

In Turkey, the turkish language is officially used in a wide range, acting as the main means of forming bilingualism even outside the country. Thus, more than 80% of the population writes and communicates in Turkish. Unilateral and bilateral forms of bilingualism are also evident in Turkey. One-sided bilingualism: an example is the bilingualism that arose as a result of Syrians living in Turkey who fled the Syrian Civil War that began in 2011, and the rapid growth in the number of their children. Syrian children have 2 forms of bilingualism: "simultaneous bilingualism", when children with turkish and arabic-speaking parents learn both languages at the same time, and "sequential bilingualism", when a child learning arabic before 3-4 years of age learns turkish after the beginning of the preschool period. Regularly, along with arabic, turkish becomes the second native language for syrians living in Turkey. This is also influenced by the fact that the turkish language plays a crucial role in marriage, social life, and education.

Here, the largest ethnic group living in the country after the turks are kurds (15,75%), in Istanbul alone about 3 million kurds live. 12% of them speak Kurdish (Kurmanji) as their mother tongue, while the second best known language is turkish. This is a one-sided form of bilingualism. Although it does not recognize minorities legally, the state allows the official TRT channel to produce radio and television programs in different languages spoken by minorities.

Bilateral bilingualism has also become widespread in Turkey. For example, a child with german parents communicates in the family in German, and in society-in Turkish. Thus, bilingualism plays an important role in the development of people's thinking systems, as well as in building their social relationships.

Rolfs combined the elements associated with bilingualism and thus characterized the features associated with bilingual people: he can use two languages together; knows one language better than the other; knows and understands two languages; thinks and feels in both languages; retains his native language; has a rich source.

Recently, Turkmenistan has become a part of the muslim world, forgetting about the Russian and Soviet past. Boards all over the country only in the native Turkmen language and in English, the Soviet education system, and with it the mass bilingualism, are disappearing.

according to 2007 estimates, 85% of turkmens, 5% of uzbeks, 4% of russians, and 6% of other minorities live in the country. Since about 1940, the russian language has been used in many spheres of society in Turkmenistan. Russian was used as the official language, the language of higher education and science. Most of the turkmens spoke russian as a second native language. This led to the influx of a significant number of lexemes of russian origin into the turkmen language. The pressure of the russian language was so great that in 1991 a large group of ethnic turkmens who did not speak the turkmen language lived in Turkmenistan.

Currently, turkmen, uzbek and russian languages are widely used in communication in Turkmenistan. There is a high variant (prestige) and a low variant (without official status) in associations with diglossia (bilingualism), in Turkmenistan. The lower option manifests itself at home, in the family, in communication with acquaintances, while the upper option is one that is

supported and used by institutions such as schools and the government. These options are related [3, s.31].

Kazakhstan is also multinational turkicstate, and bilingualism is more common in multinational societies. Although the official language of the country is kazakh, the russian language at all levels, including administrative affairs, has an equal status. People of different nationalities live in Kazakhstan in a large friendly family form, get acquainted with the languages of people of other nationalities and learn their languages. According to a sociological survey conducted by R. B. Obsattarov and T. S. Sadikov among 1392 people from 5 provinces of Kazakhstan, "each respondent said that he lives in the neighborhood with representatives of at least five different nationalities: 83.1% of respondents among representatives of other nationalities are close friends, more than 50% are close relatives, 91.9% invite people of other nationalities guest, and they themselves are going guest too" [4, s. 15].

Currently, bilingualism in Kazakhstan has established itself as the most important direction of the culture of interethnic communication in general. In Kazakhstan, russian is the second native language for kazakhs and for many uighurs living on a huge area, the kazakh language is the second native language. And the russian language is a means of interethnic communication.

Kazakh-russian bilingualism is thoroughly studied in the works of such kazakh scientists as K. M. Baibulsinov, M. Kopylenko, Z. K. Akhmedzhanov, M. T. Tezekbayev, B. Kh. Hasanov.

K. Akhmedzhanov, H. B. Azhmukhambetov, M. S. Bekturov, K. Belalieva, Zh. K. Aydynbekov, R. E. Valikhanov, B. Bisenbayeva, F. H. Grishko, V. A. Isengalieva, M. S. Seyidov and other linguists studied russian and kazakh bilingualism in a comparative aspect [17, s. 2].

The Constitution of the Republic of Kyrgyzstan, which is an independent Turkic state, defines kyrgyz as the state language, but the official language is russian. Kyrgyz society is very multilingual. Kyrgyzstan is home to about 100 ethnic groups, except for the main kyrgyz. The largest of them are uzbeks (about 14 %) and Russians (more than 7%). The linguistic situation in the country confirms the idea of L. P. Crisin that "in a multilingual society, communicative functions are distributed among different languages" [11, s.61–64].

The functional distribution of languages in a country directly depends on the quantitative ratio of ethnic groups, the density of their residence in a particular region. Thus, the uzbek population lives compactly in the south of the country next to the kyrgyz. Accordingly, there is a mutual communication of the kyrgyz and uzbek languages. Here, the functional areas of the kyrgyz and uzbek languages are distributed relatively evenly. Newspapers are published in both languages, radio and television broadcasts are broadcast, and both languages are used in cultural and entertainment spaces (theater, cinema, etc.). But there is an area where the balance between these languages is broken in favor of the uzbek language. This is the field of professional education (especially higher education).

In the south of the republic, there are secondary and higher educational institutions where education is conducted in the uzbek language. However, in the field of higher education, the kyrgyz language is just beginning to be used. In the kyrgyz education system, Russian is used in many professional educational institutions, especially those that are not humanitarian in nature. Russian is more intensively used in official business communication.

In remote rural regions, either kyrgyz or uzbek mono-linguistics is observed in everyday communication. And in the southern regions of the republic, kyrgyz-uzbek bilingualism is evident.

The language situation in the northern part of the republic differs significantly from the situation in the south of the republic. It is also defined by ethnic homogeneity. For example, in rural areas

where only the kyrgyz population lives, he uses only the kyrgyz language. In places of compact residence of dungans, turks, uyghurs, the native language of these ethnic groups is used as the language of communication. Among the younger generation, preference is given to the simplified colloquial form of the russian language. As we move away from the capital of the republic, the russian language is already lagging behind the kyrgyz language of interethnic communication. Bilingualism persists in the capital of the republic and in 2 nearby cities where the non-russian population (kyrgyz, dungans, uyghurs, turks, etc.) still lives. Russian, along with kyrgyz, serves as the language of interethnic communication in cities.

In regions where there is ethnic homogeneity, the kyrgyz language is relatively pure. The relative purity of the kyrgyz language is due to their lifestyle and modern conditions.

Russian language components are introduced into the everyday speech of the kyrgyz people mainly due to television, where many entertainment programs of the population are listened to in russian, the neighborhood with other ethnic groups (communication with them is mostly based on russian), the level of education of a significant part of the population in russian. In the south of the republic, television broadcasting is conducted in parallel in the kyrgyz and uzbek languages. Uzbek music, uzbek dances, performances, and films in the uzbek language are very popular among the kyrgyz people. In addition, in the southern part of the country, the most important place of communication is the “bazar” (market) with all the attributes of eastern trade, and there is an active mixture of kyrgyz and uzbek languages, resulting in a hybrid kyrgyz-uzbek language with characteristic intonation, lexical and grammatical features.

Russian language has retained its basic literary norms, is practically devoid of dialect influences, and is not subject to the radical influence of local languages, despite the fact that the number of russian population in Kyrgyzstan has significantly decreased over the past 20 years.

The bilingual consciousness of a bilingual person is always tense, it reacts to the language message of the interlocutor, the language content of the audience as a sensory mechanism to external signals indicating the areas of use of the language.

The official language of the independent turkic state of Uzbekistan is uzbek language. Uzbeks also live in Afghanistan, Tajikistan, Kyrgyzstan, Kazakhstan, Turkmenistan and Russia. During the Soviet era, most of the population of Uzbekistan knew russian, which had a great influence on the uzbek language. Bilingualism in Uzbekistan is gaining momentum: most people who speak russian and uzbek confuse these languages and make mistakes in communication. Also in the neighboring regions of Uzbekistan and Tajikistan, uzbeks know tajiks, and tajiks know the uzbek language and communicate freely.

Lexical interference is widespread in the uzbek language. For example, the first part of some widely used expressions among uzbeks and russians was taken from the russian language, the second part from the uzbek language: “Mozqi *kompas* kerak *emas*” - “Не надо “компостировать” мне мозги (don't "compost" my brain). Here, the word “kompas” has been specially reworked to create a rhyme with the word “emas”.

Often, russians also jokingly use these words and expressions during a conversation and pronounce them with a clearly exaggerated uzbek accent. “Мен *xoroshiyman*” (я *xopoшuuй* - I'm good). Adjectives in russian are used with the addition of the suffix -man.

“Kalyaysan? Jiv-zdarov-mi san?” – “Как дела? Жив-здоров?” (How are you? Alive and well?) and here the particle -mi is added to the adjective.

Devushkaxon – this is how an uzbek addresses a russian girl. The suffix -xon is added to female and male names, and this particle gives the name a sign of respect, for example, Guzalxon,

Natashaxon, etc. The suffix –жон is used when referring to the expression of respect and affection in names: Dimajon, Vanyajon [16, s.158].

Conclusion. In the article mainly used the descriptive method. The comparative-counter method was used to identify the forms of bilingualism in the Uzbek language. In addition, the study also used an empirical method based on objective observations.

In Soviet society, where the Russian language served as a means of interethnic communication, almost all representatives of non-Russian nationalities knew Russian as a second native language and used it along with their native language in social and political life, in the process of education and training. And at present, small ethnic entities and peoples, in addition to their native language and Russian, also accept the language of the people who make up the majority in the republic in which they live.

Today, due to the development of science, technology and other industries, English as a global language is used around the world ambiguously. It is known that a person who speaks other languages in addition to his native language, having the opportunity to communicate with many people, get to know their history and culture more closely and deeply, is able to form as a useful person, provided that the political interests of his state and nation are protected. In a globalizing society, bilingualism is a dynamic, phenomenal process, like the ability to use a second language to communicate.

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ADR AS A SPEEDY TOOL OF JUSTICE DELIVERY SYSTEM: GLIMPSES FROM INDIA

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“The bank of Justice shall not be bankrupt”. This is only possible if we develop effective and efficient mechanism of alternate dispute resolution by setting up of extra mediation centers at all level in the society..... **Martin Luther King**

"To be, or not to be: that is the question: ...For who would bare the whips and scorns of time, the oppressor's wrong, the proud man's contumely, the pangs of despised love, the law's delay"..... **William Shakespeare**

“I had learnt the true picture of law. I had learnt to find out the better side of human nature and to enter men's heart. I realised that the true function of a lawyer was to unite parties riven as under. The lesson was so indelibly burnt into me that a large part of my time during the twenty years of my practice as a lawyer was occupied in bringing about private compromise of hundred of cases. I lost nothing thereby-not even money-certainly not my soul.”..... these lines were said by **Mahatma Gandhi (the father of India) in the context of ADR as a mode of settlement of dispute in India**

The Objective of the Paper: The objective of my paper is to know the importance of various modes of justice (within the four walls of the court and outside the boundry of the court) in a society. The paper has been divided into two parts. In the first part, I have taken the meaning, importance, features of ADR and in second part of the paper as a teacher of law I have taken the role of budding advocates in the class rooms (Moot- Courts), courts rooms (Judicial System of Nation) and in the society (Torchbearer). It is pertinent to mention here about the pendency of court cases in India. In the Apex Court of the land (Supreme Court of India) more than 50,000 cases are pending, in various High Courts of the nation more than 3 Lac and in Subordinate Courts more than 3 crore cases are pending. It signifies the lacuna in the judicial system, for which ADR as a tool can be boon for the citizens of the nation.

Research Methodology: I have selected doctrinal mode for writing this paper. Various books have been referred and articles from various scholars have been gone through for collection of the data.

Introduction: Today we are living in civilized society. Being a welfare state, Justice is the foundation and object of any civilized society. The quest for justice has been an ideal which mankind has been aspiring for generations since time immemorial. ADR is not a recent phenomenon as the concept of parties settling their disputes themselves or with the help of third party, is very well-known to ancient India. Disputes were peacefully decided by the intervention of Kulas (family assemblies), Srenis (guilds men of similar occupation) and Panchyats (Elected five members in a village) System. The system had got a great respect because of the popular belief that they were embodiment of voice of God and therefore had to be accepted and obeyed unquestionably. In the course of time this mode of divine dispensation of justice through Panch

Parmeswar underwent radical changes with the changing pattern of society and growth of human knowledge and civilisation. (1)

“Equality is the basis of all modern systems of jurisprudence and administration of justice. In so far as a person is unable to obtain access to a court of law for having his wrongs redressed or for defending himself against a criminal charge, justice becomes unequal. Unless some provision is made for assisting the poor men for the payment of Court fees and lawyer’s fees and other incidental costs of litigation, he is denied equality in the opportunity to seek justice.” (2)

Meaning and Objectives of ADR: Interminable, time consuming, complex and expensive court procedures impelled jurist to search for an alternative forum, less formal, more effective and speedy for resolution of disputes avoiding procedural claptrap and this led them to search a tool which is known as ADR. (3) Alternative dispute resolution (ADR) includes processes and techniques that act as a means for disagreeing parties to come to an agreement. It is a collective term for the ways that parties can settle disputes, with (or without) the help of a third party. (4)

The utility of ADR in resolving the problems of the traditional litigation system has been emphasized and the focus has also been placed to teach the system to law students in such a way that they can take the torch to the streets of needy citizens relating to the justice.

The primary object of ADR movement is avoidance of vexation, expense and delay and promotion of the ideal of “access of justice” for all. ADR system seeks to provide cheap, simple, quick and accessible justice. ADR is a process distinct from normal judicial process. Under this, disputes are settled with the assistance of third party, where proceedings are simple and are conducted, by and large, in the manner agreed to by the parties. ADR stimulates to resolve the disputes expeditiously with less expenditure of time, talent money with the decision making process towards substantial justice, maintaining confidentiality of subject matter. So, precisely saying, ADR aims at provide justice that not only resolves dispute but also harmonizes the relation of the parties. The rationale behind the adoption of a system of ADR is undoubtedly the need to find a method of circumventing and eventually effacing the tremendous problems which beset the litigative system. (5)

“The harsh truth is that we may be on our way to a society overrun by hordes of lawyers, hungry as locusts, and bridges of Judges in numbers never before contemplated. The notion-that ordinary people want black robed judges well-dressed lawyers, fine paneled court rooms as the setting to resolve their disputes, is not correct. People with legal problems like people with pain, want relief and they want it as quickly and inexpensively as possible”. (6)

Main Features of ADR system: 1. Reliable information is an indispensable tool for adjudicator. Judicial proceedings make halting progress because of reluctance of parties to part with inconvenient information. ADR moves this drawback in the judicial system. The truth could be difficultly found out by making a person stand in the witness-box and he pilloried in the public gaze. Information can be gathered more efficiently by an informal exchange across the table. Therefore, ADR is a step towards success where judicial system has failed in eliciting facts efficiently.

2. In Mediation or Conciliation, parties are themselves prodded to take a decision, since they are themselves decision-makers and they are aware of the truth of their position, the obstacle does not exist.

3. The formality involved in the ADR is lesser than traditional judicial process and costs incurred is very low in ADR

4. While the cost procedure results in win-lose situation for the disputants parties.

5. Finality of the result, cost involved is less, the time required to be spent is less, efficiency of the mechanism, possibility of avoiding disruption.

Administration of Justice involves protection of the innocent, punishment of the guilty and the satisfactory resolution of disputes.

The world has experienced that adversarial litigation is not the only means of resolving disputes.

- Congestion in court rooms,
- Lack of manpower
- Delay and Cost,
- Procedure speak out the need of better options, approaches and avenues.

Alternative Dispute Resolution mechanism a click to that option.

Various Tools of ADR:

- Arbitration
- Mediation
- Conciliation/Reconciliation
- Negotiation
- Lok Adalat (Peoples's own Court)

ADR can be broadly classified into two categories; court-annexed options (it includes mediation, conciliation) and community based dispute resolution mechanism (Lok-Adalat).

Various functions of ADR: 1. ADR is not to supplant altogether the traditional legal system, but it offers an alternative form to the litigating parties.

2. ADR tends to settle the disputes in a neutral and amicable fashion.

3. ADR can be seen as integral to the process of judicial reform signifying the "access to justice approach".

4. The very raison d'être of the ADR is an effort towards the etiology of malise and its elimination rather than treatment of its symptoms. That means, this approach seeks for a better and longer lasting solution.

5. ADR can be viewed as a compromise where non loses or wins, but everyone walks out a winner.

Glimpses from Indian Prespective: Preamble to our Constitution reflects such aspiration as "justice-social, economic and political". Article 39-A of the Constitution provides for ensuring equal access to justice. (7)

This has been rightly said that: 'An effective judicial system requires not only that just results be reached but that they be reached swiftly.' But the currently available infrastructure of courts in India is not adequate to settle the growing litigation within reasonable time. In this context, there is an imminent need to supplement the current infrastructure of courts by means of Alternative Dispute Resolution (ADR) mechanisms.

"While reforms in the judicial sector should be undertaken with necessary speed, it does not appear that courts and tribunals will be in a position to hear the entire burden of the justice system. It is

incumbent on government to provide a reasonable cost as many modes of settlements of disputes as are necessary to cover the variety of disputes that arise. Litigants should be encouraged to resort to alternative dispute resolution so that the court system proper would be left with a smaller number of important disputes that demand judicial attention.” (8)

The Indian Arbitration and Conciliation Act of 1996 marked an epoch in the struggle to find an alternative to the traditional adversarial system of litigation in India. It heralded the dawn of a new regime of negotiated settlement and consensual dispute resolution, as a means of combating the insuperable impediments posed by the decrepit and anachronistic civil justice system. (9)

ADR was at one point of time considered to be a voluntary act on the part of the parties which has obtained statutory recognition in terms of CPC Amendment Act, 1999, Arbitration and Conciliation Act, 1996, Legal Services Authorities Act, 1997 and Legal Services Authorities (Amendment) Act, 2002. The Parliament apart from litigants and the general public as also the statutory authorities like Legal Services Authority have now thrown the ball into the court of the judiciary. What therefore, now is required would be implementation of the Parliamentary object. The access to justice is a human right and fair trial is also a human right. In some countries trial within a reasonable time is a part of the human right legislation. But, in our country, it is a Constitutional obligation in terms of Art.14 and 21. The Family Court Act, 1984 was enacted to provide for the establishment of Family Courts with a view to promote conciliation in, and secure speedy settlement of, disputes relating to marriage and family affairs and for matters connected therewith by adopting an approach radically different from that of ordinary civil proceedings. Section 9 of the Family Courts Act, 1984 lays down the duty of the family Court to assist and persuade the parties, at first instance, in arriving at a settlement in respect of subject matter. (10) The concept of employing ADR has undergone a sea change with the insertion of S.89 of CPC by amendment in 2002. As regards the actual content, section 89 of CPC lays down that where it appears to the court that there exists an element of settlement, which may be acceptable to the parties, the Court shall formulate the terms of the settlement and give them to the parties for their comments. On receiving the response from the parties, the Court may formulate the possible settlement by means of arbitration, Conciliation; Judicial Settlement including settlement through Lok Adalats; or Mediation.

Meaning and Definition of Arbitration: Arbitration is a reference to the decision of one or more persons, either with or without an umpire, of a particular matter in difference between the parties. (11) An arbitration therefore means the submission by two or more parties of their dispute to the judgement of a third person called the arbitrator and who is to decide the controversy in a judicial manner. (12)

Supreme Court started issuing various directions as so as to see that the public sector undertakings of the Central Govt. and their counterparts in the States should not fight their litigation in court by spending money on fees, counsel, court fees, procedural expenses and waiting public time. (13)

It was held that public undertaking to resolve the disputes amicably by mutual consultation in or through or good offices empowered agencies of govt. or arbitration avoiding litigation. GOI directed to constitute a committee consisting of representatives of different depts. To monitor such disputes and to ensure that no litigation comes to court or tribunal without the Committee's prior examination and clearance. The order was directed to communicate to every HC for information to all subordinate courts. (14)

Rule 4 of the Alternative Dispute Resolution and Mediation Rules, 2003”, lays down that the Court has to give guidance to parties (when parties are opting for any mode of ADR) by drawing their attention to the relevant factors which parties will have to take into account, before they exercise their opinion as to the particular mode of settlement. The Rule also says that Disputes arising in matrimonial, maintenance and child custody matters shall, among others, be treated as cases where a relationship between the parties has to be preserved.

Different modes of justice delivery mechanism of ADR: The Constitution of India calls upon the state to provide for free legal aid to ensure that opportunities for securing justice to all citizen. India socio-economic conditions warrant highly motivated and sensitized legal service programs as large population of consumers of justice (heart of the judicial anatomy) are either poor or ignorant or illiterate or backward, and as such, at a disadvantageous position. The State, therefore, has a duty of secure that the operation of legal system promotes justice on the basis of equal opportunity. Alternative dispute resolution is, neatly, worked out in the concept of Lok Adalat. It has provided an important juristic technology and vital tool for easy and early settlement of disputes. It has gain proved to be a successful and viable national imperative and incumbency, guest suited for the larger and higher section so the present society of Indian system. The concept of legal services which includes Lok Adalat is a “revolutionary evolution of resolution of disputes”. Lok Adalats provide speedy and inexpensive justice in both rural and urban areas. They cater the need of weaker sections of society. The object of the Legal Services Authority Act, 1987 was to constitute legal services authorise is for providing free and competent legal services to the weaker sections of the society; to organise Lok Adalats to ensure that the operations of the legal system promoted justice on a basis of equal opportunity.

The great advantage of arbitration is that it combines strength with flexibility. Strength because, it yields enforceable decisions and is backed by judicial framework which, in the last resort, can call upon the coercive powers of the state. Flexible because it allows the contestants to choose the procedure which fit nature of the dispute and the business context in which it occurs.

Meaning and definition of Mediation: The use of the term mediation is well known in International Law. It is the technical term in international law which signifies the inter position by a neutral and friendly state between two states to restore peace. (15) Mediation can be defined as a process to resolve a dispute between two or more parties in the presence of a mutually accepted third party who through confidential discussion attempts to help the parties in reaching a commonly agreed solution to their problems. The biggest advantage of mediation is that the entire process is strictly confidential. Mediation saves time and financial and emotional cost of resolving a dispute, thereby, leads to reestablishment of trust and respect among the parties.

Out of the methods of ADR, mediation and conciliation are the most suited methods for a country like India because by and large people in India at least in the rural areas would like to settle their disputes amicably. But in urban areas case is different where in commercial disputes, litigants want quick disposal of cases, would like the same to be done under a legal framework and with the intervention of professionals and so, these litigants prefer arbitration.

In the decision of House of Lords in Dunnett V. Railtrack ill (In railway administration, [2002]2 All ER 850, the Court had noticed that: “the encouragement and facilitating of ADR by the court in an aspect of active case management which in turn is an aspect of achieving the

overriding objective. The parties have a duty to help the court in furthering that objective and therefore, they have a duty to consider seriously the possibility of ADR procedures being utilized for the purpose of resolving their claim or particular issues within it when encouraged by the court to do so.”

Various Ethics to be followed by Mediator (16)

- Follow and observe these rule strictly with due diligence.
- Uphold the integrity and fairness of the mediation process.
- Parties should be fairly informed and have an adequate understanding of the procedural aspects of the process.
- Avoid, while communicating with the parties any impropriety or appearance of impropriety.
- Be faithful to the relationship of trust imposed in mediator.
- Conduct all proceedings related to the resolutions of a dispute, in accordance with the applicable law.
- Refrain from promises of results.

Various ways and means for effective ADR mechanisms: We cannot stop the inflow of cases because the doors of justice cannot be closed. But there is a dire need to increase the outflow either by strengthening (both qualitatively and quantitatively) the capacity of the existing system or by way of finding some additional outlets. In this situation ADR mechanism implementation can be such a drastic step for which following are required most:

- Mandatory reference to ADRs
- Case management by Judges
- Committed teams of Judges and Lawyers
- Increasing advice and assistance to help people in resolving their disputes out of court; and
- Reducing delays in resolving those disputes that need to be decided by the courts.

To implement the noble ideas and to ensure the benefits of ADR to common people, the four essential players are to play their effective role, they are as follows

- Government,
- Bench,
- Bar and
- Litigants are required to coordinate and work as a whole system.

Teaching of adr to the students of law as a mode of settlement of disputes: The role of a law teacher (Clinical Law Teacher) is to impart the skills to the studens relating to following points

- Management of conflict,
- Create positive learning environments,
- Develop students’ conflict competence and social skills,
- Positive discipline and dealing with disruptive students
- Using classroom meetings to establish classroom management
- building collaborative negotiation skills among students
- Using peer mediation to your advantage
- Dialogue and diversity conflict
- Restorative Practices in Schools

- Having classroom meetings as a method to address classroom management issues
- Teaching about conflict management strategies
- Use cooperative learning approaches
- Problem-solving techniques
- Identify when conflict between students is escalating and needs intervention
- Understand how students' needs trigger conflict
- Critical thinking skills
- Critical communication skills necessary for constructive conflict management (active listening, interest based negotiation, perspective-taking)
- Understand the dynamics of conflict
- Encourage students to handle their own conflicts effectively

Conclusion: ADR is quicker, cheaper and user-friendly than traditional courts. It gives people an involvement in the process of resolving their disputes. It offers choice: choice of method, of procedure, of cost, of representation, of location. Because often it is quicker than judicial proceedings, it can ease burdens on the Courts. Today there is a need for the creation of awareness and popularizing the methods is the first thing to be done. NGOs and media have prominent role to play in this regard. For Court- annexed mediation and conciliation, necessary personnel and infrastructure shall be needed, Training programmes on the ADR mechanism are of vital importance. State level judicial academies can assume the role of facilitator. Needless to say, this will considerably reduce the load on the courts apart from providing instant justice at the door-step, without substantial cost being involved. The effective conflict resolution education programs highlighted above have helped to improve the climate in school, community and juvenile justice settings by reducing the number of disruptive and violent acts. Young people cannot be expected to promote and encourage the peaceful resolution of conflicts if they do not see conflict resolution principles and strategies being modeled by adults in all areas of their lives, such as in business, sports, entertainment, and personal relationships. Adults play a part in making the environment more peaceful by practicing nonviolent conflict resolution when minor or major disputes arise in their daily lives. At the end I would to say that we need to follow the principle of natural justice "Justice is not only done; but seems to be done". It reminds our duty towards the society that irrespective of economic conditions of the citizens we need to do the justice. Today we have to follow the path of morality and civilization in our actions, and then only we can develop in the society.

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2. Shri M.C.Setalvad, former Attorney General of India said these lines in context of importance of ADR in justice delivery system.
3. This was the observation of Indian Supreme Court in the case of Guru Nanak Foundation v. Rattan Singh & sons (1981) 4 SCC 634.
4. In Australia and some other countries ADR is also known as External Dispute Resolution (EDR). ADR traditions vary somewhat by country and culture. ADR can increasingly be conducted online, which is known as Online Dispute Resolution (ODR), which is mostly a buzzword and an attempt to create a distinctive product). It should be

- noted, however, that ODR services can be provided by government entities, and as such may form part of the litigation process. Moreover, they can be provided on a global scale.
5. Justice S.B.Sinha, Judge Supreme Court of India, “ADR and Access to Justice: Issues and Perspectives” p1.
 6. Justice Warren Burger, the former CJI of American Supreme Court had observed these lines about ADR.
 7. The Constitution of India, 1950 provides access to justice as a fundamental right. Recourse to ADR as a means to have access to justice may, therefore, have to be considered as a human right problem. Considered in that context the judiciary will have an important role to play.
 8. In 1995, while inaugurating the International Center for Alternative Dispute Resolution (ICADR) by Shri P.V.Narasimha Rao, the then Prime Minister of India said these lines.
 9. OP Tiwari, “Arbitration and Conciliation Act 1996” (2008) Preface.
 10. K.A.Abdul Jalees v.T.A.Sahida (2003) 4 SCC 166.
 11. Avtar Singh, “Arbitration and Conciliation” (2002) p 12.
 12. This was the definition of arbitration given by Romilly M.R. in a well known case of Collins v. Collins 28 LJ, Ch 186; (1858) 26 Beav 306.
 13. Oil and Natural Gas Commission v. Collector of Central Excise, 1992 Supp2 SCC 432.
 14. The Supreme Court of India in Salem Bar Association vs. Union of India (2005) 6 SCC 344, passed order for drafting the rules of mediation and same were drafted under section 89(2)(d) of Code of Civil Procedure, 1908. The rules are framed as “Alternative Dispute Resolution and Mediation Rules, 2003”.
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 16. Geeta Oberoi, “The Arbitration and Conciliation Act” (2006) p 410.

GENDER EQUALITY PROBLEMS IN SOVIET REALITY

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ABSTRACT

The Soviet Union was a totalitarian and strictly centralized state, which from the day of its foundation was intended to create a new human. The idea of formal equality written in its constitution and legislation was not a guarantee of real equality in the Soviet Union. The Communist Party deeply believed in the rise of its own tolerant policies, although the existing facts became a barometer of its failure. Despite the established way of life (education, work, etc.), women were neither represented in the ruling circle nor fully participated in the development and implementation of state policy. Thus, the Soviet Union with its paternalistic politics sought both to weaken the influence of men on women by improving the condition of women and to saturate deeply women's lives with Soviet pathos and communist beliefs.

Keywords: The Soviet Union, gender, problem, equality, women, paternalistic politics.

Introduction: The goal of the October Revolution in 1917 was quite ambitious and bitty, which did not aim to be limited just superficial modernization. The goal of the revolution became not only to establish a new lifestyle but also to create a new state and people. Parallel, the main essence of the Soviet Union idea was to be influenced by its membership republics under its own ideology (Goldman, 1993, p. 12); (Lomia, 2017b).

According to the Constitution of the Soviet Union, representatives of both sexes were equal. From the feminists' point of view, the constitutional guarantee and the existing reality created a different contrast. In the Soviet Union, however, there were illusory notions that the process of women's emancipation was going successfully and that appropriate measures had been taken for their life self-realization. Therefore, every attempt of feminists was perceived by them as an incomprehensible action.

Although the Soviet woman had several different images and pursued a certain tolerant policy to help them, gender equality was only maintained externally and, despite some efforts, still needed to move in a proper constructive direction.

Research methodology: The present research aims to study the condition of women in the Soviet reality, and the task of the study is to analyze the attitude of the Soviet Union towards the idea of social justice and equality and to establish the rights granted to women to establish equality policy. We will also study the different image of the Soviet woman, which was changing in compliance with the change of government and the reality beyond the totalitarian regime. While studying the current issue, we considered it expedient to use a qualitative research methodology, namely, document analysis. Within the scopes of document analysis, we acquainted with the existed papers, documents, and archival materials about the policy of the Soviet Union. The method of historical-

comparative research has helped me to analyze and compare the situation of women experienced in the hands of different rulers. We have also studied the relevant scientific literature on gender equality.

Peculiarities of gender problems in the Soviet Union: The Soviet Union was focused on establishing a new type of state, as well as creating new people. Although the Soviet Union was externally striving for the recognition of the legal equality of women and men in all spheres of social life, the facts beyond reality created a certain dissonance. It should be noted that the variety of gender equality problems in the Soviet Union was due to the diversity of the image of women. For a better perception of the portrait of a Soviet woman, it is better to divide this period into three parts: the emancipatory politics of the early Bolshevik era, the Stalinist era, and the Cold War period (Lomia, 2020, p. 113).

At first, women were particularly promoted in the Soviet Union, what was conditioned by the reforms introduced by the Bolsheviks after the October Revolution, which continued until the rise of the Stalin era (Lenin, 2010, p. 66). They enjoyed unprecedented rights, which was conditioned by the Bolsheviks' desire to transform the Soviet Union into a socialist country (Belel, 2009, p. 227). The existing idea required a colossal resource or involvement of many people in the process, which conditioned the advancement of the status of women in order to include them in public life. Thus, the Bolshevik Party was focused on transforming women into active members, as they exceeded more than half of the population, and consequently, their contribution to the work of the party was significant (Manvelishvili, 2019, p. 22).

The Soviet man should have been a devoted person for the Soviet regime and his moral compass should also have been aimed at building communism. Men adjusted freely to normative masculinity, while women needed a new definition of femininity. Therefore, the Bolsheviks aimed at the emancipation of women and their displacement from the private to the public sphere.

It should be noted that the goal of the Bolsheviks was to equalize the rights of women and men, which conditioned the women's demand for equal pay with men's salary in equal labor. Soviet women were in profitable positions because from 1918 (still before the Sovietization) religious marriages were replaced by civil marriages and they also enjoyed the right to divorce. Under a law introduced in 1926, after divorce, spouses had equal rights to property accumulated during cohabitation (Attwood, 1999, p. 46). If the woman was a housewife, the man was obliged by law to dedicate a certain part of the property. Marriage and family law also defined the father's duties and alimony obligations in case of divorce (Friedrich, 2010, p. 85).

From 1920 to the Stalin era, abortion was legalized and also illegitimate children were no longer counted as all children were granted status (Heitlinger, 1979, pp. 123). Moreover, in 1919, under the leadership of Inessa Armand, the "Zhenotdel" was founded (Hutton, 2019, pp. 36) which also operated during the Soviet women's time and promoted to raise awareness of non-partisan women as well as to introduce their own rights (Heitlinger, 1979, pp. 58). The Bolshevik Party wanted to articulate the idea of gender equality and reinforce the existing view from an ideological point of view, meaning that the government was focused on promoting the maximum involvement of women in the industrialization process. During this period, women had the right to both education and employment outside the family.

Thus, from the perspective of Bolsheviks, the only way to make women contribute to the transformation of the Soviet Union into a socialist state was perceived the growth of strong and independent women involved in the industry (Trotsky, 1970, p. 54). Eventually, an attempt to

equate woman with man-caused not the deconstruction of woman femininity, but her masculinization. At the same time, the Soviet system sought to eliminate cultural differences between its member states. Since the fundamental principles of human relationships are based on mutual understanding and common consent, if a group of people has different ideas and beliefs regarding specific social values, such as religion, language, racism, ethnicity, etc. unquestionably, it will almost be impossible for them to get along. In such a case, the root of the problem is grounded in cultural diversity (Lomia, 2017a, p. 22).

In the 1930s, Stalin came to the head of the Soviet Union, which, as a result of revaluing the past, changed the direction of the country's politics. He minimizes old priorities that have been followed by moving demographic issues to the forefront (Attwood, 1999, p. 3). Edward Kari even called the slogan put forward by Stalin "Socialism in one country" as a way to save the state (Attwood, 1999, p. 79). During this period a woman was doubly burdened, she had to be an equally good mother, wife, and worker. According to Stalin, "Zhenotdels" were no longer needed to solve women's problems. At that time, the language of the press was also distinguished and was characterized by a propagandistic character. Also in 1936, some changes took place. In particular, the prevention of abortion and the criminalization of homosexuals. In the Stalinist era, there was a special rise of the cult of the mother and the appreciation of the woman with many children. Mothers with many children were rewarded with the Order of the Hero Mother and cash donations. Particular, attention was paid to pregnant women and the high-paying and long maternity leave designed for them. The network of hospitals and maternity homes was also expanding rapidly. In the Stalinist era, despite the growth of employed women, they were not appointed to leading positions. It is noteworthy that on the one hand, the woman was considered a mother during the time of Stalin and her reproductive organs were taken care of, in particular the heavy things were not lifted by them. However, on the other hand, during World War II, when the jobs of men who went to war required labor, women were employed in heavy industry (Shulman, 2008, p. 38). The current circumstances point us that the Stalinist era was manipulated by women. This means that usually a woman was considered a potential mother for whom all kinds of hard work were avoided, but when necessary and as soon as the labor shortage was created, they forgot their old status and continued to live under a double standard. In the Stalinist era, the performance of a man's duties by a woman considered not only her labor equalization with the Soviet man, but also she gradually looked like him with dressing style, as the ideology denied women's sexuality and physical beauty (Lee, 1999, p. 20). The change was reflected in a woman's visuals and attire, i.e. a woman's bold attire was completely unacceptable to the Soviet Union. The change was reflected in a woman's visuals and dressing, i.e. a woman's bold dressing was completely unacceptable to the Soviet Union. In Bulgakov's "Master and Margarita", there is one episode where a Soviet woman exchanges her modest clothes for European clothes. This can be perceived as a protest by women for their rights.

In the 70s and 80s, or during the Cold War, women were skilled in the profession, with proper education and qualifications. They were employed in prestigious fields: medical, educational, creative, etc. (Lapidus, 1978, p. 73). Although the contribution of women in the development of the listed areas was significantly reflected, in the conditions of a totalitarian state their participation in governance and political structures was still sharply limited. Women were represented only in the middle management, while men were appointed to the highest positions (Wood, 1997, p. 12). Thus, for women, there was only a horizontal professional cycle. The current situation has been caused by the conservative-patriarchal signs of a traditional society. According to the researches, it was women who had a great deal of responsibility, who were characterized by great diligence

toward work, conscientiousness, high professionalism and the ability to work in a team, but they were still excluded from the decision-making process. Thus, women had to overcome much more obstacles in their career way than men.

At the end of the 1980s, women's wages fell. The difference between the salaries of women and men employed in the same job position has become apparent. Unequal pay and the patriarchal foundations of traditional society have conditioned women's passivity in state policy. However, the policy aimed at helping women has deliberately sought to help them with various benefits.

Strictly established gender stereotypes badly affected the structure of the Soviet family and significantly strengthened the traditional patriarchal model of men. Moreover, raising a man's self-esteem was due to the fact that it was difficult for him to perceive a woman and imagined her as meaningless and unrealized. Exactly this situation contributed to the dictatorship and domineering tone in the family of Soviet kind man. Thus, for men, the family environment was a space where they had the freedom to form an opinion and the opportunity to live according to their own rules.

It was considered as an inadmissible tone for most Soviet men to accept a masculinized woman, and therefore they could not be properly appreciated. A partial escape from this situation occurred in the post-Soviet era. The woman has been able to revert to femininity to some extent, while the man is still in the grip of Soviet ideologies (Kiknadze, 2003, p. 39).

Conclusion: The Soviet Union represented a socialist-centralized managed multinational state, analysis of the values that existed in its bosom is a long process. All the countries united under the auspices of the Soviet Union operated according to the socio-economic and political ideology of the USSR, and any current events were reflected in these countries. Despite sharing the idea of equality of the Soviet Union, their ideological beliefs were still shrouded in mystery. The Communist Party recognized legal equality, although the gender imbalance was still clearly outlined.

Despite paternalistic attitudes followed from their interests implemented by the Soviet Union, which conditioned to the equality of women with men only in certain areas (e.g. education, etc.), there still was no real equality between men and women during any of the rules of Soviet Union. The goal of the totalitarian regime was not to marginalize humans, it focused on involving women in political life and being influenced by them. Thus, the paternalistic-declarative policy of the Soviet regime conditioned the replacement of patriarchal power by the influence of a totalitarian state, which prevented the achievement of real equality.

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IMPROVEMENT OF WORKING PERFORMANCE OF THE GAS COMPRESSOR STATION

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ABSTRACT

The working performance of compressor unit for compressing of gas to required pressure for injection of gas to underground reservoir and for transportation of it is considered. Performance data of compressor station for 2018 and 2019 analyzed. Dependencies of power consumption, specific consumption of gas which uses as fuel for compressor is designed. Changes in noted above parameters during given two years are found based on detail analysis. The expediency of processing the signals of the sensors connected to the monitoring and control system of the compressor station, using fuzzy logic algorithms and digital signal processing for increasing of efficiency entire system is shown.

Keywords: gas compressor, working performance, power consumption, signal processing, algorithms

Introduction: Compressor unit, is as one of the most important types of technological machines, are used in many traditional areas of the economy, such as oil, gas, chemistry and mechanical engineering, transport, metallurgy, geology, construction, agriculture, etc. techniques and technologies.

Natural gas is used as the most environmentally friendly fuel and is also an invaluable raw material for the production of chemical products, for example, carbamate - fertilizers for plants, and has the best environmental and heat engineering indicators, to maintain the pace of development of the industry, new developments are required to take into account gas. The significance of natural gas in comparison with other mineral sources of energy is determined by its easier processing, transportation, distribution and storage. The level of extraction and consumption of natural gas is constantly growing, its share in the consumption of energy among all mineral sources is 24%.

One of the most important problems of the steady development of the fuel and energy complex is to increase the efficiency of use and save energy resources, reduce the energy intensity of operation by an optimization of the operating modes of technological equipment and improving the power supply system.

CU in Garadagh Compressor Station (GCS) is intended for injection of natural gas to underground reservoir and for further transportation of gas. The efficiency and reliability of these systems as a whole depends on the efficiency and reliability of the very same machines. The long-term operating experience of the compressor units shows that due to low level of technical support, lack of the equipment self-diagnostics and lack of timely malfunction detection, the cases of emergency shutdowns of the compressor plants occurs 4-6 times a year, provided that the service personnel is present. In this regard, the issues of increasing the technical level of the compressors, especially

their efficiency and reliability take on great economic importance [1]. The main criteria for determining the efficiency of the station is the volume of compressed gas, as well as the amount of fuel used for this process. An analysis of performance parameters of CU makes it possible to determine the optimal modes of natural gas compression with the selection of equipment characteristics, calculate fuel consumption, and adjust equipment regarding to technical requirements. The effectiveness of the compressor station depends mainly on the effectiveness of the compressor itself, as well as the operating modes of the entire station.

Study of the technical condition of the compressor unit allows us to assert that the available capacity of the station during the overhaul period decreases by 10-20%, and the efficiency is by 5-10%. Technical difficulties in direct measurement of power lead to the need to determine it indirectly, using measured parameters, such as pressure, temperature, gas consumption.

An important problem of transportation and distribution of natural gas is the implementation of control of parameters of gas and transport equipment, measurements of gas consumption, as well as stopping or reducing the required amount of gas in emergency case.

Statement of the problem: The main task of the GCS is to increase the gas pressure to the required predetermined level, for pumping to underground gas reservoir. The failure and inoperability of the compressor units at the station can lead to the cessation of all gas reservoir system or at least the main part of it, to large losses and breakdowns in gas supply, which can be accompanied by a disruption in the technological process in the related industries. Reducing repair costs, extending the inter-repair period and increasing the reliability through troubleshooting facilitation require constant activity monitoring of the existing stations, regular improvement of the technical and operational performance of the units that make up them through analysis.

The CU technical service personnel provide for constant monitoring of its operation and in the meantime keeps the standard operational performance of the main assembly units in line with the requirements. However, the instability of the load, environmental parameters (temperature and pressure), which the CU is exposed to, leads to a decrease in both the total working hours and the inter-repair operating period of the equipment.

Solution of the problem: The application of modern control and measurement means and actuators greatly improves the reliability, stability, and economic performance indicators of CU. However, initially performance data should be analyzed. However, initially performance data should be analyzed. That is why for definition real indicators of working of CU during 2 years let us consider and analyze data performance of one of them.

The main performance of the one compressor unit in station during 2018-2019 and corresponding change graphics of these performance data were presented in Table 1 and in Figures 1-3 respectively.

As is seen from the table, relevant data for each two years were provided only for the period of May-October, which is due to the fact that the Garadagh Compressor Station provides gas supply to the underground gas reservoir in the warm months of the year. As is seen from the graphics, the pressure change in the inlet and outlet of the compressor station was not critical, it did not exceed the limits set for the system [2]. It is necessary to note that last 2 years in Europe the process of gas injecting to underground reservoir takes the long period due to an anomaly cold weather situation. It requires more analyzing of the performance of CU for improving of working efficiency of it.

As is seen from the graphics presented in Figure 3, the specific consumption of fuel gas for the turbo-compressors operation in 2018, that is, the amount of fuel gas spent for pumping every 1000 m³ of gas, changed around 14.0 l/10³m³ in May and October, and in 2019 this estimate was in the range of 14-16.

Table 1. Performance data of compressor station per month in 2018-2019

Month	Volume of pumped gas, 10 ³ m ³	Pressure, Bar		Monthly fuel gas consumption, m ³	Specific consumption of fuel gas, l/10 ³ .m ³
		inlet	outlet		
2018					
May	147154.6	21.62	40.37	2094420.0	14.2
June	150932.5	21.52	40.95	1961145.0	13.0
July	165008.0	22.06	39.88	2066390.0	12.5
August	174277.2	22.27	40.11	2103652.0	12.1
September	99378.2	22.55	41.01	1262787.0	12.7
October	36590.0	21.21	40.54	497282.0	13.6
2019					
May	130810.7	18.94	35.06	2094422.0	16.01
June	158165.0	19.64	36.42	1971210.0	12.46
July	126096.9	20.75	39.68	1722384.0	13.66
August	156215.4	20.04	37.88	1998263.0	12.79
September	106122.3	20.17	39.49	1648537.0	15.53
October	158402.7	20.29	40.47	2259919.0	14.27

The specific consumption of fuel gas in May and September amounted to 16,01 and 15.53 l/10³m³ respectively, which greatly exceeded in comparison with 2018. But in the meantime, the total power consumption per station (Figure 4) was less than 30000-50000 kW-h, which reflects itself in the reduction of total operating costs.

In such units it is recommended to apply equipment with a wide range of functional capabilities, acceptable measurement accuracy and control algorithms, which has been tested and demonstrated better performance [2]. The control and measurement system of a compressor station is a hierarchical system of operational control and management, located in the central control room, and should provide the following control levels:

- the level of operational and production services - the upper level of the control system;
- the level of the automated control system of technological objects - the low level of the control system.

The operational and production service level performs the following functions:

- formation of a human-machine interface;
- registration and visualization of the state of technological objects;
- real-time control;
- generation of a signal about the deviation of technological parameters from the limits of normative warning and emergency;
- remote control of actuators and units (turbine and compressor);
- recording and archiving changes in the cost of activities and technological parameters in the database;
- formation and printing of technological reports, accounting and reporting documents.

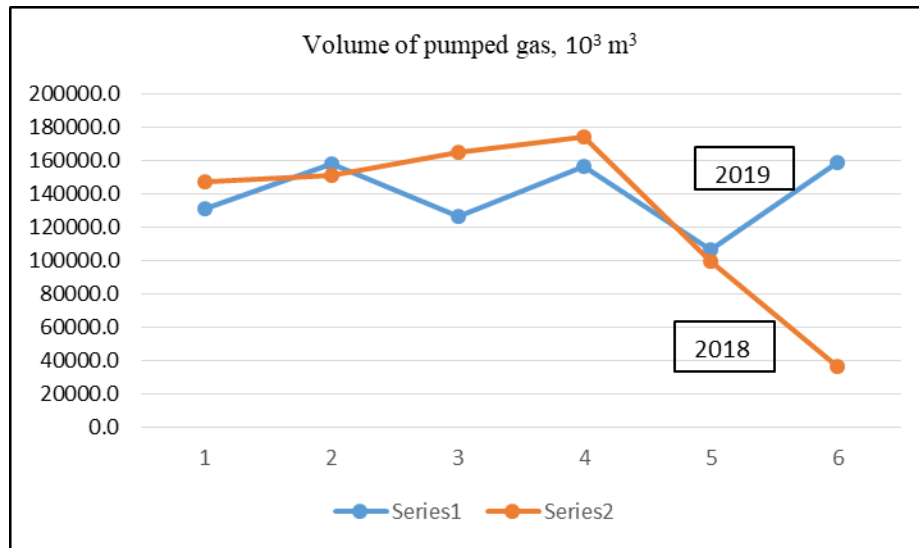


Figure 1. Volume of pumped gas per month

The principle of operation of the general system is aimed at the implementation of the following tasks:

- automatic control and monitoring of the technological process of compression and transportation of gas in real time, as well as regulation and support at the required level;
- to ensure a high level of safety of the technological process;
- constant analysis of the dynamics of parameter changes on the side of critical values and forecasting of possible accidents;
- start, stop and all necessary switching operations without accidental;
- forming of control effects, stopping the development of accidents;
- uninterrupted control and management of the status and modes of operation of technological equipment and devices ASU TP, preparation of warning and emergency alarms when deviating from operating parameters of regulated mechanisms and tasks, remote control of tasks, technology, remote control. and devices, calculation of technical and economic indicators, provides archiving of data, formation and printing of technological protocols, urgent messages and personal documents.

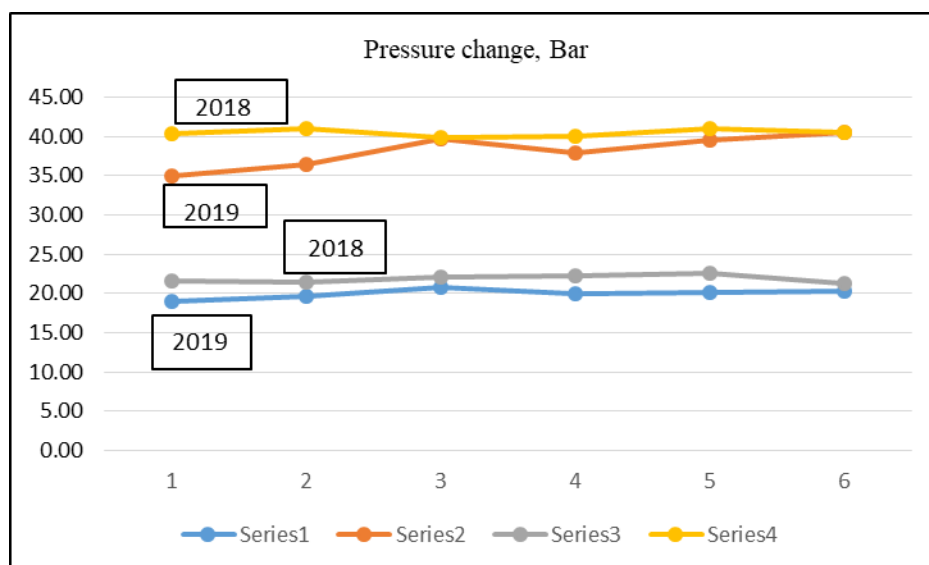


Figure 2. Change of inlet and outlet pressure

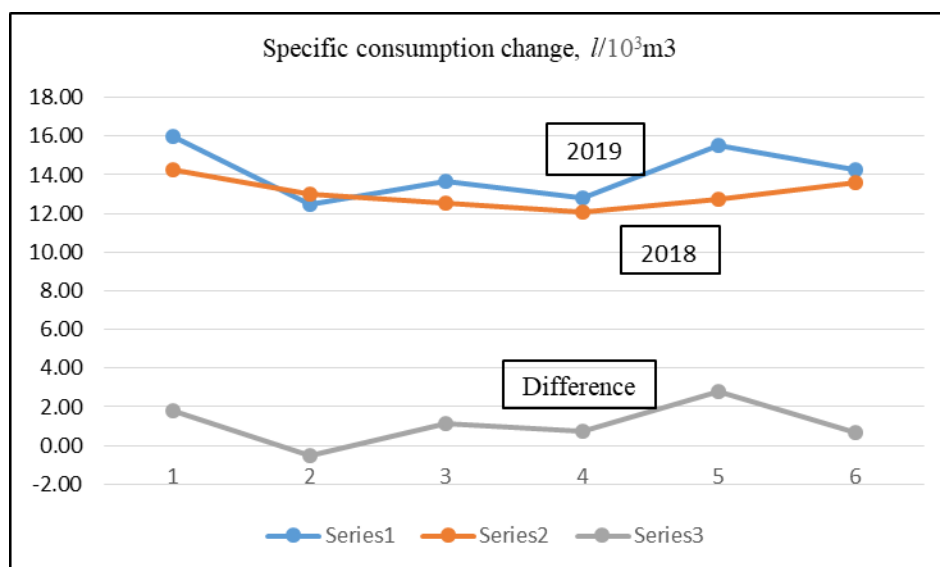


Figure 3. Specific fuel gas consumption

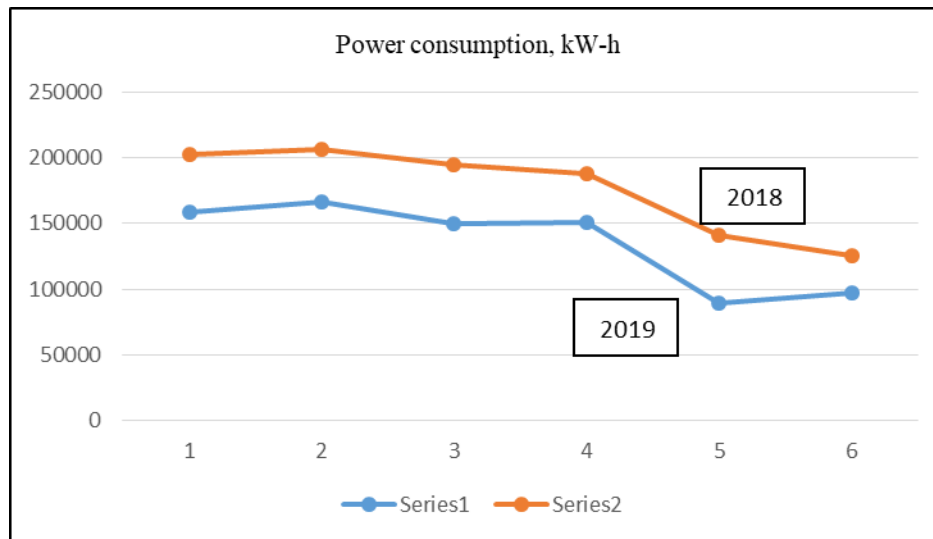


Figure 4. Change in power consumption per station

The values of the input and output pressure is determined by the pressure sensor, the output signal which enters the control system in the form of whole numbers after conversion into a digital signal in a twelve-story analog-to-digital conversion. To control the pressure at the compressor outlet, a signal is set to set the pressure with the output of the digital-to-analog converter control system. The frequency change of the rotation of the shaft compressor is ensured by the output of the control signal.

Application of the automatic control system of the compressor unit should solve the following tasks:

- a fully automatic control system with a compressor unit does not require human intervention in its work;
- reduces the frequency and complexity of service;
- the reliability of the management system increases.

The controller sends the corresponding signals to the controller, the transmitter and sensors to all objects in the class of actuators and control signals to the compressor-turbine class device. The request of the transmitter is performed by the controller in the calculated moments of time and in succession, provided by the program, and in the case of moments of time determined by interruptions on the basis of the received signals received. During the process, the signals received from the transmitters are processed continuously, indicating that the system is active. Repetition of data and external reports facilitates process management.

In addition, applying of digital signal processing algorithms [3] and algorithms based on fuzzy logic for processing of transducers signals [4] by using existing fuzzy operators, allows to decrease measurement errors via filtering of signals and increasing of signal-noise ratio.

Thus, the processing of the output signals of the sensors connected to the system can be done as follows. The sensor output signal is fed to an analog signal processing device - usually to the analog filters with different characteristics (low and high pass filters, band pass filters, notch filters). Analog filters are used to suppress signal noise, separate the main measuring signal and increase the signal-to-noise ratio. Further, the signal enters the analog-to-digital converter where the analog signal is converted into a digital signal in the form of a binary code, convenient for

processing by a computing device (microprocessor or a special microcircuit (chip) - a signal processor). To apply a fuzzy processing algorithm according to fuzzy rules introduced into the system knowledge base, a fuzzifier is used that converts the certain signal value into a fuzzy number. After processing by a fuzzy algorithm, the result obtained in the form of a fuzzy number is converted using a defuzzifier into a certain value, which is used for its intended purpose.

Conclusion: The analysis of the results of the experience-test modes shows that after all signals coming from the station and units are converted into corresponding (digital) signals, and the issues regarding the connection in the new system are resolved, given signals will be processed by applying fuzzy logic algorithms, the remote control and management of the station operating process in the “on-line” mode will meet the required criteria, and the compressor station will provide the required efficiency, providing the given performance parameters of gas pumping into the underground reservoir, which is proved the results of computer experiments with algorithms noted above.

It is necessary to update the software support of the control system for operating at the Garadagh compressor station, to develop and apply a new algorithmic and program software, directed to the solution of new tasks, with the whole set of requirements of current standards.

Artificial intelligence systems can be used in addition to traditional automated control and management systems for compressing and transportation of natural gas. The application of artificial intelligence methods leads to change of hard control process into "soft methods".

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