



SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

Materials of the
International Conference

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上合组织国家的科学研究：协同和一体化
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**“Scientific research of the SCO countries: synergy
and integration”** - Reports in English. Part 1

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这些会议文结合了会议的材料 – 研究论文和科学工作者的论文报告。它考察了职业化人格的技术和社会学问题。一些文章涉及人格职业化研究问题的理论和方法论方法和原则。

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Foreword

We thank all participants of our conference "Scientific research of the SCO countries: synergy and integration" for the interest shown, for your speeches and reports. Such a wide range of participants, representing all the countries that are members of the Shanghai Cooperation Organization, speaks about the necessity and importance of this event. The reports of the participants cover a wide range of topical scientific problems and our joint interaction will contribute to the further development of both theoretical and applied modern scientific research by scientists from different countries. The result of the conference was the participation of 62 authors from 7 countries (China, Russia, Uzbekistan, Kazakhstan, Azerbaijan, Tajikistan, Kyrgyzstan).

This conference was a result of the serious interest of the world academic community, the state authorities of China and the Chinese Communist Party to preserve and strengthen international cooperation in the field of science. We also thank our Russian partner Infinity Publishing House for assistance in organizing the conference, preparing and publishing the conference proceedings in Chinese Part and English Part.

I hope that the collection of this conference will be useful to a wide range of readers. It will help to consider issues, that would interest the public, under a new point of view. It will also allow to find contacts among scientists of common interests.

Fan Fukuan,

Chairman of the organizing committee of the conference

"Scientific research of the SCO countries: synergy and integration"

Full Professor, Doctor of Economic Sciences

前言

我们感谢所有参加本次会议的“上海合作组织国家的科学研究：协同作用和整合”，感谢您的演讲和报告。代表所有上海合作组织成员国的广泛参与者都谈到此次活动的必要性和重要性。参与者的报告涵盖了广泛的主题性科学问题，我们的联合互动将有助于不同国家的科学家进一步发展理论和应用的现代科学研究。会议结果是来自7个国家（中国，俄罗斯，乌兹别克斯坦，哈萨克斯坦，阿塞拜疆，塔吉克斯坦，吉尔吉斯斯坦）的83位作者的参与。

这次会议的召开，是学术界，中国国家权力机关和中国共产党对维护和加强科学领域国际合作的高度重视的结果。我们还要感谢我们的俄罗斯合作伙伴无限出版社协助组织会议，准备和发布中英文会议文集。

我希望会议的收集对广大读者有用，将有助于在新的观点下为读者提供有趣的问题，并且还将允许在共同利益的科学家中寻找联系。

范福宽，
教授，经济科学博士，中国科学院院士，会议组委会主席“上合组织国家科学研究：协同与融合”

分析现状, 问题和前景俄罗斯经济中小企业的运作情况
**ANALYSIS OF THE STATUS, PROBLEMS AND PROSPECTS
OF FUNCTIONING OF SMALL ENTERPRISES
IN THE RUSSIAN ECONOMY**

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注解。 本文致力于审查俄罗斯联邦小企业的国家, 问题和发展前景。 考虑到制约俄罗斯小企业发展的的问题, 这是一个特殊的地方。

关键词: 小企业, 中小企业家, 发展潜力

Annotation. *The article is devoted to the review of the state, problems and prospects of development of small enterprises in the Russian Federation, which. A special place is given to the consideration of problems constraining the development of small business in Russia.*

Keywords: *small business, small and medium entrepreneurship, development potential*

According to the Single Registry of small and medium businesses in mid-2018 there were registered almost 6 million legal persons and individual entrepreneurs working in small businesses in Russia .

Table 1 shows the data about legal persons registered in the Single Registry of subjects of small and medium business in 10 May 2018.

Table 1

The amount of legal persons registered in the Single Registry of subjects of small and medium business in 10 May 2018 [1].

Name	Of Legal persons			
	total	Out of them		
		Micro enterprises	Small enterprises	Medium enterprises
Russian Federation	2 917 371	2 661 202	236,495	19 674
Central FD	1 053 243	958,864	86 411	7 968
North-West FD	398,966	365,728	30 925	2 313
Southern FD	217,921	198,485	17 930	1 506
North-West FD	50 614	45 743	4 439	432
Volga FD	497,647	450,917	43 314	3 416
Ural FD	250,843	230,103	19 228	1 512
Siberian FD	333,478	306,297	25 277	1 904
The far Eastern FD	114,659	105,065	8 971	623

According to the data presented in table 1 in the territory of the Russian Federation on 10 May 2018 there were 2 917 371 subjects of business activity having the organizational form of legal persons registered. Mostly in the territory of Russian Federation legal persons act as micro enterprises, there are 2 661 202 of them. There are 236495 small enterprises and 19674 medium ones. The greatest number of legal persons related to small businesses is concentrated in the Central FD - 1 053 243 subjects, second place is taken by the Volga FD - 497 647.

According to the data presented in table 1 in the territory of the Russian Federation on 10 May 2018 there were 3253592 subjects of business activity having the organizational form of individuals registered. Mostly in the territory of Russian Federation individuals act as micro enterprises too, there are 3 225 786 of them.

Table 2
Data about individuals registered in the Single Registry of subjects of small and medium business at 10 May 2018. [1]

Name	Individuals			
	total	Out of them		
		Micro enterprises	Small enterprises	Medium enterprises
Russian Federation	3 253 592	3 225 786	27 460	346
Central FD	874,932	868,626	6 219	87
North-West FD	318,007	315,571	2 406	30
Southern FD	499,481	495,962	3 487	32
North-West FD	152,549	151,724	815	10
Volga FD	602,070	595,639	6 349	82
Ural FD	277,948	275,199	2 715	34
Siberian FD	377,991	374,153	3 787	51
The far Eastern FD	150,614	148,912	1 682	20

Table 2 shows that there are 27,460 small enterprises among individuals and 346 medium enterprises for the whole country that is quite small amount. The greatest number of individuals related to small businesses, just like legal persons, is concentrated in the Central FD - 874 932 subjects, second place is taken by the Volga FD - 602 070.

Thus, it can be concluded that the predominant form in small business are individuals, and the most attractive region for doing business is the Central one, in which the most enterprises of different forms of organization are concentrated.

It should be noted that the contribution of entrepreneurship to Russian GDP is 17-23% that is much less than in Western countries, where such a contribution of small and medium businesses reaches 60% (see Fig. 1).

Small and medium businesses in our country provide jobs to only to 16.8 million of Russians, that is, only 25% of people employed in the Russian economy. The share of exports of small enterprises in total exports of the Russian Federation is 0.4%. For comparison, in China-more than 50 %, in the US – 33%, Canada – 27%.

According to the data of 2017, the most successful entrepreneurs were able to show themselves in the following activities: wholesale and retail trade, repair; manufacturing; agriculture; construction (see Fig. 2).

According to the data presented in the figure, about 39% of small businesses in Russia are in the retail sector, 20% in real estate operations, industrial production accounts for 10%, construction – 12%, transport and communications involved about 6%. Other areas were preferred by 13% of small businesses.

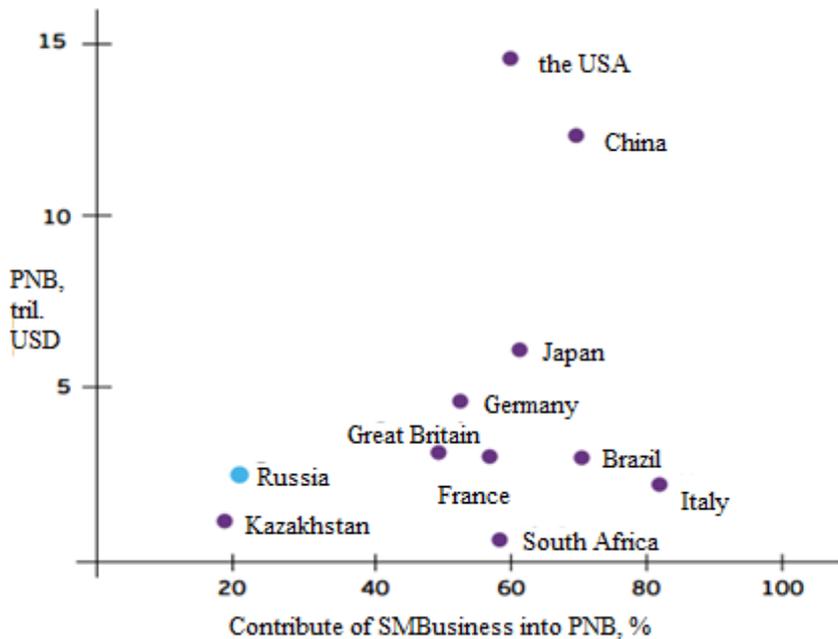


Fig. 1. Part of small and medium enterprises in the country's GDP as of 01.01.2018 [2]

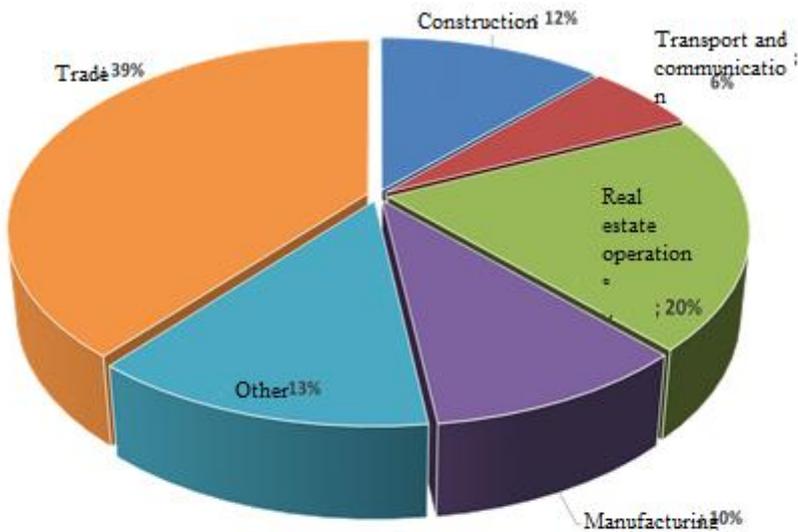


Fig. 2. Branch structure of small business in Russia 01.01.2018

According to statistics, one third of all registered business entities are in the Central Federal district (see Fig. 3).

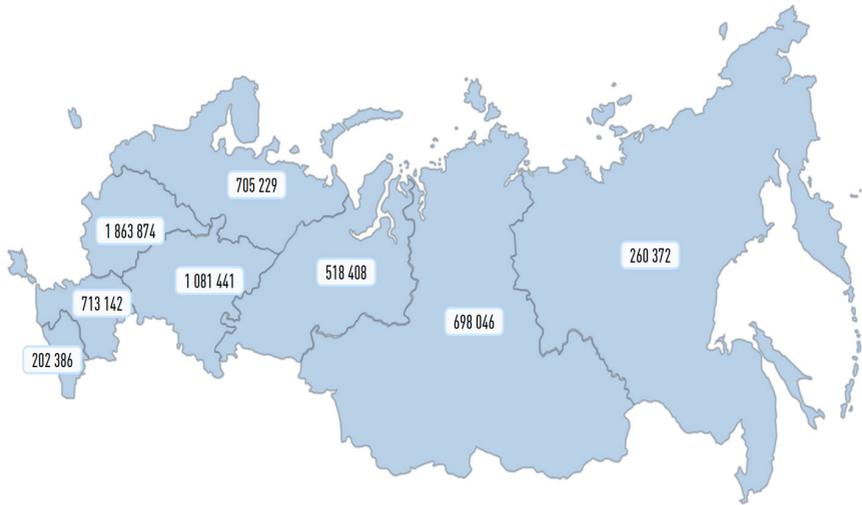


Fig. 3. Regional number of businesses in 10.12.2018 [3]

Thus, the regions outside the Central Federal district, despite all the propaganda efforts, have not become attractive for business.

Summing up the analysis of the practical state, it should be concluded that in Russia at present the level of development of small business clearly does not meet the modern needs of the economy. And for our economy not to be always at the role of catching up, it is necessary to make maximum of efforts to eliminate the dangerous dis-balance in field of small business.

Detailed analysis of the small business contributes current condition helps to distinguish several categories of development problems of small businesses in Russia:

- 1) organizational and legal;
- 2) instability of the external business environment;
- 3) information;
- 4) material and financial;
- 5) safety [4]

One of the main factors which impede effective and systematic development of small business in Russia is the environment condition of macroeconomics, which is characterized by a high level of inflation, with a high tax burden, high probability and instability of the manifestation of crisis elements. Together with the

state policy in this sphere of the national economy, which is declarative in nature, the macro environment often leads many small organizations to a state close to bankruptcy.

Indicators of business failure are high because it is influenced by factors such as:

- finance providing differences, as it is more difficult for small businessmen than for large companies to obtain long-term loans, because small businesses have a higher level of risks. Finding a way out in self-financing, small businesses receive additional funds at high interest rates;

- a relatively small "margin of safety" contributes to the fact that small businesses are more sensitive to economic changes-inflation, price increases, tax increases, etc.;

- responsibility taken by the one individual for his business while the mistakes or market changes influence both business and standard of living of the entrepreneur himself.

- the activity of the entrepreneur is connected to neuropsychic fatigue, as the working day of the businessman is not limited to time frames, and irregular income limits the ability to attract third-party funds in your business and attract labor [5].

Also, among the problems faced by small businesses in Russia, specialists distinguish the variability of demand and changes in the purchasing power of Russians.

The list of problems of entrepreneurship is complemented by the problems of corruption. Surveys conducted by public organizations in Russia showed that respondents are recognized in informal payments to officials.

The development of small business faces challenges both at the country level as a whole and in the regional context, in particular, in a particular area.

It should be noted that the current tax system in Russia is aimed at fulfilling the planned tasks established by the state, the essence of which is to collect more taxes to the budget. This hinders any incentives and motivation to open and develop their own business for the entrepreneur. At the same time, the foreign experience of the tax authorities testifies to the positioning, primarily as an aid for business. Companies can seek advice from regulatory authorities, and if errors are found, the tax authorities allow the business to correct them without consequences.

Entrepreneurs are afraid to open or expand their business, as bank lending remains one of the main sources of funds, but the rate of commercial loans is high. That is why small businesses need financial support from the state.

Thus, the main retarding forces for the development of small businesses at different levels of management include:

- irregular and not always guaranteed stimulation of support programs and development of small enterprises at the regional and state level;

- lack of clear development guidelines on the innovative base;
- lack of effective and efficient model of cooperation between small and medium businesses;
- misuse of funds allocated for projects for development, imperfection of the system of monitoring, control of use;
- low qualification, rather low competence of employees of the enterprises.;
- increase in the degree of different types of risk,
- in particular, there is an excessive risk of competition and the emergence of mass bankruptcy;
- excessive competition with foreign companies;
- constant changes, the need for periodic updating and modernization;
- all sorts of obstacles, primarily bureaucratic and administrative;
- limited and frenzied lack of funding for small business development;
- the need to create and implement innovative technologies, new processes, low level of innovative entrepreneurial culture and thinking.

Thus, the existing potential of entrepreneurship in Russia is only partially realized, and its development is hampered by numerous problems, the solution of which depends not only the fate of small and medium-sized businesses, but also market reforms in General.

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信息空间是农业综合企业和服务发展综合因素的基础
**INFORMATION SPACE AS THE BASIS OF AN INTEGRATED SET
OF FACTORS FOR THE DEVELOPMENT
OF AGRIBUSINESS AND SERVICES**

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注解。 该文章证实了电子商务意味着商业活动并利用电子环境的能力来改变农业企业和服务企业之间的联系并确保更高的经济效率的说法。 鉴于农业综合企业是旨在盈利的农业企业的任何活动，本文中的电子商务被视为通过使用信息和电信技术及系统而发展的现代企业。

关键词: 农业综合企业, 服务, 效率, 市场关系, 信息技术, 电子环境, 互联网, 通信技术。

Annotation. *The article substantiates the assertion that e-business implies business activity and uses the capabilities of the electronic environment to transform links between agribusiness and service enterprises and to ensure higher economic efficiency. Given that agribusiness is any activity of agricultural enterprises aimed at making a profit, the electronic business in the article is considered as a*

modern business that develops through the use of information and telecommunication technologies and systems in it.

Keywords: *agribusiness, services, efficiency, market relations, information technology, electronic environment, Internet, communication technology.*

The economic system that exists in modern Russia needs to find and apply new effective ways to increase the competitiveness and profitability of agribusiness. The experience of the leading countries of the world shows that one of the factors contributing to its development and functioning at the stage of formation of market relations is the formation of a business electronic environment using the latest information and communication technologies for the implementation of innovative processes of the company and interaction with agents and counterparties.

Business electronic environment is an integrated complex of subjective and objective factors of agribusiness transformation mediating business relationships through information and communication technologies

When entering into electronic relationships, cost and time costs are reduced, a favorable comfort mode is achieved for market entities. In 1997, the term electronic business was first used by the American corporation ABN.

The concept of electronic agribusiness is treated as an integrated, flexible and secure approach to providing consumers with agricultural products by combining the processes and systems that underlie the most important business functions, with simplicity and coverage provided by Internet technologies. Electronic agribusiness can be called any business activity of an agricultural enterprise using a global information network used to link internal and external relations to increase economic efficiency.

At the end of the last century, a completely new type of business appeared - e-commerce. The Federal Law "On Electronic Commerce" gives the following definition of the term: "Electronic commerce is the implementation by the parties of a transaction as provided by law for actions and operations when making and concluding transactions for the sale and (or) delivery of goods, performance of works, provision of services, and other actions aimed at making a profit, based on the execution of electronic procedures "[5]. The high efficiency of using e-commerce in the sale of agricultural products and services is due to the following factors: globality (the Internet allows you to sell goods at any level); costs are reduced, as there is no need for office space and numerous personnel to conduct online sales, this allows saving labor and rent; analytics and informative. Combining these factors allows you to make e-commerce of agricultural products convenient and effective for both the seller and buyers.

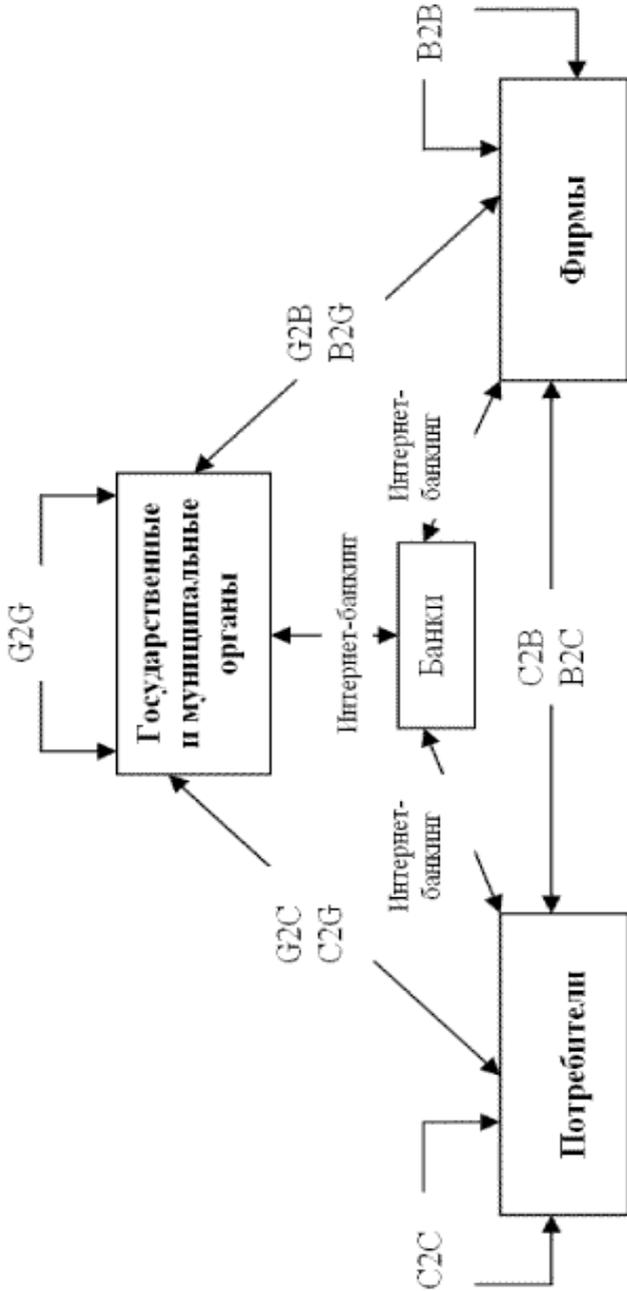


Figure 1. Scheme of implementation of electronic interrelationships of main business relations

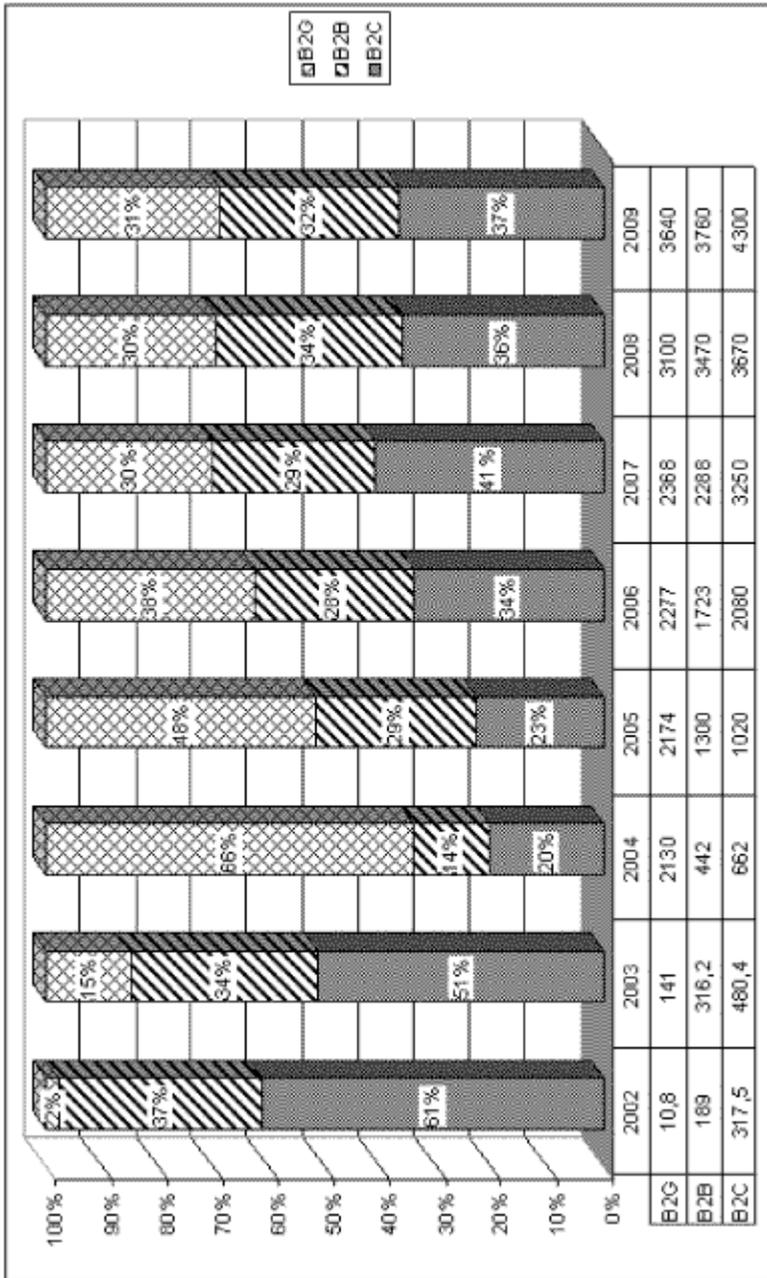


Figure 2. Volumes and specific indicators of electronic turnover by sector in Russia in 2002-2010. (US \$ million)

Different categories of participants in e-business can be distinguished in the scheme for implementing interactions between the subjects of relations (Fig. 1) [3].

The following main forms of interaction of participants in the implementation of electronic commerce are highlighted:

1) Business-To-Business (B2B) — form of interaction and construction of Internet business, in which the parties are agribusiness;

2) Business-To-Consumer (B2C) — agribusiness model, in which one of the parties is a retail buyer;

3) Business-To-Government (B2G) is a business model in which participants are agribusinesses on the one hand and the state on the other. [1]

In the early 2000s, the Russian e-commerce market in the B2C segment was ahead of the western ones. The company "Oborot.ru" until 2010 noted a steady growth in the Russian B2C market up to 40% per year (Fig. 2).

The size of the B2C market per year was:

Russia up to 45%

Germany up to 20%

UK up to 25%

France up to 40%

In Russia, the e-business industry has emerged quite recently. For example, in the USA, transactions were conducted for the first time in 1995 through an online network. As for our country, during these years there were very few computers, and far from all could use the Internet. For the first time, online stores in Russia appeared only in the early 2000s. In modern economic conditions, people rushed into the network in order to find more lucrative offers. The level of online sales in the B2C segment increased by almost 17%, while the total retail turnover in Russia decreased by almost 6%. [3]

The retail e-commerce market increases by an average of 40% per year. The possibility of realizing the potential of the electronic market can occur due to a change in the consciousness of consumers, the advancement of the Internet in regions where the reserve today is up to 50% of the turnover of electronic commerce. In absolute terms, the volume of e-commerce in Russia remains negligible, about 1.5% of GDP. According to experts, 60 million people are Internet users, this is also an insignificant figure.

E-commerce market size of GDP

- Russia 1.5%
- US 17%
- England 14%
- France 14%
- Germany 14%

The limiting factor in increasing the volume of electronic sales and expanding the geographical boundaries of e-commerce is the insufficient level of the regulatory framework in the field of e-business. In the 90s, the development of electronic platforms for business interactions at the global and national levels depended on the technical and technological factors of promoting information networks and the spread of the Internet.

Regulation of the legal field in the field of electronic document management and electronic agribusiness in Russia is carried out on the basis of the following legislative documents:

- Civil Code of the Russian Federation.
- Decisions of the Government of the Russian Federation “On confirmation of the rules for the sale of goods by remote means”
- Federal Law "On Communications"
- Federal Law "On electronic digital signature"
- Federal Law “On Participation in International Information Exchange”
- Federal Law "On the National Payment System"
- Federal Law "On Electronic Commerce"

The law on electronic commerce has been discussed since 2000. The concepts of electronic commerce, electronic business, electronic commerce, electronic digital platform, electronic signature were difficult to use.

The Institute of Information Society "IIS" annually calculates the assessment of e-readiness of the territories. For cluster analysis, 35 different indicators were taken, which characterize the degree of involvement of government bodies, the population, and business in the electronic environment. As a result, 5 clusters were identified.

Since there are differences in the organizational, economic and technological conditions in the formation of the business environment in the electronic space in the constituent entities of the Russian Federation, it is necessary to implement differentiated measures of public policy and state support for individual clusters, it is necessary to carry out measures to improve the efficiency of the regional strategy for creating a business electronic environment in the agrosphere and sphere provision of services.

One of the most important advantages of e-commerce agrosphere is that it allows interested agents to reach the global market. With its help, only any agricultural enterprise has the opportunity to gain access to the world market to select the most optimal price for buying and selling goods and services. For commercial firms, online trading significantly reduces the costs associated with customer service, marketing and inventory management, less time spent on the reorganization of business processes.

But, despite all the advantages, e-commerce has some significant drawbacks. One of them is a limited number of consumers due to a lack of knowledge or trust

in the Internet. Many of them refuse to believe the authenticity of impersonal financial transactions, fear the requirements for the provision of private information [4].

In addition, e-commerce is not suitable for the implementation of perishable goods, such as food. People prefer to purchase them in the usual way.

Thus, according to the pros and cons of online trading, the advantage still belongs to the potential, which is much higher than the disadvantages.

E-commerce, like commerce in its traditional sense, is equally subject to risks. The following groups of threats are distinguished:

- the use of multiple means of data transmission for the purpose of fraud;
- hacker attacks;
- malware and viruses.

New information and communication technologies cause the growth of various types of fraud, allowing criminals to carry out illegal actions.

Among them are fraud related:

- using credit card numbers;
- with copying legal sites;
- using fake marketplaces;
- with the opportunity to earn and investments;
- with the imperfection of payment systems.

One of the most important tasks of electronic commerce is the protection of information. These issues are relevant both for e-commerce as a whole and for financial systems that are related to making payments [2].

The value of e-commerce lies in the fact that it is the most important technology in the modern world, which ensures the growth of the country's economic growth. In modern life, e-commerce manages to solve such an important task as improving the competitiveness of companies, as it provides the opportunity for a short period of time and, bypassing intermediaries, to find a commercial partner, significantly reducing transaction costs.

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农村发展监测与分析

MONITORING AND ANALYSIS OF RURAL DEVELOPMENT

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注解。有必要掌握有关农村发展的全面、现实和准确的信息，以便根据俄罗斯联邦2020年前农村地区均衡发展的概念，控制政府采取的措施的效率。作者解释说。观察和分析农村发展平衡的必要性。本文介绍了经济学家对农村地区发展估算的发展水平的现代方法。它还显示了所提供方法在许多用户使用方面的优点和缺点。缺乏宇宙平衡估计方法强调其精心制作的相关性。作者提出了农村均衡发展的表达分析方法。

关键词：监测，农村地区，快速分析方法，均衡发展，估算，指标，长期发展规划。

Annotation. *It is necessary to have full, current and accurate information about rural development to take control over the efficiency of the measures taken by the government in accordance with the Concept of balanced development of rural areas in Russian Federation in the period till 2020. The authors explain the necessity to observe and analyze the balance of rural areas development. The article presents the modern methods offered by the economists agrarians of development estimation of rural territories by their level of development. It also shows the advantages and disadvantages of the offered methods in terms of its use by many users. The lack of universe method of balance estimation emphasizes the relevance of its elaboration. The author presents the method of express-analysis of balanced development of rural areas.*

Keywords: *monitoring, rural areas, methods of express-analysis, balanced development, estimation, indicators, long-term development plan.*

At a meeting of the state Council and the Council on national projects and demographic policy the rural economy and the transformation of rural life were discussed. In his speech, the President of Russia V. V. Putin stressed: "Rural areas have vast economical, demographic, natural, historical and cultural potential. Our aim is to use it effectively according to the interests of the whole country to achieve new quality of life for millions of our citizens.

Nowadays the development of rural areas is regulated by the Concept of balanced development of rural areas in Russian Federation in the period till 2020 which formulates the aims, tasks and principled of rural policy as well as mechanisms and stages of its implementation [4]. Federal and regional programs, which aim to solve social and economic problems of rural areas, are implemented based on the conception. But there are still a lot of unsolved problems, some of them became urgent.

We believe that one of the problems of rural development is lack of universe method of analysis and estimation of its balanced development. It definitely should consider the specifics of the areas. Correctly carried out analysis can help to elaborate plans, programs of social and economical development, help to work out factual social and economical development level of the area at different stages and with specific function conditions. It is the objective estimation of the situation in the rural areas that should become a basis to take the managing decisions and form agricultural politics at regional and local levels on.

Studying of modern methods to monitor, analyze and estimate the balanced development of rural areas showed that Russian and foreign work actively on creating methods to estimate the balance.

The most common tool to estimate the balance is an indication - it is an integral parameter which quantifies the qualitative characteristics of the process. There is the indicative approach to estimate the development balance of rural territories offered by V. I. Frolov and E. O. Agafonova [7, p. 88]. This approach is based on the calculations of the indicators which show specific aspects of balanced development. It can ruin the complete view of area development.

S. N. Bobylev says [1, p.13], "if there is an aggregated indicator expressed quantitatively, on the regional level, - it is perfect variant for those who take the decisions regarding the balance in region development...

If such an aggregate indicator grows, then there are processes of balance development; if it decreases (takes a negative value), then there is "instability" of the process."

The method of estimation for rural areas [2, p.197] offered by R.M. Gazizov is to calculate aggregated indicator of balance development which is based on the calculations of the indicators of economical, social and ecological development. There are three types of rural areas (highly-balanced, balanced and low-balanced areas) and it makes it harder to elaborate promising plan of development of particular areas.

We consider the findings of monitoring of balanced development of rural areas in Omsk region carried out by O.V. Shumakova and M. A. Rabkanova [10, p.42] to be interesting, but it should be noted that the amount of analysed indicators (53) and overall rating (from -2 to 2) can make it hard for masses to understand it so it can distort the obtained findings.

The method of integrated estimation of balanced development of the rural areas offered by I.I. Novikova and A.L. Medkov [6, p. 413], deals with the indicators of economical, social, ecological and institutional development, but, in our opinion, it loses human, demographic, informational and innovational indicators.

The type list of rural areas by the level of social and economical safe elaborated by N.V. Logantseva [5, p.64] includes the method of rate making and cluster analysis. This way of typology allows to find the system-making branches, to consider the possibilities and threatens to the development of the rural areas and to optimize the suggestions for the most promising programs of planning the territorial development regarding social and economical as well as agricultural and climatic conditions. It is hard to carry out cluster analysis because it is necessary to apply special knowledge and skills to work in special practical program of cluster probing. Another disadvantage is that it is impossible to form clusters from the small amount of regions.

The authors offer to use the method of monitoring and express-analysis of balanced development of rural areas. It is based on the collecting and generalizing the statistics and it helps to work out types of rural territories in the current period as well as to carry out retrospective and prospective analysis. This was the information basis of the work.

The first stage is determined by the relevance, purpose and objectives, as well as the object and subject of the study.

At the second stage the authors monitored 60 indicators out of statistical indicators which were grouped according to three main directions: social development, agriculture and human resources development, demographic development.

At the third stage, among the selected indicators, an expert assessment was carried out, including the selection of experts, the survey of the expert group, and the processing of the information received. The most competent scientists and practitioners in the field of agricultural development were invited as experts (10 people in total). The experts were offered to answer the questions in the list where they were supposed to choose less than 5 indicators according to each approach of rural areas development which, according to their opinion, show the problems of the research in the clearest way. The information obtained by the authors is grouped into a table (table. 1).

Table 1
*Selection of indicators for monitoring and express-analysis
of balance development of areas*

Record number	Expert opinion										Number of points on the indicator	The use of the parameter in the method
	1	2	3	4	5	6	7	8	9	10		
Social direction of balance development												
1		V			V	V		V		V	5	No
2		V	V	V	V			V	V	V	7	No
3	V	V		V		V	V	V	V	V	8	No
4	V	V	V	V	V	V		V	V	V	9	Yes
5	V	V	V	V	V	V	V	V	V	V	10	Yes
6	V	V	V	V	V	V	V	V	V	V	10	Yes

In each group of indicators, 8-9 ones are selected, which received the largest number of expert votes. Thus, out of the 60 indicators previously proposed, only 25 were selected by experts. The list of indicators selected by experts for each direction of development is presented in the table. 2.

Table 2

Selection of indicators for monitoring and express-analysis of balance development of areas

Directions of balance development of rural areas	Social development	<ul style="list-style-type: none"> - Living space, m² /person.; - gasification; - central water supply and sanitation; - central heating; - hot water supply; - road network density, km/ha; - number of children in preschool institutions, people.; - number of students in General education institutions, people.; - number of hospital beds, total, units.
	Development of agriculture	<ul style="list-style-type: none"> - Agricultural products (in effect. prices), million rubles; - crop production (in effect. prices), million rubles; - livestock products (in effect. prices), million rubles; - the amount of agricultural products per 1000 people, million rubles; - investments in main capital, total, million rubles; - investments in main capital at the expense of the municipal budget per 1000 people, thousand rubles; - revenue per worker in agricultural production, thousand rubles; - current expenses to protect the surrounding environment, thousand rubles;
	Human and demographic development	<ul style="list-style-type: none"> - The population of rural settlements, people.; - rural population density, people/km²; - the average annual number of employed in the economy, total, people.; - the average annual number of employed in the agricultural sector, people.; - creation of new jobs for the current period, units.; - engagement of the young professionals; - average monthly salary for the settlement, thousand rubles.; - average monthly salary at agricultural enterprises, thousand rubles.

At the fourth stage of the express-analysis of balanced development the statistics is to be processed by all the municipal authorities of the analyzed territory. The system of points was elaborated to estimate the balance development of economy of rural areas in dynamics for three years (table 3).

Table 3*The point system to estimate the balance development of rural territories*

Dynamics of indicators for three years	Number of points
Growth of rates is more than 21 % in these three years	5
Growth of rates from 16 to 20 % in these three years	4
Growth of rates from 11 to 15 % in these three years	3
Growth rates from 6 to 10 % in these three years	2
Growth of rates to 5 % in the three years	1
The value of the rate is absent or the dynamics is negative	0

At the fifth stage, the grouping of rural areas on their sustainable development is carried out based on the point system (table. 4).

Table 4*Classification of rural areas by level of balance development*

Classification group	Sum of points	Characteristics of the territory development in this group
High-balanced development	From 81 to 100 and more	The rural areas with high level of rural economy development, with the developed infrastructure, with optimal settlement of citizens, with high standard of living of the population
Balanced development	From 61 to 80	Rural territories where the economy develops, the revenues of citizens grow, local authorities pay attention to the issues of infrastructure improvement
No balanced development	From 41 to 60	Rural territories where the development of all activities is small and sometimes is absent
Negative balanced development	From 21 to 40	Rural territories where the economy is not developed, there is low standard of living, the level of infrastructure development does not meet the required parameters
Negative balanced development	From 0 to 20	The rural territories where the economy is not developed, the attention is not paid to infrastructural improvement, hence the population is below the poverty line

The carried out analysis helps to elaborate the measured to increase the balance of analyzed territories. Taking them would help to create benign conditions for agricultural manufacturers of different forms of property to act. There is no doubt that the development of agriculture adapted to local, often harsh, natural and climatic conditions will help the region to become more competitive, to encourage additional investment to the industry, to create new jobs, to replenish the budget in the form of tax revenues [9].

One of the measures to improve the balance development of the rural economy, which, according to the authors, must be paid attention to, is the diversification of agricultural production. Diversification will inevitably activate all areas

of entrepreneurship in rural areas, but diversification processes are little studied, which actualizes the data of the study [8, p. 8]. The method of express-analysis allows to develop a long-term plan for the development of the territory, taking into account the socio-economic situation, priority areas of agricultural development, natural and climatic conditions, historical and cultural factors and personnel and demographic processes, as well as to assess the effectiveness of measures to improve the socio-economic situation of the territory, to provide targeted budget support and forecast the development of settlements.

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服务业和农业生产领域的国际一体化发展方式

**WAYS OF DEVELOPMENT OF INTERNATIONAL INTEGRATION
IN THE SPHERE OF SERVICES AND AGRICULTURAL PRODUCTION**

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注解。在转型为市场经济和形成多层经济的条件下，俄罗斯农业产业的分析证实，农业生产的下滑主要是由于经济关系的冲突和破裂所导致的。区域，部门和国内经济实体的生产水平。

俄罗斯与捷克共和国之间的外交关系于1993年建立。如今，大多数经济工业部门与世界经济的紧密结合使捷克共和国能够参与具有发达市场经济体系的国家。高度发达国家的经济。捷克共和国和俄罗斯联邦的经济实体之间的合作具有进一步加强创新技术发展及其引入工业生产的工作的巨大潜力。我国与捷克共和国经济关系发展的重要方向之一是在俄罗斯联邦经济特区领土内开展联合活动，设计和建设包括农业和服务业在内的各个领域的交钥匙设施。

关键词：创新发展，工业生产，产品质量，现代化，创新环境，创新型企业，高新技术产品，一体化，集约化发展，市场经济，新技术

Annotation. *The analysis of the agro-industry of Russia in the conditions of transformation into the market economy and the formation of a multi-layered economy confirms that the slump in agricultural production is mainly a result of the violation and rupture of inter-economic relations at the regional, sectoral and domestic production level of economic entities.*

Diplomatic relations between Russia and the Czech Republic were established in 1993. Nowadays, intense integration of the majority of economic industrial branches into the world economy made it possible to refer the Czech Republic to the countries with developed market economy system which is highly connected with the economies of highly developed countries. Cooperation between the economic entities of the Czech Republic and the Russian Federation has great potential for the further intensification of work on the development of innovative technologies and their introduction into industrial production. One of the important directions of development of economic relations between our country and the Czech Republic is united activity in the territory of special economic zones of the Russian Federation, design and construction of turnkey facilities in various fields, including agriculture and services.

Keywords: *innovative development, industrial production, product quality, modernization, innovative environment, innovative enterprise, high-tech products, integration, intensive development, market economy, new technologies*

The Czech Republic is an industrialized country with a modern economy, located in Central Europe.

The most developed industry branches of the Czech Republic such as engineering, automotive, energy, metallurgy, light and chemical industries determine the high level of economic condition of the country.

The production capacity of the Czech Republic significantly exceeds the capacity of the domestic market of the country, in this regard, the GDP of the Republic is focused on deliveries abroad. Czech industry is also focused on the production of goods that do not require large energy consumption. The country does not have sufficient amount of mineral and raw material resources. The Czech Republic imports a large part of raw materials and energy resources, and thus the country's economy becomes dependent on economic factors of other countries [4].

The modern economy development of the republic mostly depends on the conditions and the development of external economic relationships. The Czech economy is oriented to the foreign consumers. European market makes a great part of GDP of the country. Recently the Czech Republic could be mentioned together with the countries with transition type of economy, but nowadays, intense integration of the majority of economic industrial branches into the world economy made it possible to refer the Czech Republic to the countries with developed market economy system which is highly connected with the economies of highly developed countries. In addition, as a result of the economic reforms carried out in recent decades, a large influx of foreign investment, Czech industry has been greatly modernized, and its economy has become less energy- and material-intensive [4].

Russia recognized the Czech Republic in January 1993. At the same time, diplomatic relations between the two countries were established.

Cooperation between the economic entities of the Czech Republic and the Russian Federation has great potential for the subsequent intensification of work on the development of innovative technologies in the field of services and the introduction of industrial and agricultural production as well as technologies and investments in the development of energy generation, heat power, and most importantly, improving their energy efficiency. It is important to implement joint projects in such sectors as energy, engineering, construction industry, transport, chemical and food industry, agriculture, housing and communal services and ecology [1].

The interest of countries in expanding **cooperation is growing**. Partnership relations of Czech state structures and entities of the Russian Federation are registered in the documents on different levels (currently more than 30). North Ossetia, -Alania, Tatarstan, Kaluga, Voronezh, Volgograd, Leningrad, Omsk, Astrakhan, Sverdlovsk regions, Khanty -Mansi Autonomous Okrug -Yugra, St. -Petersburg and Moscow have active relations with the Czech Republic. Recently, Ural region, including the Perm region coined them.

The delegation of the business and scientific community of Perm region in July 2014 took part in the international industrial exhibition Innoprom – 2014, which is held annually in Yekaterinburg, during the exhibition the Ambassador of the Czech Republic to Russia Vladimir Remek presented the exposition of the consortium CZET.

CZET Consortium – Czech energy-saving technologies (Prague). The main aim of the consortium is to use the experience of modernization and construction of energy facilities both in the Czech Republic and outside the Czech Republic, with the use of European energy-saving technologies, as well as combining innovative enterprises-manufacturers of energy equipment, construction companies, engineering and design companies of the Czech Republic to solve important economic problems [2].

One of the important directions of development of economic relations between our country and the Czech Republic is united activity in the territory of special economic zones of the Russian Federation, design and construction of turnkey facilities in various fields, including agriculture, food industry and package and services. On the Czech side in this area the partner for our country is the FARMTEC company, which is part of the CZET consortium .

FARMTEC has many years of experience in the construction of agricultural production buildings and the implementation of innovative technologies. During the construction of biogas plants, the company cooperates with the Austrian company called Biogest, which is mainly involved in the construction of wastewater treatment stations working on biogas petrol.

The aim of the company is to provide clients, which include both agricultural enterprises and individual entrepreneurs, ranges of services in investment projects.

Customers are offered to have individual consulting and training on agricultural biogas technologies. Cooperating with the advanced scientific organizations, they help to optimize the fermentation process, based on individual requirements and applying the latest scientific knowledge in practice.

The services of the company are development of technologies, design, production and delivery of the equipment, its installation, guarantee and service. In addition, the company provides training for personnel of agricultural enterprises, a full range of additional services and services of the General contractor, assistance in attracting venture financing of European banks are provided.

The production program of the FARMTEC company included: development, manufacture and installation of all components for construction of:

- 1) premises for cattle;
- 2) premises for pigs
- 3) milking parlors;
- 4) poultry farms;
- 5) storage for manure and litter.

Agricultural enterprises are offered ready-made solutions and individual components for the technological project.

The company's activities comply with modern international standards ISO 9001:2000.

Every year, about 40 new types of products and equipment are supplied to the domestic and international market, and its range is being expanded and modernized. The product range is supplemented with equipment supplied by foreign partner enterprises. (Italy, Germany, Slovakia).

The company offers a variety of technologies for the maintenance and fattening of broiler chickens. These technologies are characterized by high quality of individual elements and long service life [5].

For example, a standard room for poultry with the size of 100 x 12 meters, which includes a room width of four meters for maintenance, for broilers obtained space - 1 152 m² (96x12). Considering the majority of countries place 20 broilers to 1m², here it is possible to place 23 000 broilers in the whole parlor.

It is possible to install 4 rows of multi-level system, 31 sections in each row to a standard premise for poultry with the size 100 x 12 meters. It makes it possible to place 124 sections in each aviary.

Block-section can contain:

- two-level section – to accommodate 250 broilers
- three-level section – to accommodate 375 broilers
- four-level section – to accommodate 500 broilers

In this case, the aviary contain:

- 31 000 head in the two-level section is on 35% more compared to content in outdoor system;

- 46 500 heads in the three-level section is more than 100%
- 62 000 broilers in the four-level section is more than 170%

Technologies for keeping poultry meat and egg breeds, breeding flocks, as well as for keeping laying hens in cages, enriched cells, and for floor maintenance are offered.

Another Czech company named AgroexpoCZgroup a.s. (Prague), is a part of the CZET consortium, it is ready to cooperate with Russian agricultural enterprises. It produces for the international market a wide range of technological equipment used in the agricultural sector. Technological complexes and lines for poultry and livestock are supplied within the terms of investment projects. Investment programs which are offered to entrepreneurs and agricultural enterprises are credited by banks of the Czech Republic or banks of other European countries [5].

In addition to the supplied AgroexpoCZgroup livestock complexes and agricultural equipment, the company offers feed mills, slaughterhouses, prefabricated single and serial metal structures for the needs of agricultural producers. All supplied equipment is fully automated and adapted to Russian climatic conditions. Moreover it can be noted that, through the individual care, specialists create a high-quality environment and the latest technology, including a closed cycle of waste processing - manure waste for the farm animals. All products meet European and international requirements and are certified.

In addition, the company offers accommodation of breeding stations, supply of breeding farm animals, practical training in the Czech Republic and advice on feed recipes.

For fattening turkeys and broilers, it is proposed to ensure the coordinated work of several basic elements of the system: heating, cooling, feeding, watering, as well as the preparation and transportation of silage. All these components are connected with each other, but the smooth operation of the complex, through a simple "mixing" into one, will not be achieved. To get the desired result, it is necessary to establish and integrate the entire system into an error-free mechanism [3].

In addition, a well-functioning ventilation system is one of the main elements that has a positive impact on the results of poultry keeping. The company offers a range of basic elements of the ventilation system, which in its combination makes a single unit.

Customers are offered to have warranty services, spare parts after installation of the ventilation system, full service and solution of problems that arise as a result of the system.

The main advantages of the offer are:

- many years of experience in offering and implementing systems;
- a number of management elements produced;

- professional installation and service;
- spare parts warehouse.

The company offers two systems for broiler fattening. The first of which is - SPARK-bowl, another option is the SPARK-nipil system.

Both systems are used for any kind of fowl. The main advantages of these systems are:

- fast growth from the first day
- unique hygiene
- simple content
- modular system

There are combinations of warm air and infrared unit as a heating system to reach necessary and favourable temperatures in the complexes to bring poultry.

The main advantages of this proposal are the following:

- reliability of all elements of the heating system;
- simple content;
- long service life.

If it is necessary to reduce the air temperature to create a comfortable indoor climate, the company offers cooling systems. You can feel the need for this system in summer, when the air temperature is above 30°C.

Main advantages of the solution are:

- a real temperature reduction in the complex;
- it is checked on practise;
- reliable and easy to operate.

For fattening poultry "AgroexpoCZgroup" offers two feeders. The first option is represented by round feed bowls. The second is by an oval bowl, patented solution of ROXELL company . Both of these variants meet the existing requirements for poultry farming in modern complexes [6].

This solution has the following advantages:

- fast growth from the first day
- noticeable savings in feed;-
- easy cleaning and optimal hygiene:
- feed area is 14% more than standard feeders.

The offers of the companies included in the CZET Consortium , allowing to increase the productivity of poultry farms, were considered by the Union of poultry breeders of the Perm region, but the possibility of mutual cooperation with a number of European countries were suspended as a result of economic sanctions imposed in 2014 against the Russian Federation, including enterprises of the Czech Republic suspended negotiations on the supply of equipment to Russia.

Recently, lots of countries have decided to reject economic sanctions against Russia and resume the interrupted relationship. In this regard, it is possible to return to the consideration of Czech companies offers to cooperate with agricultural enterprises of Russia.

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整合农村基础设施发展的社会经济方面
**INTEGRATION OF SOCIO-ECONOMIC ASPECTS
OF RURAL INFRASTRUCTURE DEVELOPMENT**

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注解。在世界经济一体化和经济进程区域化的背景下，该区域社会经济发展对改善农业部门的影响仍未得到充分研究。首先，农业工业综合体的基础设施必须具有社会成分，其表现为物质和水平元素的组合，满足个人，家庭和社会的整个复杂需求。主要地区的农业经济结构并不总能确保可持续增长率，而且实施提高农业工业综合体竞争力的措施需要发展基础设施。社会基础设施是物质环境与社会主体之间相互作用的一个领域，可以合理地组织他们的生活和活动。

关键词：一体化，农村，发展，农工业综合体，区域经济，组织经济机制，管理，农业领域。

***Annotation.** In the context of the integration of the world economy and the regionalization of economic processes, the impact of the socio-economic development of the region on the improvement of the agrarian sector is still not sufficiently studied. The infrastructure of the agro-industrial complex, first of all, must have a social component, which is represented as a combination of material and hylic elements, satisfying the entire complex of needs of individuals, families and society. The structure of the agrarian economy in major part of regions does not always ensure sustainable growth rates, and the implementation of measures for increasing the competitiveness of the agro-industrial complex requires the development of infrastructure. Social infrastructure is an area of interaction between the material environment and social subjects and makes it possible to rationally organize their lives and activities.*

Key words: *Integration, rural areas, development, agro-industrial complex, regional economy, organizational and economic mechanism, management, agrarian sphere.*

Improvement of the organizational and economic mechanism of managing socio-economic systems and increasing the efficiency of using internal reserves necessitates the formation of conditions for long-term development and determines the importance of studying the components of the socio-economic development of the agrarian sphere. The main directions of development of agro-industrial complexes of the regions of Russia need a set of measures for the socio-economic development of the village. This will make it possible to improve the level of peoples' life. The formation of agro-industrial complexes in Russia is prevented by an extremely unstable socio-economic situation in the life of the rural population. Due to the decline in agricultural production, the negative change of financial situation of agriculture in recent years, as a result of a decline in the development of social services and rural infrastructure, the availability of educational, cultural, medical, trade and consumer services for rural residents has significantly decreased. The difference in living conditions between town and village became more noticeable. [1]

The socio-economic potential of the agrarian and industrial complex of the Perm region is the ability of the society and agrarian sectors of the region with the greatest socio-economic effect to meet social needs, carry out the reproduction process, and develop competitive production for creation of export potential and domestic consumption. This definition coincides with the generally accepted concept of socio-economic potential. It takes into account all the peculiarities of the agrarian sphere and is therefore subsequently used in all foundations.

The concept of "socio-economic potential" includes the integration of natural resources, social, agricultural, industrial, financial, scientific, technical and territorial-topological potentials of the agricultural sphere of the Perm Territory (Figure 1):

The main focus of the structure of data classification on the socio-economic potential of the region should be made on a comprehensive cadastral assessment of the natural climatic factor and natural resources (forest, biological, agricultural), and considering the exploration of the socio-production capacity, the focus should be made on labor resources, population and the development of economic sectors [3].

The assessment of the potential itself and the consequences of realizations of this potential are the main stages of the socio-economic analysis of the development process of the Perm Territory. The following objects of assessment are highlighted: the natural-resources and socio-production potential, as well as those types of results of the development of the territory and natural resources, and in which they can have an impact on economic life (Table 1).

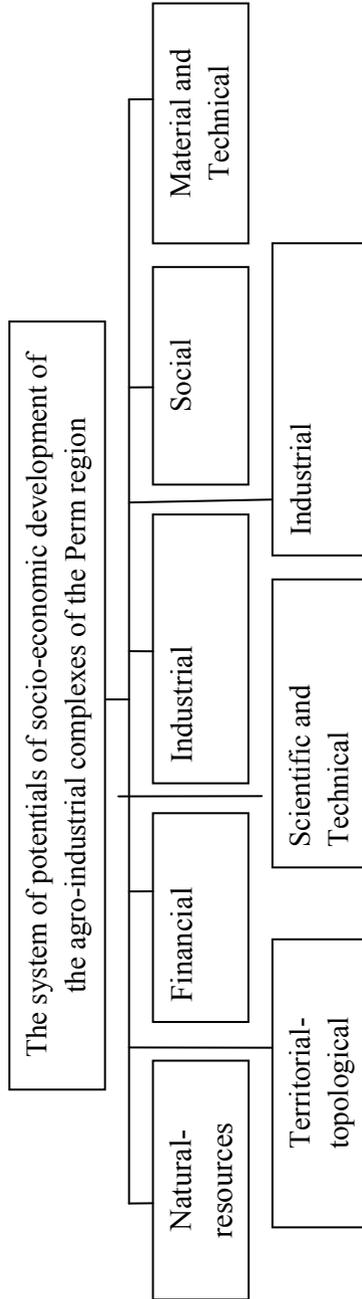


Figure 1. The structure of the agrarian sphere of the region based on the system of potentials for the socio-economic development of the Perm Territory

Table 1 - Systematization of information on the socio-economic potential of the region

Research and Survey Activities	Object
Natural-resources potential	
1. Meteorological observations	1. Climatic resources (natural and climatic conditions in relation to the residence and work activity of the population, machinery work, etc.)
2. Geodetic, topographical and land use works	2. Land resources
3. Hydrological works	3. Water resources
4. Geophysical works and exploration	4. Mineral resources
5. Forest mensuration works	5. Forest resources
6. Field surveys of farmlands, reindeer pastures, stocks of fish, hunting, food and medical plant resources	6a. Agricultural resources (agricultural land and reindeer pastures)
7. Cadastral works	6b. Biological resources (fishing, hunting, agrestic)
	7. The complex of natural resources
Socio-industrial potential	
8. Research of human potential	8. Process of development of human potential
9. Social and demographic studies	9. Population and labor resources, social infrastructure
10. Investigation of production potential and transport surveys	10. Production potential (industrial production, traditional industries, etc.)

In the context of the integration of the world economy and regionalization of economic processes, the influence of the social and economic development of the region on the improvement of the agrarian sphere is still not sufficiently studied. This concerns the clarification and study of a number of issues: the definition of the concept of “agrarian sphere of the region”; research in the development of regional economy features and the role of the agrarian sphere, the development of the strategy of the agrarian sphere and the development of a mechanism of formation, taking into account the comprehensive assessment of the elements that compose its socio-economic potential.

The most important functions of the agro-industrial complex of region include: living arrangements, life necessities and vital activity.

The improvement of the agrarian sphere in the regions, due to large regional differences, is as follows: firstly, the specifics of the regions are taken into account; secondly, the most acceptable form of development of the regional agrarian sector is found; thirdly, social, economic, environmental protection activities are activated to reform the agrarian sphere in the region.

The use of this resource in the practice of the regions allows solving the complex of problems of the agrarian sector of the Perm Territory (economic, organizational and legal, socio-demographic), and contributes to the socio-economic development of the region as a whole.

As an evaluation of the effectiveness of the socio-economic potential of the agrarian sector, not only the ratio of a certain effect to the corresponding resource, but also general indicators of the effectiveness of the formation of the potential is used. In addition, the effect of agricultural production is measured in grain (conventional) units according to scientifically justified coefficients that convert various types of agricultural products into conventional units.

In case of using these coefficients, it is possible to obtain a cumulative effect in arbitrary units for each branch of the agro-industrial complex for the agrarian sector as a whole for different territorial levels of the regional agro-system in case of developing of targeted-oriented programs and applying the methodology for distributing subsidies at the federal level.

As a result, on the basis of cumulative effects, a system of efficiency indicators of the application of a complex potential for all territorial levels of the agrarian sector is formed.

The curb of social transformations in the agrarian complex predetermines low wages and the unsatisfactory structure of the population's expenditures. The provision of personnel in the agricultural industry of the Perm Territory remains generally difficult, the outflow of labor resources from the agricultural sector continues, and skilled personnel in the countryside are increasingly becoming a strategic factor in the effective development of the agricultural sector (Table 2.)

Table 2 - Manpower potential of the agro-industrial complex of the Perm region

Indicators	2015	2016	2017
The average annual number of employees	26790	24369	22843
Average monthly salary, rub	11761	13126	14822

Table compiled using Permstat material (10)

The demographic potential in increasing the labor reserve of the agrarian sector of the Perm Territory can be used only if an effective state and regional demographic and migration policy is pursued.

With the expansion of world economic relations, there is a high probability of closing the access to the Russian market for households.

Predominantly cooperative and integrated agro-industrial enterprises using energy-saving technologies, high-performance equipment and ensuring high labor productivity can become the direction of development of the agrarian sector in the regions of Russian Federation. These enterprises can produce high-quality products, ensure competitiveness and investment attractiveness of Russian agricultural production, as well as compete in world food markets.

The problems of reducing soil fertility, reducing the population, price disparity, insufficient investment flow, poor support of the agrarian sector by the state,

are the main reasons for the insufficiently intensive development of agriculture in the region. All of these directly affect the social aspect of the development of the agrarian sphere of the region. The efficiency of the agro-industrial complex in the context of the qualitative changes taking place determines a combination of many factors, including the active development of infrastructure.

The effective image of the agro-industrial complex directly depends on a logical combination of many factors, including the state and active influence of the infrastructure.

The structure of the agrarian economy in most regions does not always ensure sustainable growth rates, and the implementation of measures to increase the competitiveness of the agro-industrial complex requires the development of infrastructure. Measures that are now being implemented as part of the regional agrarian policy should include not only increasing the demand of agricultural enterprises for new equipment and technologies, speeding up the replacement of obsolete equipment, developing a program-oriented approach to structural changes, but also developing infrastructure based on the implementation of federal, regional, municipal and departmental targeted-oriented programs.

The institutional phenomenon of the infrastructure, providing the general conditions for the expansion of the main production, is differentiated according to the object definiteness of the reproductive process into an industrial, social, environmental component.

The economic role of the industrial services sector of the agricultural sector is that it is an organic element of the agricultural production system, a catalyst for the introduction of innovative technologies and achievements. In the sphere of agricultural production, the task of maintaining the economic relations of the agricultural sector and the processing and resource-producing industry is being carried out.

The infrastructure of the agro-industrial complex, as an integral module, unites in the process of reproduction the branch of the sphere of agricultural production and circulation, being a factor in activating the increase in the production of agricultural products and the growth of its efficiency.

Changes in the growth rates of industries and areas of the agro-industrial complex imply the need for more intensive development of infrastructure, which in turn determines the need for theoretical studies of this problem. This concerns, first of all, the composition of the elements of the agro-industrial complex infrastructure (Figure 2).

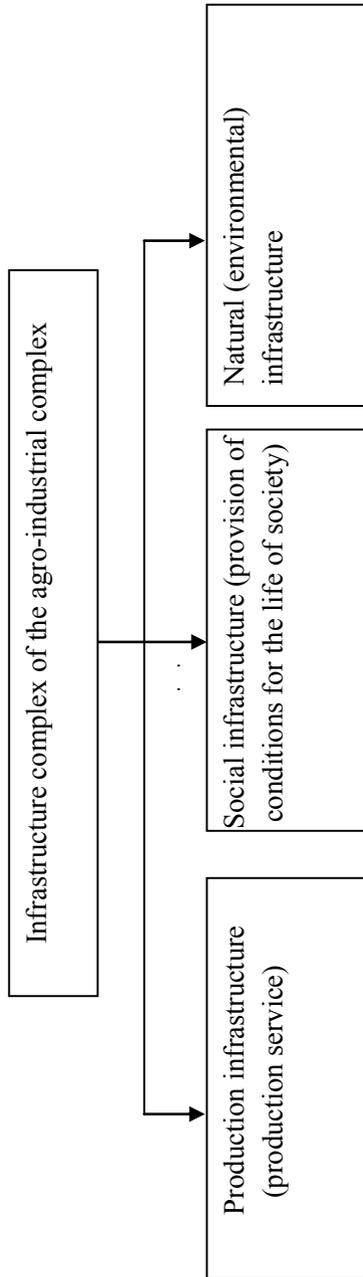


Figure 2. The structure of the infrastructure complex of the agro-industrial complex

The functional division of the elements of the production infrastructure of the regional agro-industrial complex makes it possible to distinguish between the logistics and repair facilities, which ensures the integrity of the relations of the reproduction process in time and space (organization of storage of agricultural products, provision of transport), the continuation of the production process in the sphere of circulation. Based on the analysis of the state of the economic sectors providing agro-industrial production, conducted at the subregional level, a shortage of services was identified that ensure the interaction of the main stages of reproduction in the agro-industrial complex. The reason for this was the privatization of a number of industrial infrastructure enterprises. This process led to the cessation of material support (subsidies and compensation) from the federal and regional budgets, which negatively affected the development of the production infrastructure of rural areas.

The infrastructure of the agro-industrial complex, first of all, should have a social component, which is represented as a combination of material and hylic elements, satisfying a whole complex of the needs of individuals, families and society. Social infrastructure is an area of interaction between the material environment and social subjects and makes it possible to rationally organize their lives and activities.

The infrastructure of the social sphere is represented by the system of enterprises, institutions and authorities that ensure the effectiveness of the activities of all institutions of the social sphere. At the same time, the diverse needs of individuals, families and society as a whole are provided with a diverse and wide choice of goods and services. It is divided into different types and areas of activity of social subjects (labor, leisure, cultural), as well as links in each of the types (out-of-school education, pre-school, etc.), can be considered at the level of society, region, industry, individual enterprises [7].

Social infrastructure is characterized by the number of organizations, institutions which are providing education, medical, consumer and transport services, as well as the number of places in them, the volume of services. According to the level of development of social infrastructure, one can judge the degree of satisfaction of the needs of the population.

The implementation of the activities of the social, industrial and environmental infrastructures of the regional agro-industrial complex is based on the coordination of their official functions with their orientation towards the reproduction of the conditions of life of the society.

The most important role among the noted infrastructures of the agro-industrial complex of the Perm Territory is played by the environmental infrastructure, which is closely connected with the formation and implementation of the program of sustainable development of the territories and can be represented as a separate activity. Taking into account its impact on the social standard of living of the rural population, it can certainly be included in the complex social infrastructure [8].

The development and improvement of the infrastructure of the agricultural sector is based on the creation of regionally integrated structures and the creation of a logistics infrastructure that meets modern economic conditions and contributes to the development of inter-economic and interregional cooperation. Stimulating the output of regional agricultural products to interregional and international markets through organizational and customs support has also the insignificant importance in the field of product distribution.

More than twenty years of reforms have brought to the agriculture of the Perm Territory the loss of everything previously achieved in the production and social spheres. Agriculture of the region is in the deepest crisis, despite the revival in the industry as a whole in the Russian Federation.

Socio-economic policy in relation to rural areas is based on an analysis of production potential, demographic situation, social infrastructure and many more factors, taking into account their potential changes [2].

In the present conditions, the priority directions of the agrarian policy of Russia should be:

- ensuring socio-economic conditions for the development and preservation of rural areas;
- resumption of agricultural production;
- ensuring the country's food security [3];
- improving the welfare of the rural population.

The tactical goal of the development of rural settlements is to achieve a permanent increase in the standard of living of the population, which is ensured by economic growth, development of the living environment and the social sphere.

One of the main directions of socio-economic development of rural settlements in the region should be:

- changing the direction of the rural economy, increasing incomes and employment of the rural population;
- development of entrepreneurship;
- compact complex construction of rural settlements;
- positive changing of living conditions of the rural population, modernization of the social sphere of the village, including educational institutions, sports, health care, culture, etc.

Thus, the system of socio-economic development of the village is multidimensional and has various levels. A system analysis of the connections, structure and relations of the components of this structure is used for programming its development [4]. The formation and implementation of regional socio-economic policies are carried out due to a set of measures that ensure the sustainable development of rural settlements. The system for the future development of infrastructure must respond to socio-economic changes in accordance with the projections of labor and material needs.

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俄罗斯联邦在解决纳戈尔诺 – 卡拉巴赫冲突方面的中介作用

**THE DIGITIZATION OF SOCIETY AS A FACTOR
OF SUSTAINABLE DEVELOPMENT**

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注解。 文章论述了数字化对经济可持续发展的影响，展示了人力资本与社会未来发展的关系，提出了数字经济在GDP结构中的贡献。

关键词：数字经济，人力资本，可持续发展，数字素养，信息和通信技术。

Annotation. *The article discusses the impact of digitalization on the sustainable development of the economy, shows the relationship between human capital and the future development of society, presents the contribution of the digital economy in the structure of GDP.*

Keywords: *digital economy, human capital, sustainable development, digital literacy, information and communication technologies.*

By the end of the second decade of the 21st century, not only the most developed, but also developing countries and countries with economies in transition have come to the realization that the development and distribution of digital technologies are inevitable, and we all should be ready to accept this opportunity that can be used as a major driver of the further sustainable development of the economy.

While waiting for the necessary changes in the economy in 2020-2030-s., hopes are placed only on breakthrough technologies in various industries, such as digital production technologies¹, nanotechnologies, alternative energy resources, information networks, biotechnologies of plants and animals and medical preparations².

One of the basic factors of a modern innovative economy and national transitions to the digital path is human capital that serves as a kind of driving force for the intensive and at the same time sustainable development of the region.

¹Starikova, L. N. Innovacionnost ekonomiki regiona kak predposylka povysheniya kachestva chelovecheskogo kapitala // Starikova L. N., Sagdeeva L.S. / Vestnik KengGU. 2012. №4. S.324-331.

²Starikova L. N. Innovative potential of Kemerovo region: structure, state./L. N. Starikova, L. S. Sagdeeva// Eco. 2018. № 11 (533). P. 84

Digital technologies include the Internet, computers, mobile phones and other means for collecting, storing, analyzing and distributing information at the digital level³. Based on them, key technologies are being created that will soon play an important role in the development, including the Internet of Things (IoT), operations with large data arrays (Big Data), distributed registry systems (block chain), advanced robotic systems (RTS), cloud computing, virtual and augmented reality and additive technologies.

According to OECD estimates, the greatest contribution to the digital transformation of the economy and society as a whole at the current stage will be provided by the Internet of Things (IoT), big data analysis technology (Big Data), artificial intelligence (AI) and block chain technology. In order to have an understanding the essence of the listed technologies, it is necessary to define each of these four. The Internet of Things (IoT) consists of devices and objects, the state of which can be changed through the Internet, with or without the active participation of individuals. Big Data Analysis Technologies (Big Data) - a set of methods and tools that are used to process and interpret large amounts of data. Artificial Intelligence (AI) are machines that perform human-like cognitive functions. Experts believe that the use of artificial intelligence will contribute to solving complex tasks, increasing productivity. Block chain is a decentralized and disintegrated technology that facilitates economic transactions and peer-to-peer interactions. The block chain eliminates the need to use trusted powers or an intermediary operator, which contributes to the active use of block chain technology in the financial sphere.

“Digital economy” expands the possibilities of producing analogue economy and represents a new type of economic relations arising in the production process between its subjects, where value added is created by implementation of digital technologies. Thus, the use of computers, the Internet and other ICTs can be considered as consumption, and the digital economy is thus part of the economic relations mediated by the Internet, mobile communications and EPR technologies.

Many countries are already evaluating the contribution of information and communication technologies (ICT) to GDP. Thus, according to the World Bank for 2016, Iceland, the Republic of Korea, Japan, Switzerland and the United Kingdom are among the top five countries in terms of ICT sector size in relation to GDP and contribution to GDP growth. Today, the contribution of the digital economy to Russia's GDP is estimated at 2, 7%, which is 2-3 times lower than the leading countries.

It is also worth taking into account not only the country, but also the regional aspect. Korea and Japan are close neighbors of dynamically developing China, which undoubtedly is their common and one of the most serious competitors. Therefore, the economic growth rate and the rapid scientific and technological development of China create an incentive for Japan and the Republic of Korea to increase their own competitiveness in new dynamically developing markets.

³World Bank Group (2016). Digital Dividends. World Development Report. Washington P.2

Russia as another regional player could also draw from the experience of Japan and the Republic of Korea interesting ideas for implementing its own Digital Economy program, approved in 2017. This implies not so much a transposition of the experience of the countries in question on Russian soil, but rather its creative rethinking and the invention of original political measures based on it.

In addition, in 2016 at the Eastern Economic Forum (WEF) V.V. Putin voiced the idea of forming a single digital space in East Asia, and at the WEF in 2017 the Minister of Economic Development of the Russian Federation, MS Oreshkin and the Minister of Economy, Trade and Industry of Japan H. Seko signed a joint statement on cooperation in the field of the digital economy. Given the state of the competitive environment in the region, it is foolish not to expect that other countries in the region, including the Republic of Korea, China, Singapore and India, can join the cooperation.

This means that Russia can not only borrow the experience of other countries in the region, but also share its own, especially given the successes of Russian specialists in mathematics and system programming.

It should be emphasized that the human capital plays a large role in the development of digitalization. An important competence that a modern person needs is the ability not only to read and write, but the ability to work with information - to understand where it can be found, to be able to analyze and critically comprehend the information received, the ability to correctly apply knowledge.

Today, Russia has a high level of digital infrastructure development, but is lagging behind in terms of computer literacy.

In 2017, 76.3% of households had access to the Internet. According to a VTsIOM survey in 2019, almost 66% of respondents use the Internet daily, only 18% do not use it at all. However, the contribution of the ITK sector to GDP is still 2.7%. The digital divide between social groups, large and small cities is undoubtedly preserved, which entails risks in the field of cybersecurity, protection of personal data and information.

In Russia, children begin to develop computer literacy in primary school (grades 1-4). Over the past 11 years of schooling, Russian students in computer science lessons are gradually learning computer skills. According to the NAFI¹ survey, 62% of schoolchildren from Russia have an average level of computer literacy and only 2% have a high level. Nevertheless, Russia ranks 2nd in the PIRLS ranking and in 2013 Russian eighth-graders took 8th place in the international computer and information literacy study (ICILS).

Higher education institutions develop digital literacy skills acquired at school,

¹Aymaletdinov, T. A. Digital literacy for the economy of the future / Aymaletdinov T. A., baymuratova L. R., Gritsenko V. I., Dolgova O. A., Imaeva G. R., Smirnov K. V. // Analytical center of NAFI. – M.: publishing house of the NAFI, 2018. – 86 p.

in the family, as well as through self-study. The most important skill for which the higher education system is responsible is the ability to work with sources, to search for information and to critically evaluate it. It is difficult to imagine the educational process in higher education without the use of the Internet and electronic resources. The older generation becomes a vulnerable category in terms of technology development. The study revealed that the main reasons are mistrust of digital technologies and fear of them.

A higher level of digital literacy enhances career prospects, expands opportunities for job seekers. In our country, especially in the regions, the strength of connections and recruitment through recommendations is still very important². The majority of managers of small and medium businesses pay attention to this problem³.

Thus, the development of digital technologies predetermines a new path to sustainable development. For the economy: it is an impetus for economic growth, because Digitalization accelerates production and exchange processes, increases the level of competition, and contributes to the improvement of the welfare of society. Social factors directly affect sustainable development through increased investment in human and social capital. The usage of ITCs for quick access to knowledge and information reduces inequality by involving people with disabilities in the learning process, provides an opportunity to learn throughout all the life and thus increases the level of competence. In addition, the possibilities of digital technologies in the field of diagnostics and remote diagnostics of diseases will increase the social potential of a person.

An important component of sustainable development is environmental management and environmental safety. Digitalization not only leads to the introduction of environmentally friendly production technologies, but also allows the society to be involved in the environmental protection system.

²Sagdeeva L. S. Kemerovo region: personnel potential and real needs in the economy in working professionals. *Man and work*. 2008. No. 3. P. 41-43

³Lukicheva, A. D. Problems of formation of the middle class in Russia /A. D. Lukicheva, S. M. Korobko, D. I. Korobko/ *Food innovations and biotechnologies*. Proceedings of the IV International scientific conference. 2016. P. 451-453.

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发展经济体制，稳定农村和农业

**DEVELOPMENT OF ECONOMIC INSTITUTIONS
TO STABILIZE RURAL AREAS AND AGRICULTURE**

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named after Academician D. N. Pryanishnikov

注解。在经济制度体系中，在经济制度体系中有效发展区域农工业综合体，可以确保各种形式的企业结构的可持续性，稳定性，效率和农村基础设施的发展。需要回顾性分析，以系统化业务流程特征的理论基础，以便在改进自我监管技术的情况下，在发展制度环境的演化过程中组织行动的有效发展。

关键词：食品市场，国家政策，制度理论，区域农工业综合体，集群

Annotation. *Effective development of the regional agro-industrial complex in the existing institutional system in conditions of economic uncertainty is possible in the system of economic institutions to ensure the sustainability, stability, efficiency of the structures of various forms of business and the development of rural infrastructure. A retrospective analysis is needed to systematize the theoretical basis of the features of business processes in order to organize the effective development of actions in the evolutionary process of developing the institutional environment in case of improving self-regulation technologies.*

Keywords: *food market, state policy, institutional theory, regional agro-industrial complex, cluster*

The provision with food in the modern conditions of the population of the regions on the basis of a flexible and optimal combination of market principles of management with state influence on their implementation determines the need to assess the formation of food markets.

The implementation of a unified state policy to protect the interests of business entities and reducing the degree of state pressure on free market business and professional relations by consistently creating self-regulating organizations in various areas of business and professional activity determine the need to develop legal regulation of the institution of self-regulation as an integral part of administrative reform. [1]

Institutional theory as the basis of Russian agrarian transformations suggests that the generally accepted positions of regulating the activities of the agrarian sphere are not canceled, but are modified by expanding the possibilities of self-regulation as the main tool of an integral regulatory system. This is very important since the administrative policy of the state is focused on expanding the positions of self-regulation and responsibility of all government levels.

Analysis of the existing institutional system has shown that an exceptionally developed system of economic institutions and organizations ensures the stability, stable structure of business forms, reflects corporate standards of behavior.

A number of legislative acts (Federal Laws "On Banks and Banking Activities", "On Non-State Pension Funds", "On Auditing Activities") include self-regulation issues, but in the most complete form they are summarized in the Federal Law of December 1, 2007. N 315-FL "On self-regulatory organizations" [5]

This regulatory document has intensified structural changes in various sectors of the domestic economy and clarified the need for positions on the development of a self-regulatory system in the agro-industrial complex. Not only entrepreneurs who are interested in introducing common standards of their activities and forming civilized market relations, but also government structures are ready for changes in the principles of economic regulation are included in the work related to the development of self-regulatory institutions in Russia. This is even more important if we consider the need to address the problems of subsistence support and food security of the regions. [6]

Self-regulation is an independent response of the internal system of a self-regulating organization to external influences that disrupt its normal functioning.

Self-regulation organizations have objective comparative advantages in terms of ensuring effective control over the behavior of market agents, since self-regulation actually maintains high standards of business operation in a certain area, has a developed set of rules, a control system and application of sanctions, does not create obstacles to effective competition in the market, does not ensure respect for interests of organization members to the detriment of the public interest.

The methodological study sequence of the relationship and interdependence of regulation and self-regulation should be based on the following logic: in the presence of mature relationships between product manufacturers (contractors) and consumers, it is absolutely possible to expand self-regulation processes within the government regulation. The evolutionary process of the development of agricultural production system theory must constantly take into account the special concept of the effectiveness of agricultural production activity aimed at the formation of an optimal cost structure.

A new conceptual model in the implementation of public administration, in its relationship with the system of self-regulating organizations, should be aimed primarily at implementing programs for the socio-economic development of territories and solving the issues of providing food in its high-quality implementation at all levels of government.

It should be noted that within the framework of self-regulating organizations, more stringent standards of functioning are established in comparison with the positions of legislation. This fact serves as a decisive argument in the competition. It should be said that the presence of corporate rules clearly attracts customers, all other factors being equal.

In the Perm region practice, the nature and conditions of interrelationships of the Ministry of Agriculture and municipal authorities as organizers and coordinators of the implementation of the functions of the agro-industrial complex are clarified on the basis of a set of developed standards and rules of relations between self-regulating organizations and the state.

Practical use of the rules and standards allows completing the process of leveling the mechanism of monopolism on the basis of the developed system of partnerships between state and self-regulating structures.

The functions of state regulation according to our recommendations are preserved in matters: ensuring the quality of products, creating safe working conditions, social protection of workers, regulating land relations, the system of financial and credit regulation of business, which allows realizing the economic role of the state and having sustainable rural development.

It is known that the importance of any business is determined by the demand for its goods or services (Table 1). [6]

Table 1 - Implementation of the main agricultural products of the Perm region organizations (for all sales channels, tons)

Indicators	2017	2016	2017 in % to 2016
Grain and pulse crops, thousands, tons	41,9	62,9	66,6
Potatoes	24,3	39,9	57,6
Open and closed vegetables, thousands, tons	8,3	8,3	101,0
Livestock and poultry (live weight), thousands, tons	86,1	91,5	94,1
Cattle milk, thousands, tons	353,9	362,2	97,7
Egg, million, pieces	1037,9	964,9	107,6

* Compiled by the author according to the Permstat Department of Agriculture Statistics.

The way out of the economic crisis, the development of market positioning in the country can be realized through the implementation of economic policies, providing for a reasonable combination of active economic growth policies and the introduction of new technologies of public administration and regulation.

The introduction of new practices of state regulation of the agrarian sector of the economy (mainly economic methods of regulation instead of administrative ones, the granting of the right to choose proposed conditions and programs based on indicative methods of regulation, expansion of the practice of making decisions on regulation based on democratic principles) are crucial in determining the prospects for the development of the agrarian sphere. [2]

The analysis of the current institutional system showed that the system of economic institutions and organizations created in accordance with the Federal Law No. 315 of December 1, 2007 on Self-Regulatory Organizations ensures the sustainability and stable structure of business forms, reflects corporate standards of behavior. [5]

A new conceptual model of the relationship of public administration with a system of self-regulating organizations is being created: replacing the licensing system for creating a business with a notification, stimulating innovation, strengthening the antimonopoly legislation in the field of procurement of agricultural products for public purposes.

An integrated approach and its consistent implementation allowed specifying the organizational and economic components of the mechanism for realizing the competitive advantages of cluster formations.

An analysis of the domestic and international practice of cluster-type formations made it possible to determine the conditions for the formation of a cluster in the Perm Territory.

On the part of business there are the presence of key owners and enterprises that are potentially interested in cooperation within the cluster; operational and other relations between enterprises, interaction mechanisms, a high level of mutual trust; sufficiently high innovation level of most enterprises and organizations of the potential cluster; export component in cluster products, which allows speaking about its competitiveness; readiness of leading managers of enterprises to work in the conditions of growing cooperation and competition in the interests of active development of business and territory.

On the part of the authorities and the business environment there are the interest of the authorities in the cluster variant of development of the regional economy, which will contribute to the development of cooperation and cooperation between groups of enterprises; the authorities have experience of successful interaction with the business, where cluster incubation is expected; positive assessment by private sector leaders of improving the regulatory framework through the efforts of regional authorities, the availability of business support infrastructure, experience in participating in the reengineering of enterprises, and the provision of consulting services; the willingness of regional leaders to engage in dialogue with business on a partnership basis; the presence in the system of vocational education of necessary personnel and experience in training personnel for the relevant sectors of the economy.

The market economic system is focused on ensuring the competitiveness of agricultural production, which, of course, is associated with certain risky operations and obstacles. In this situation, we consider it necessary to determine the principles of organizing venture agribusiness activities, to establish the conditions and nature of relations and the consequences of managing risk projects in terms of self-regulation.

The practice of venture business will expand the range of products, introduce new agricultural technologies, create new jobs, implement programs for the development of depressed territories, provide additional tax payments, i.e. ultimately, expand the scope of a particular use of capital in agribusiness. [3]

The main principle of the evolution of self-regulating organizations is the natural development of the institution of self-regulation, which should occur through the separation of powers between the federal center, regional and meso-level from the position of clarifying the principles and methods of managing food security.

The mechanism of the territorial procurement system determines the totality of levers and tools for leveling the problem of inconsistency between the planned indicators and the timing of funding for the real allocation of funds earmarked for the purchase of agricultural products for public use.

It is all the more important if we consider that the incompatibility of local, regional legal acts with federal regulations, the lack of time to finance product procurement programs lead to negative financial consequences in the activities of suppliers, to certain positions of corruption in this matter.

The system of transparency and provision of a single information space is fully realized in the presence of an established organizational and functional structure of “electronic procurement”.

On the basis of competitive procedures and auctions, according to the methodology proposed by us, the corruption impact in the public procurement procedure is reduced, the practice of insurance contracts is expanded and market competition among suppliers of products for public needs is actually ensured.

The rationale of the functions, goals and objectives of the government regulatory bodies for public supply has been implemented by us in the form of the author’s model of the optimal management of the “procurement-supply of agricultural products” process. In the proposed model, in order to specify the criteria for evaluating the class of suppliers and the quality of the supplied agricultural products, the scoring method for evaluating suppliers is used.

With sequential optimization, the problem of the optimal equation is divided into a number of tasks-stages with a hierarchical structure (structure of hierarchy).

The preliminary stage of optimization includes the creation of a database and the definition of a class of suppliers, taking into account the developed criteria of class (table 3). [4]

Table 3 - Determination of the classness of the agricultural products supplier

Criteria	I class	II class	III class
1. Product price	At an average price	≤ 10%	≤ 11 - 20%
2. Quality of agricultural products	Certificate +state standard	Certificate + state standard	In the production stage
3. Experience of participation in previous competitions (customer reviews)	Three competitions and more	Two-three competitions	Less than two competitions
4. Reliability, the financial condition of the company	I	II	III (or no available data)
5. Preference of local agricultural producers	Registration at the Perm Territory	Branch registration in the region	Lack of registration in the region
6. Technical equipment: equipment, machines of the appropriate class	Private or leasing	Long-term lease	Absence
7. Availability of specialists, qualified personnel	Trained, having the state certificate	Trained, without the state certificate	Not trained specialists

* Compiled by the author

The technique allows regulating the system of control parameters when the external conditions change, changing both the criteria for selecting suppliers and introducing new internal parameters and restrictions on their participation.

This method has received practical application in the system of organizing the activities of electronic platforms in the supply system of agricultural products of the Perm Territory.

Procurement activities, including a whole range of issues related to the identification of needs for agricultural products, raw materials and food, the formation of state order, the definition of government customers is a complex system of administrative, financial, budgetary and civil-law relationships.

In order to improve the socio-economic development of the region and rural areas the work proposed the formation of independent self-regulatory organizations for the sale of agricultural products.

The electronic bidding system allows: saving budget funds by combining applications from product recipients, the absence of an uncontrolled change in the terms of concluded contracts, a controlled reduction in the number of agricultural purchases without tenders, a reduction in the cost of the public procurement process, and ensuring equal competitive opportunities due to the openness of tenders, to expanding the range of suppliers of agricultural products due to a greater coverage of applicants, simplifying the procedures for preparing and conducting courses through standardization and developing a common approach to tenders, simplifying and accelerating the formation of statements by consolidating data in a single center.

Since one of the most important subsystems of the modern market economy is its infrastructure, in this regard, one of the urgent tasks is the creation of market infrastructure institutions that contribute to the restoration of trade flows and the functioning of food "chains", i.e. an efficient market system for the distribution of agricultural products, which will provide domestic producers and consumers with a sustainable access to a non-monopolized food market and the sale of products at equilibrium, based on supply and demand, market prices.

An integral part of the system of regulatory measures and self-regulation is, of course, foreign economic policy, a focus on Russia's integration into the world economy and the global agrarian food market.

The Russian economy should provide not only an increase in the competitiveness of the agriculture product complex in the external and internal arenas, but also a consistent integration of state regulation and self-regulation of the functioning of the agro-industrial complex to ensure real food availability to all segments of the population.

As a remark, it should be noted that adaptive work on this problem was carried out by us in order to adjust the provisions of foreign experience of self-regulatory systems, their capabilities within the framework of the Russian practice.

Thus, the problem of the evolutionary development of regulation and self-regulation of the formation and functioning of regional agriculture and rural areas required consideration of these issues at all levels of government.

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引进现代建筑技术 – 农村可持续发展的基础

**INTRODUCTION OF MODERN CONSTRUCTION TECHNOLOGIES –
THE BASIS OF SUSTAINABLE DEVELOPMENT OF RURAL AREAS**

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注解。 本文重点关注农村发展中的建设问题，以及评估完成农村功能之一的潜力 – 满足农村人口生活需求，实现创造充分生活空间的理念。 在农村地区实现渐进发展路线的稳定。

关键词：基础设施，农村，创新，资源保护，住房，geocupola，流动

Annotation. *The article focuses on the issues of construction in the development of rural areas, as well as on the assessment of the potential which completes one of the functions of rural areas - to satisfy living needs of rural population and implements the idea to create full living space in rural area achieving the stability in the progressive development line.*

Keywords: *infrastructure, rural areas, innovation, resource conservation, housing, geocupola, flow*

As the Russian economy transformed into market system there has been a slump of agricultural production, finance conditions of agro-industrial complex has got worse and the mechanism of development of social sphere has changed. The current situation has become an obstacle to the formation of social and economic conditions for the further sustainable development of the agro-industrial complex of the Perm region.

The level of economic development of the region can be assessed by the degree of security of the population with housing of good quality. The conditions of the housing stock, the quality of housing and communal services and the development of the housing market have a significant impact on the investment climate of the territory. Increase of the degree of housing, improvement of its quality contribute to the growth of consumption of other durable goods. It creates conditions for attracting labor resources to the region.

In modern conditions, there is a shortage of housing in regions which is caused by various reasons. Firstly, in comparison with the Soviet period, the amount of housing construction in rural areas has decreased. Secondly, the administrative nature of housing distribution has given way to a pricing mechanism that is not focused on meeting consumer demand for housing.

In accordance with the goal of the program "Sustainable development of rural areas in the Perm region for 2014-2017 and for the period up to 2020", a number of tasks were defined, one of which was to improve the living conditions of citizens living in rural areas and provide affordable housing for young families and young professionals in rural areas.[1]

Today, according to the level of housing provision, the Perm region occupies the penultimate thirteenth place in the Volga Federal district, this figure is 20.8 sq. m. per person, the situation is worse only in the Udmurt Republic, where this figure is 19.6 sq. m. per person. The average provision of housing in the cities of the Perm region reaches 23.0 sq. m. per person, while in rural areas there are only 19.8 sq. m.

The technical condition of the housing stock in rural areas deteriorates every year. The percentage of dilapidated and emergency housing in 2015 was 8.5 percent, which is twice higher than in the city. The total area of the dilapidated housing stock reaches 1178.8 thousand square meters. As a result, the problem of housing provision in rural areas of the Perm region is very acute. In 2015, 77.6 thousand families needed housing in the Perm region, the number of families who received housing is 3.9 thousand families per year.

From an economic point of view, the stimulation of the housing market of rural settlements with the help of state programs is a large investment project of social orientation, which can give impetus to the development of agro-industrial complex of the Perm region.

At the moment, the economic potential of infrastructure development in the field of housing construction in the Perm region is very high, mainly due to natural resources and industrial development. On the territory of the Perm region there are high-quality deposits of clay, sand, limestone, wood, metal production, etc.

In the current economic situation, when there is an interest in solving the problems of improving the infrastructure of rural areas on the part of the state and the resource potential of the region, there is a need for a clear organizational relation-

ship with innovative resources, which in turn can increase economic efficiency at all stages of any project to provide the population with infrastructure, and, in particular, housing.

Speaking about innovative resources, it is necessary to take into account the positive impact that it can have on the economic side of the project.

Since the creation of a new infrastructure facility is a resource-intensive process, innovations in this area are aimed at reducing the resource intensity at all stages associated with the creation and operation.

The resource intensity in this case is a quantitative or cost estimate of the costs associated with the materials, technology of work, energy and time of commissioning.

In the context of the lack of availability of infrastructure facilities, namely housing, it is necessary to talk about the creation of new residential complexes. That is, in order to solve the problem of housing for all citizens in need, it is necessary to follow the path of mass construction, which makes the issue of resource saving acute.

Complex construction of rural areas involves the use of the same type of housing, so the issue of reducing resource intensity should be considered from two sides, namely: reduction of resource intensity in the application of innovations aimed at one separate infrastructure element and reduction of resource intensity in the application of innovations to the whole complex.

Considering the construction of one object, we can say that the reduction of resource consumption both at the stage of construction and during the operation of the object should be reached by means of innovative technologies. It is necessary to reduce the amount of used materials which make the object at the stage of construction, at the stage of the operation of the object it is necessary to reduce the expenses connected to energy provision.

When considering the construction of a housing complex, we can say that innovative technologies here should be aimed at reducing the resource intensity at the construction stage, assuming a managerial nature, namely the use of such a method of organization of work that will reduce the time of commissioning and the use of technologies of work requiring low energy consumption.

Therefore, the main task of the infrastructure development of rural areas of the Perm region from an economic point of view, is the purposeful research and application of technological and managerial innovations to reduce resource intensity.

Geodesic technology erection of buildings and structures, and the production system work flow system construction were considered to solve this problem.

Geocupola construction technology is the construction of low-rise buildings in the form of a hemisphere using a wooden frame, the elements of which are located on geodetic lines[2].

The main advantages of this technology from an economic point of view are:

- reduction of the amount of materials used by 20% compared to other technologies;
- reduction of thermal energy consumption during the operation of the building by 40%;
- use of local building materials;
- no need for heavy machinery;
- the use of prefabricated structures, which increases the speed of Assembly, etc.

Nowadays, the real estate market generalizing evaluation criterion of resource intensity in value terms is the price of one square meter of living space. In accordance with this criterion, it is possible to assess the most applied technological solutions for the construction of low-rise housing: brick construction cost on average 36,2 thousand rubles per sq. m. housing; solid wood construction on average 25,1 thousand rubles per sq. m.; wooden frame and panel construction – 17,9 thousand rubles.

According to the calculations, the cost of one sq. m of living space in the application of technology of geo-construction is an average of 14.5 thousand rubles, which is 3.4 thousand rubles less than using wood frame-panel technology [3].

With the simultaneous construction of a large number of similar objects, it is necessary to take into account the complex nature in the development of the logistics system of construction, that is, how the process of construction of a complex of structures will be organized. The main criterion for choosing the most effective method of work is the speed of construction and the least amount of energy consumed at high quality.

In our opinion, the most effective and appropriate method in this case is the use of a system of mass construction of rural infrastructure, which is, in fact, a conveyor method of work. The main point is that a certain group of persons is responsible for each technological operation. This group during the process continuously moves from one object to another, thereby improving the quality and speed of the work performed. When using this method of organization of work, the cost of one square meter of housing can be reduced from 6 to 12 percent, depending on the number of objects being built.

The indicator of the housing stock of rural residents says little about the overall level of economic development of the territory and the quality of life of the population, but, nevertheless, is often used to characterize the standard of living. Therefore, it can be concluded that for the development of infrastructure of rural areas of the Perm region, it is advisable to carry out a comprehensive construction of housing using innovative construction technologies and using the flow method of construction. This will significantly reduce construction costs and improve the socio-economic component of the budget to address other equally important tasks aimed at improving the quality of life of the rural population of the Perm region.

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监测该地区农产品的自给自足系统及其改进方法
**MONITORING OF THE SELF-SUFFICIENCY SYSTEM
OF AGRICULTURAL PRODUCTS
IN THE REGION AND WAYS TO IMPROVE IT**

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抽象。在研究期间，监测了彼尔姆地区粮食供应系统的状况和运作情况，提出了农业工业部门发展战略。根据对系统运行状态的分析，确定了在不久的将来提供国家客户和人口的主要任务。对彼尔姆地区食品供应系统的分析考虑了许多标准。本文讨论了这种经济和物理可访问性，独立性以及安全性。

关键词：监测，进口替代，经济，农产品，粮食，粮食安全，消费标准，社会水平，规定

Abstract. *During the study the state and functioning of the food supply system of the Perm Territory were monitored, a strategy for the development of the agro-industrial sector was presented. In accordance with the analysis of the state in the operation of the system, the main tasks of providing the state customer and the population in the near future are identified. The analysis of the food supply system of the Perm Territory took into account a number of criteria. This economic and physical accessibility, the level of independence, as well as security is discussed in this article.*

Keywords: *monitoring, import substitution, economy, agricultural products, food, food security, consumption standards, social level, provision*

Currently, a key area of economic development is the solution of tasks that help ensure the food security of the country. This trend is determined by the fact that food is an important indicator of human life, and in addition, the level of food supply is the most important factor and determining criterion of the level of social and economic life of the population.

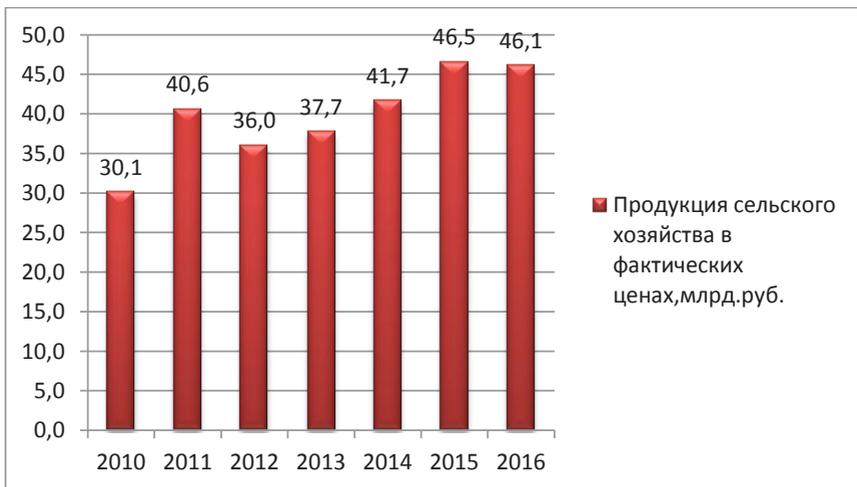
The implementation of a sound state policy in ensuring food security, including at the regional level, is the basis for achieving sustainable domestic food self-sufficiency.

The functioning of the state customer's food supply system is influenced by external and internal factors. The level of food consumption depends on them, regardless of the region in which it is produced and despite the current situation on the global agrifood market.

The implementation of state policy to ensure food security of the state and reliable food supply of the country are the main indicators of the level of food self-sufficiency in modern conditions of import substitution of agricultural products. [3]

At the same time, reliable provision of the state customer with domestic food will be achieved only with a stable development of the regions and the sub-complexes of the agro-industrial complex.

The main task of ensuring food security should include uninterrupted food supply of the state customer and the population, as well as a steady increase in the volume of agricultural products. This can ensure food independence in the region [5]. The indicators of agricultural industries of the Perm region for the period from 2010 to 2016, which affect the food security of the region, were analyzed. This analysis showed an increase in the volume of agricultural products for the study period in all categories of farms (Figure 1).



Based on the data of the Territorial Body of the Federal State Statistics Service in the Perm Territory

Fig. 1. Indicators of gross agricultural production of the Perm region in the period from 2010 to 2016 (in all categories of farms)

A slight decrease in the production of agricultural products is seen in 2012 compared with the previous year. This can be attributed to the negative phenomena in the global economy.

In all categories of farms of the Volga Federal District, the Perm Territory, including the volume index, takes the 12th place (from 14 regions). It is important to note that during this period, a significant increase in the production of agricultural products was shown by peasant (farmer) farms. In the study period, the volume of production of agricultural products in this category of farms increased by almost 3 times of the total gross output. This indicates a significant contribution of the private sector of the agricultural economy of the Perm region to the system of ensuring food security. [4]

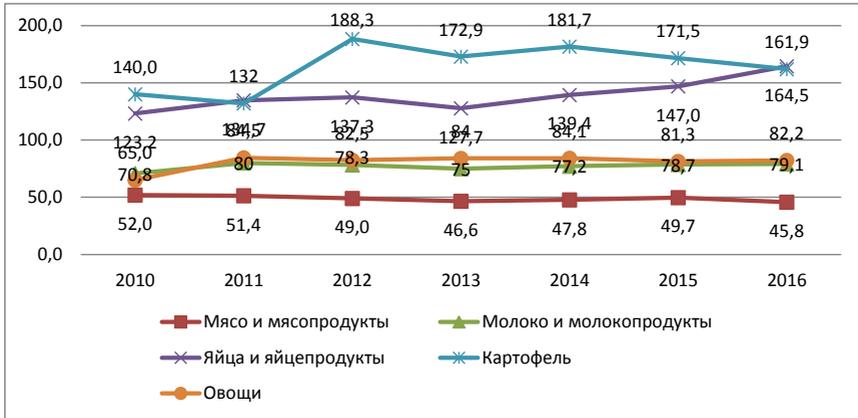
Currently, the agricultural production potential in the region continues to be low. This is evident in the change in the index of the physical volume of agricultural production by years in the Russian Federation, the Volga Federal District and the Perm Territory (Figure 2).



Based on the data of the Territorial Body of the Federal State Statistics Service in the Perm Territory.

Fig. 2. Dynamics of the index of physical volume of production of agricultural products in the period from 2010 to 2016 in the Russian Federation, the Volga Federal District and the Perm Territory, in%

For the period presented, the production of meat products decreased by 7.2% and the maximum value of the level of self-sufficiency with these products was reached in 2010 and amounted to 52.0%, with the required level of at least 85% [4]



Based on the data of the Territorial Body of the Federal State Statistics Service in the Perm Territory.

Fig. 4. Dynamics of self-sufficiency of the region with basic foodstuffs (2010-2016), in%

A similar situation was in the self-sufficiency of consumers of the region with vegetables, milk and dairy products. Although in 2016 the production of milk and dairy products increased by more than 2% compared to 2010. The level of self-sufficiency was about 80%, which does not correspond to the normative indicators adopted in the Food Security Doctrine - this is 90%. For the period from 2010 to 2015, this figure ranged from 70.8% to 80%.

The situation is better in providing consumers of the region with eggs and potatoes. The consumption of these products per person per year exceeds medical standards. The production of eggs (egg products) and potatoes in the period under review increased by 30%, and the indicator of the level of self-sufficiency for these types of products is higher than the threshold values approved in the Doctrine of Food Security of the Russian Federation (Table 1).

Table 1. *Self-sufficiency indicators of the region for the main types of products in 2010-2016*

Self-sufficiency indicators by main types of products	Years						
	2010	2011	2012	2013	2014	2015	2016
Meat and meat products, in %	52,0	51,4	49,0	46,6	47,8	49,7	45,8
Milk and dairy products, in %	70,8	80,0	78,3	75,0	77,2	78,7	79,1
Eggs and egg products, in %	123,2	134,7	137,3	127,7	139,4	147,0	164,5
Potato, in %	140,0	132,0	188,3	172,9	181,7	171,5	161,9
Vegetables, in %	65,0	84,5	82,5	84,0	84,1	81,3	82,2

Based on the data of the Territorial Body of the Federal State Statistics Service in the Perm Territory.

Indicators of grain production are critical. It is only 126 kg per person living in the region per year at the current rate of 1000 kg. The volume of production in 2016 amounted to about 250.0 thousand tons after revision, which is 25% lower than in 2010. [4]

An objective indicator reflecting the level of food security in the region is the ratio of the actual volume of food consumption by residents of the region to the established norms of rational consumption.

On the basis of Order No. 593n of August 2, 2010 of the Ministry of Health and Social Development of the Russian Federation, the nutritional standards were reduced and approximated to the factual level of consumption. [1] Since 2016 recommendations emerged (Order of the Ministry of Health of Russia dated August 19, 2016 No. 614), which further provide for a reduction in the norms of food consumption. [4] This helps to improve the level of indicators of food accessibility (Table 2).

Table 2. *The level of availability of food in the region (2014-2016), based on 1 person per year*

Main types of food	Recommended rational medical standards		Factual consumption			The level of economic affordability of basic foodstuffs in accordance with the standards, in%		
	2010	2016	2014	2015	2016	norms of 2010, in%		norms of 2016, in%
						2014	2015	2016
Meat and meat products, kg	70-75	73,0	61,0	61,0	62,0	84,1	84,1	84,9
Milk and dairy products, kg	320-340	325,0	232,0	233,0	233,0	70,3	70,6	71,7
Vegetables, kg	120-140	140,0	102,0	102,0	107,0	78,5	78,5	76,4

Compiled by the author based on the data of the territorial body of the Federal State Statistics Service in the Perm Territory.

The factors discussed above significantly influenced food intervention in the Perm Territory. Meeting the needs of the population of the region in food is carried out and at the expense of their importation from other areas, and through the production of local producers.

During this period, the import of potatoes increased by 5 times, by more than 35% of meat and meat products, by almost 30% of dairy products. Food supply to the population of the Perm Territory is also provided by agricultural enterprises of the neighboring regions: Kirov and Sverdlovsk regions, Bashkortostan, Tatarstan, and Udmurtia.

The analysis of the main indicators that affect the affordability of food, allows to draw the following conclusions:

- There is a positive trend in the development of the agricultural sector of the region. During the analyzed period, the volume of import of eggs decreased by 8%, vegetables - by 13%;
- A stable sales market has been formed on the territory of the region: meat and meat products, potatoes, milk and dairy products;
- The following production and economic indicators of agricultural production affect the stability of the food system of the region: profitability, average annual number of employees in agriculture, wages, etc.

Joint activities of agribusiness and the state provides an opportunity to further achieve higher rates in the industry, while the state plays a great role in an unstable

economy. Efforts of the state should be aimed at supporting domestic agricultural producers, improving the competitiveness of agricultural products, improving the mechanism of import substitution of food [5].

Food security is directly dependent on the state's contribution to the regulation of the agricultural sector. The greater the participation of the state, the higher the level of food self-sufficiency in the country and the region. A methodology is needed for assessing the food security of the territories and adjusting the range of indicators for monitoring.

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通过电子交易平台实现农业企业效率的因素
**FACTORS OF EFFICIENCY OF AGRIBUSINESS
THROUGH ELECTRONIC TRADING PLATFORMS**

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抽象。 该文章证实了电子商务意味着商业活动并利用电子环境的能力来改变组织的联系并确保更高的经济效率的说法。 鉴于企业是旨在获利的任何活动，电子商务在本文中被视为通过在业务流程中使用电信和信息技术和系统实施的企业。

关键词：农业企业效率，市场关系，电子环境，信息技术，互联网，通信技术，电子平台。

Abstract. *The article substantiates the assertion that e-business implies business activity and uses the capabilities of the electronic environment to transform the organization's links and ensure higher economic efficiency. Given that a business is any activity aimed at making a profit, the e-business is considered in the article as a business that is implemented through the use of telecommunication and information technologies and systems in business processes.*

Keywords: *agribusiness efficiency, market relations, electronic environment, information technologies, Internet, communication technologies, electronic platforms.*

In the modern economic system, it is necessary to search and apply a different number of ways to improve the competitiveness and efficiency of agribusiness. World experience shows that at the stage of formation of market relations for its development and functioning, it is important to form a business electronic environment using modern information technologies. This is necessary for the conduct of innovative processes of the company and communication technologies for interaction with agents and counteragents.

Business electronic environment is an integrated complex of subjective and objective factors of business transformation mediating business relationships through information and communication technologies

With a reduction in cost costs, a reduction in time is achieved by a favorable comfort mode for business entities when entering into electronic relationships. In 1997, for the first time, the term electronic business was used by the American corporation ABN.

The concept of electronic agribusiness is treated as a safe, integrated and flexible approach to providing consumers with consumer value through the means of combining processes and systems that underlie its most important functions, with simplicity and coverage provided by Internet technologies. Electronic agribusiness can be called any business activity with the use of a global information network used to link the external and internal relations of the organization to increase economic efficiency.

At the end of the last century, a completely new type of business appeared - e-commerce. The Federal Law "On e-commerce" gives the following definition of the term: "E-commerce is the implementation by the parties of a transaction as provided by law for actions and operations when making and concluding transactions for the sale and (or) delivery of goods, performance of works, provision of services, and other actions aimed at making a profit, based on the implementation of electronic procedures "[5]. The high efficiency of using e-commerce in the sale of goods and services is due to the following factors: globality (the Internet allows you to sell goods at any level); costs are reduced, as there is no need for office space and numerous personnel to conduct on-line sales, this allows saving labor and rent; analytics and informative. Combining these factors makes e-commerce convenient and efficient for both the seller and buyers.

Different categories of participants in e-business can be distinguished in the scheme for implementing interactions between the subjects of the relationship [3].

The following main forms of interaction of participants in the implementation of electronic commerce are highlighted:

- 1) Business-To-Business (B2B) - a form of interaction and building an Internet business, in which the parties are enterprises;
- 2) Business-To-Consumer (B2C) - a business model in which one of the parties is a retail customer;
- 3) Business-To-Government (B2G) is a business model in which participants are enterprises on the one hand and the state on the other. [1]

In the early 2000s, the Russian e-commerce market in the B2C segment was ahead of the western ones. The company "Oborot.ru" until 2010 noted a steady growth in the Russian B2C market up to 40% per year.

The size of the B2C market per year was:

- Russia up to 45%
- Germany up to 20%
- UK up to 25%
- France up to 40%

In Russia, the electronic agribusiness industry was formed quite recently. For example, in the USA, transactions were conducted for the first time in 1995 through an online network. As for our country, during these years there were very few computers, and far from all could use the Internet. For the first time, online stores in Russia appeared only in the early 2000s. In modern economic conditions, people rushed into the network in order to find more lucrative offers. The level of online sales in the B2C segment increased by almost 17%, while the total retail turnover in Russia decreased by almost 6%. [3]

The retail e-commerce market increases by an average of 40% per year, which is about 245 billion. rub. The possibility of realizing the potential of the electronic market can occur due to a change in the consciousness of consumers, the advancement of the Internet in regions where the reserve today is up to 50% of e-commerce turnover. In absolute terms, the volume of e-commerce in Russia remains negligible, about 1.5% of GDP. According to experts, 60 million people are Internet users; this is also an insignificant figure.

E-commerce market size of GDP

- Russia 1.5%
- US 17%
- England 14%
- France 14%
- Germany 14%

A limiting factor in the increase in e-sales and the expansion of the geographical boundaries of e-commerce is the insufficient level of the regulatory framework in the field of e-business. In the 1990s, the development of electronic platforms for business interactions at the global and national levels depended on the technical and technological factors of promoting information networks and the spread of the Internet.

Regulation of the legal field in the field of electronic document management and electronic agribusiness in Russia is carried out on the basis of the following legislative documents:

- Civil Code of the Russian Federation.
- Decisions of the Government of the Russian Federation “On confirmation of the rules for the sale of goods by remote means”
- Federal Law "On Communications"
- Federal Law "On electronic digital signature"
- Federal Law “On Participation in International Information Exchange”

- Federal Law "On the National Payment System"
- Federal Law "On Electronic Commerce"

The law on electronic commerce has been discussed since 2000. The concepts of electronic commerce, electronic business, electronic commerce, electronic digital platform, and electronic signature were difficult to use.

The Institute of Information Society "IIS" annually calculates the assessment of e-readiness of the territories. For cluster analysis, 35 different indicators were taken, which characterize the degree of involvement of state authorities, population, business in the electronic environment. As a result, 5 clusters were identified.

Since there are differences in the organizational, economic and technological conditions in the formation of the business environment in the electronic space in the constituent entities of the Russian Federation, it is necessary to implement differentiated measures of public policy and state support for individual clusters, it is necessary to carry out measures to improve the efficiency of the regional strategy for creating a business electronic environment.

One of the most important benefits of e-commerce agro-products is that it allows interested agents to reach the global market. With its help, only any agricultural enterprise has the opportunity to gain access to the world market to select the most optimal price for buying and selling goods and services. For commercial firms, online trading significantly reduces the costs associated with customer service, marketing and inventory management; less time is spent on the reorganization of business processes.

But, despite all the advantages, e-commerce has some significant drawbacks. One of them is a limited number of consumers due to a lack of knowledge or trust in the Internet. Many of them refuse to believe the authenticity of impersonal financial transactions, fear the requirements for the provision of private information [4].

In addition, e-commerce is not suitable for the sale of perishable goods, such as food. People prefer to purchase them in the usual way.

Thus, according to the pros and cons of online trading, the advantage still belongs to the potential, which is much higher than the disadvantages.

Like commerce in its traditional sense, e-commerce is also subject to risks. The following groups of threats are distinguished:

- The use of multiple means for data transmission for the purpose of fraud;
- Hacker attacks;
- Malware and viruses.

New information and communication technologies cause the growth of various types of fraud, allowing criminals to carry out illegal actions.

Among them are fraud related:

- using credit card numbers;
- with copying legal sites;

- using fake marketplaces;
- with the opportunity to earn and investments;
- with the imperfection of payment systems.

One of the most important tasks of electronic commerce is the protection of information. These issues are relevant both for e-commerce as a whole and for financial systems that are related to making payments [2].

The value of e-commerce is that it is the most important technology in the modern world, which ensures the growth of the country's economic growth. In modern life, e-commerce manages to solve such an important task as improving the competitiveness of companies, as it provides the opportunity for a short period of time and bypassing intermediaries to find a commercial partner, significantly reducing transaction costs.

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农业生产的金融稳定性标准
**CRITERIA OF FINANCIAL STABILITY
OF AGRICULTURAL PRODUCTION**

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抽象。财务可持续性的概念是多方面的，其特点是生产潜力的状态和生产发展的充足财务保障，以及利用自有资金和财务独立性进行操纵的能力。研究农业企业财务可持续性形成的问题可能有助于找出改善这种可持续性的主要方向。

关键词：金融，金融可持续性，经济指标，工业家禽养殖，农产品，经济评价，集约化。

Abstract. *The concept of financial sustainability is multifaceted and can be characterized by the state of production potential and sufficient financial security for the development of production, as well as the ability to maneuver with its own funds and financial independence. The study of the problems of the formation of the financial sustainability of agricultural enterprises may make it possible to work out the main directions for improving this sustainability.*

Keywords: *finance, financial sustainability, economic indicators, industrial poultry farming, agricultural products, economic evaluation, intensification.*

Industrial poultry farming is one of the highly specialized sub-sectors of the agro-industrial complex, which was created as an integrated system capable of providing all the processes, starting from the reproduction of poultry, to the production of finished products and selling them through retail chains.

World and domestic experience confirms that industrial poultry can very quickly increase the production of food products necessary for the country's population.

Unfortunately, the destruction of the vertical government system in the country, the lack of legislative, legal and regulatory support, as well as the impact of a number of negative general economic and political reasons, since the beginning of the nineties, the production of not only poultry products, but also livestock products in general has decreased significantly.

Modern researchers subdivide national economic, sectoral efficiency, the efficiency of on-farm divisions, as well as individual measures that are associated with the intensification of production. In our opinion, preference should be given to national economic efficiency, since it is necessary to meet the needs of the population. In addition, efficiency is a category of expanded reproduction that requires constant additional investments in the production of capital received by producers.

The poultry has high productivity and early ripeness, however, the functional activity of the poultry reproductive system in natural conditions is much lower than the limits. Currently, breeders and geneticists significantly improved the productivity and precocity of poultry, the degree of feed conversion, which is the main advantage in industrial poultry farming. Therefore, there is a need for an economic evaluation of the effectiveness of investments in the formation of parental herds and the development of breeding in the poultry industry. Moreover, when evaluating the effectiveness of these investments, it is necessary to study the characteristics of their results, comparing them with the world level of new bird crosses, which, in addition to high productivity, also have a high return on feed [7].

Over the last century, industrial poultry farming has been and remains to this day the most actively developing branch of agriculture, despite the recession observed in Russia and domestic poultry farming due to unsuccessful economic agrarian reforms [5].

Currently, the efficiency of activity and development of industrial poultry farming reflects the improvement of technical and economic indicators in individual regions and at poultry farms. First of all, this is due to the increase in the cost of increasing tariffs and the rise in prices for production services. In addition, the degree of deterioration of buildings and structures, equipment, accounts payable and receivables increases. All this necessitates the assessment of the crisis situation and the development of measures to ensure the economic sustainability and efficiency of poultry farms.

The development of the poultry industry in the Perm region took place in stages, and has now become one of the most efficient branches of agricultural production. Two periods can be distinguished in the development of the poultry industry of the region. The first until 1990, then the rise in production was due to the generalization and intensification of production processes. The ill-conceived

agrarian and economic reforms carried out in the second period from 1991 to 2004 led to the fact that the poultry product subcomplex of the Perm Territory was in an extremely difficult situation. This is what led to a decrease in the production of poultry products, a reduction in livestock, an increase in the loss-making enterprises and the closure of three poultry farms. [5]

In 2013, at the initiative of the poultry industry in the region, the Permian Union of Poultry Farmers was established. The main type of its activity is consulting on management and commercial matters. The primary objectives of the organization are lobbying the interests of workers in the poultry industry in the Ministry of Agriculture of the Perm Territory, as well as in the Russian Ministry. This organization is a kind of “bridge” between manufacturers and authorities. “Permpitessoyuz” provides methodological guidance to the poultry farms within its structure, informs about changes in poultry legislation, and monitors the production activities of poultry farms. The Union has also set another goal - to participate in the supply of poultry farmers of the Perm Territory to budget organizations in the region. During the period of its existence, the Union of Poultry Farmers of the Perm Territory united four poultry farms: JSC PTF “Permskaya”; JSC PTF “Komsomolskaya”; LLC PTF “Mendelevskaya”; CJSC PTF “Chaykovskaya”. [3]

Today, the Perm region poultry farms are gradually improving the conditions for keeping birds through the use of modern equipment, the introduction of resource-saving technologies, the creation of a new material and technical base, and the reconstruction of production buildings.

The basis of the stable position of enterprises is their financial stability. One of the most important criteria for the financial sustainability of poultry farms in the Perm Territory is the assessment of their liquidity, which refers to the ability of an enterprise to pay its current short-term obligations. Thus, the liquidity indicator characterizes the real ability of an organization to pay its current obligations, to pay bills to suppliers of goods and services.

The dynamics of the main indicators of the probability of insolvency (bankruptcy) at the “Komsomolskaya” and “Mendelevskaya” poultry farms can be assessed as an unstable financial situation, as evidenced by their financial performance. A more stable situation with the same indicators is observed at “Permskaya” and “Chaykovskaya” poultry farms (Table 1).

Table 1 - Dynamics of indicators of the probability of insolvency (bankruptcy) of poultry farms of the Perm region.

Indicators	The standard value of the coefficient	2015	2016	2017	Absolute change (2017 by 2015)
“Permskaya”					
Current liquidity ratio	≥ 2	1,65	1,25	1,51	-0,14
Absolute liquidity ratio	$\geq 0,2$	0,03	0,01	0,06	0,03
The ratio of own working capital	$> 0,1$	0,31	0,1	0,24	-0,07
“Komsomolskaya”					
Current liquidity ratio	≥ 2	1,26	1,43	1,1	-0,16
Absolute liquidity ratio	$\geq 0,2$	0,003	0,003	0,09	0,09
The ratio of own working capital	$> 0,1$	-1,16	-0,19	-0,32	0,84
“Mendelevskaya”					
Current liquidity ratio	≥ 2	1,42	1,09	0,82	-0,6
Absolute liquidity ratio	$\geq 0,2$	0,68	0,42	0,49	-0,19
The ratio of own working capital	$> 0,1$	0,14	-0,24	-0,6	-0,46
“Chaykovskaya”					
Current liquidity ratio	≥ 2	2,48	3,06	2,62	0,14
Absolute liquidity ratio	$\geq 0,2$	0,15	0,12	0,1	-0,05
The ratio of own working capital	$> 0,1$	0,39	0,55	0,53	0,14

The table is compiled according to Permstat [2]

The most important indicator of financial stability of an enterprise is “the indicator of the proportion of the total amount of equity to the amount of all funds advanced by the enterprise, that is, the ratio of the total amount of equity to the balance sheet of the enterprise” [1].

Table 2 analyzes the financial sustainability of poultry farms in the Perm Territory according to the following indicators: autonomy ratio, debt / equity ratio, equity ratio, coverage ratio.

Table 2 - Dynamics of indicators of financial stability of poultry farms of the Perm region.

Indicators	The standard value of the coefficient	2015	2016	2017	Absolute change (2017 by 2015)
“Permskaya”					
Autonomy ratio	$\geq 0,5$	0,56	0,47	0,58	0,02
Ratio of borrowed and own funds	≤ 1	0,8	1,14	0,72	-0,08
The coefficient of maneuverability of own funds	$\geq 0,3$	0,36	0,12	0,23	-0,13
Coverage ratio	≥ 2	1,65	1,25	1,51	-0,14
“Komsomolskaya”					
Autonomy ratio	$\geq 0,5$	0,15	0,45	0,28	0,13
Ratio of borrowed and own funds	≤ 1	5,77	1,24	2,62	-3,15
The coefficient of maneuverability of own funds	$\geq 0,3$	-3,1	-0,2	-0,63	2,47
Coverage ratio	≥ 2	1,26	1,43	1,1	-0,16
“Mendelevskaya”					
Autonomy ratio	$\geq 0,5$	0,47	0,28	0,23	-0,24
Ratio of borrowed and own funds	≤ 1	1,13	2,63	3,26	2,13
The coefficient of maneuverability of own funds	$\geq 0,3$	0,07	-0,51	-1,22	-1,29
Coverage ratio	≥ 2	1,42	1,09	0,82	-0,6
“Chaykovskaya”					
Autonomy ratio	$\geq 0,5$	0,69	0,76	0,76	0,07
Ratio of borrowed and own funds	≤ 1	0,46	0,32	0,32	-0,14
The coefficient of maneuverability of own funds	$\geq 0,3$	0,3	0,39	0,36	0,06
Coverage ratio	≥ 2	2,48	3,06	2,62	0,14

The table is compiled according to Permstat. [2]

“The autonomy coefficient characterizes the share of ownership of the owners of the enterprise in the total amount of assets. The higher the ratio, the more financially stable the company and the less dependent on third-party loans. From

the point of view of investors and lenders, the higher the ratio, the lower the risk of losing the investments made in the company and the loans granted to it”.[1]

At the “Chaykovskaya” poultry farm, the value of this coefficient in 2017 is higher than the standard and is 0.76, while in comparison with 2015, the value of the indicator increased by 0.07. At the Permskaya poultry farm, the autonomy coefficient in 2017 is 0.58, compared to 2015, the value of the indicator increased by 0.02. In the other two poultry farms, the autonomy ratios are lower than normative. The ratio of borrowed and own funds shows how much borrowed funds to 1 ruble of equity. The lower the value of the indicator, the higher the financial stability and independence of the enterprise from borrowed capital and liabilities [4]. For the analyzed period, the value of this coefficient corresponds to the standard values at the “Permskaya” poultry farms, which is 0.72 and “Chaykovskaya” - 0.32. At two other poultry farms, this coefficient is higher than the standard value. The coefficient of maneuverability of own funds characterizes the degree of mobility of the use of equity capital and shows the share of own funds invested in current assets. The coefficient of maneuverability of own funds characterizes the degree of mobility of the use of equity capital and shows the share of own funds invested in current assets. The coefficient of maneuverability of own funds at the “Chaykovskaya” poultry farm in 2017 amounted to 0.36, which corresponds to the standard value. At three other poultry farms, this ratio is below the standard value. The coverage ratio at the “Chaykovskaya” poultry farm in 2017 was 2.62, while in comparison with 2015, the value of this indicator increased by 0.14. The positive dynamics of financial sustainability indicators among the analyzed poultry farms of the Perm Region is observed at the “Chaykovskaya” and “Permskaya” poultry farms.

Thus, the size of borrowed and own funds, which is necessary for work, each company chooses itself based on the size of the business. Competent management of own working capital leads to the effective operation of the enterprise. The lack of working capital can lead to a halt in production or the inability to repay current liabilities. The excess of current assets indicates their inaction and the inability to quickly convert them into cash (low liquidity of the enterprise) [6]. After studying the data of financial indicators for poultry farming in poultry farms of the Perm region, we can conclude that the “Chaykovskaya” poultry farm improved its position in 2017 compared to 2015; the data of the Perm poultry farm changed very little, the company works stably without any changes. At poultry farms “Komsomolskaya” and “Mendeleevskaya” financial situation is unstable. Based on this, it can be concluded that to improve the financial condition and to stabilize the situation, it is necessary to take measures to introduce modern resource-saving technologies at poultry farms.

The active development of mankind poses acute questions on the most important problem - providing the population with food, animal origin in particular.

This is a global problem, the solution of which is important to take into account the influence of a number of economic, demographic, technological, environmental, socio-political factors interrelated both among themselves and among other components.

About thirty large agrarian conglomerates play a large role in the development of Russia's poultry industry. They can effectively manage production costs, combine breeding, poultry farming, meat processing and feed production.

Currently, the process of import substitution must be directed at achieving the quality of the produced agricultural products in accordance with world analogues. It is about both poultry products and vitamin complexes, which make it possible to achieve high quality feed, about the use of modern equipment and veterinary preparations.

Thus, the main priority issues for the development of the poultry industry for the future are: the creation and development of domestic breeding and genetic laboratories; increase reproductive base; construction of plants for the production of feed additives (vitamins, amino acids, trace elements, vaccines, etc.); strengthening the state reserve of grain for the needs of the poultry industry; reducing the threat to the biosafety of production for various infections, for example, avian flu; adoption of a modern algorithm for the functioning of export-import agricultural products operations; ensure the availability of financial and credit resources.

At present, characterized by the renewal of the country's economy in the agricultural sector, the development of agricultural production has reached a new level. The emerging structures of the agrarian business and the emerging need to transform production, as well as the adaptation of agricultural producers to the market, leads to the search for new approaches to production efficiency. In the poultry industry, they are formed through the use of new technologies in the production of poultry meat and eggs, which is the economic essence and ensures the financial stability of efficient industrial poultry farming.

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影响肉类生产业务流程的因素
**FACTORS AFFECTING THE BUSINESS PROCESSES
OF MEAT PRODUCTION**

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抽象。 无论活动领域如何, 业务流程都存在于任何组织中。 肉制品 subcomplex 的特殊性决定了业务流程的形成和发展的特殊性。 在市场关系的条件下, 提高行业生产效率的主要储备之一是采用非标准技术开展肉类产品业务, 旨在确保减少资源的使用: 劳动力, 能源, 材料, 每单位生产和销售的财务。 因此, 它将允许生产有竞争力的产品。

关键词: 业务流程, 农业生产, 肉制品, 盈利能力, 牛肉, 可持续发展领土。

Abstract. *Business processes exist in any organization, regardless of the field of activity. The specificity of the meat product subcomplex determines the peculiarities of the formation and development of business processes. In the conditions of market relations, one of the main reserves for increasing the production efficiency of the industry is the adoption of non-standard technologies for conducting business of meat products, designed to ensure a reduction in the use of resources: labor, energy, material, financial per unit of production and sales. As a result, it will allow producing competitive products.*

Keywords: *business process, agricultural production, meat products, profitability, beef, sustainable development of territories.*

The current state of meat production by agricultural organizations of the Perm region shows that it is high-cost and unprofitable. The reason for this is destabilizing factors of the internal and external environment of the enterprises of the meat and food subcomplex.

In the current market conditions of enterprises, the most profitable production of beef is observed in fattening farms, where industrial feeding of cattle is used, using a high proportion of mechanized labor, as well as modern methods of fattening and maintenance of livestock.

Against the background of the current situation, the region is actively working in two directions: an increase in the milk productivity of dairy cows and an increase in beef production due to an increase in livestock and average daily meat cattle gains.

Providing the region with high-quality steam beef can be solved either by importing livestock from the neighboring regions and republics, or by own agricultural organizations of the region, focusing their activities on the production of marble meat [4].

To assess the current situation on the market, we conducted a survey, the results of which allowed us to determine the direction of development of beef cattle in the region. The survey was conducted from 2011 to 2017, in which 1857 people took part (table 1).

Table 1 - The results of a sociological survey of the purchasing power of beef, including marble meat

Questions, asked to respondents when questioning	The structure of the received responses, %	Results and suggestions
1. What attracts you to beef unlike other meats? - taste - calorie - culinary properties	59 26 15	Most respondents prefer beef because of its taste. Therefore, there is a need to develop cattle breeding on the territory of the region.
2. Beef of which producer do you prefer? - domestic producers (local, regional) - domestic producers (imported from other regions) - imported - irrelevant	43 27 16 14	70% of respondents prefer to buy meat of domestic production, 43% of them - are oriented on the producers of the Perm region. Therefore, the state support of these enterprises in the development of livestock breeding for beef is extremely necessary, especially in increasing the number of fattening beef cattle through transplantation.
3. Where do you usually buy meat? - at the market - in the store (grocery stores) - in company stores - at LPH - at wholesale bases	17 28 35 12 8	63% of respondents buy meat in stores, and, 35% of them are branded. Consequently, producers in order to get the most profit should supply beef to these markets and become regular suppliers.

Questions, asked to respondents when questioning	The structure of the received responses, %	Results and suggestions
4. How many kilograms of beef per month do you buy? - up to 3 kg per family of 3 people - up to 5 kg per family of 4-5 people - up to 8 kg per family of 4-5 people - up to 8 kg per family of 5 or more people	46 32 18 4	Considering the low incomes of the population, the majority (78%) buy beef up to 3-5 kg per month with an average family size of 3-5 people. In order to increase purchasing power, it is necessary to reduce the cost of meat producers and improve the standard of living of citizens in the region.
5. What factors do you follow buying beef? - Colour - marbling - fresh meat - smell - the cost of meat - family income	85 7 100 98 92 87	When buying beef, all consumers pay attention to the freshness of meat, the majority - on the smell and color, retail price. Consequently, in the production and sale of beef, agricultural producers must take into account the consumer properties of meat and segment the sales markets, taking into account the profitability of the population of the territory.
6. Do you know that marble meat is healthier than regular beef? - Yes - not	12 88	88% of respondents do not have information about the improved absorption of marble meat by the human body, which limits the number of potential consumers.
7. How much should your income be for the annual purchase of marble meat at its average market price of 200 rubles / kg? - income level (up to 6000 rubles per month) up to 2kg up to 3-4kg - income level (up to 12000 rubles per month) up to 2 kg up to 4-6 kg - Income level (sv.12000 rub. / month) up to 4-6 kg up to 10 kg and more	25 13 21 14 24 3	If potential consumers of marble meat increase, they have the opportunity to buy it: 38% of respondents with the level of average monthly income of up to 6,000 rubles, 35% with incomes of up to 12,000 rubles, 27% with incomes above 12,000 rubles. As a result, the actual population's need for marble meat (for 2010) was 3.57 kg / person. per year, which is 21.6% of the actual consumption rate and 10.8% of the rational consumption rate of beef in the region. For 2011-2012, it is possible to increase the actual consumption rate of marble meat per person per year.

The majority of respondents (83%) prefer beef because of its taste and 26% because of its calorie content. 70% of respondents prefer to buy meat of domestic production, of which 43% are oriented on the producers of the Perm region [1].

Consequently, there is a need to develop beef cattle in the territory of the region, and in the production and sale of beef, agricultural producers must take into account the consumer properties of meat and segment the markets, taking into account the profitability of the population of the territory;

In case of an increase in potential consumers of marble meat, they have the opportunity to buy it: 38% of respondents with the level of average monthly income of up to 6,000 rubles, 35% with an income level of up to 12,000 rubles, 27% with an income level of over 12,000 rubles. As a result, the actual demand of the population in marble meat for 2017 was 3.57 kg / person. per year, or 21.6% of the actual consumption rate and 10.8% - of the rational consumption rate of beef in the region [3].

The results of a marketing study showed that the production of marble meat must be approached taking into account the consumer properties of meat, segmentation of sales markets, taking into account the profitability of the population of the territory and consider it as a business process.

The business process of marble meat is a production with a complete (completed) and unfinished cycle. The full cycle of production of marble meat is the completion of the business process of selling fattened livestock to meat processing enterprises, or the sale of finished raw materials, marble meat or semi-finished products from it to the public. A business process with an incomplete production cycle is the completion of production at any stage of the technological chain, provided that it brings the target profit to the enterprise.

In the conditions of market relations, one of the main reserves for improving the efficiency of beef production is the development of non-standard technologies for conducting business of marble meat, designed to ensure a reduction in the use of resources: labor, energy, material, financial per unit of production and sales. As a result, it will allow producing competitive products.

Effective beef cattle can be combined with a high turnover of working capital, accompanied by a corresponding increase in the size of production, a decrease in its cost and an increase in labor productivity. But not all organizations involved in beef cattle, the size and structures of fixed assets, as well as their combination with working capital, are optimal.

The main condition for increasing profitability in the production and sale of marble meat is the organization of full-fledged livestock feeding and raising its productivity on this basis, as well as the subsequent successful sale of livestock [1].

When organizing the production of beef (marble meat) as a business process, there is a systematic increase in efficiency throughout the entire calendar year from the rational use of existing fixed assets, working capital, labor resources, financial capital and the use of resource-saving technologies.

The business process of marble meat is an integrated approach to the organizational and economic interrelation of the processes of production and sales of products. Due to the current situation on the meat and meat products market in the Perm region, there is a shortage of high-quality steamed beef. That is why the leading value in the business process of marble meat is given to the production process [5].

The production process consists of complete (completed) and incomplete cycles. With the full cycle of production of marble meat, the business process ends with the sale by agricultural organizations of fattened livestock to meat processing enterprises, or the sale of finished raw materials, marble meat, and semi-finished products from it to the population through a wholesale retail network.

A business process with an incomplete production cycle is the completion of beef production at any stage of the process chain, selling beef cattle of various ages and production purposes, provided it is economically beneficial for an agricultural organization.

In order to obtain the greatest economic effect from the business process of marble meat, the production process of marble meat in agricultural organizations must proceed with a full cycle, subject to the use of resource-saving technologies. As a result, the final production will be livestock fed to high slaughter conditions.

In agricultural organizations engaged in the breeding of breeding beef cattle (in breeding breeders), the production process may be completed in the initial stages, where the price of the final product (breeding young animals) will depend on the breeding qualities of the animal. The final stage of the marble meat business process is its effective implementation. Therefore, it is necessary to analyze the market of meat products and develop a long-term strategy [1] (Figure 1).

A significant role in the competitiveness of marble meat is played by the quality of products. Among beef producers, the issue of quality is the most significant among agricultural and farming farms, since there is an acute issue of competitiveness of the products produced and the search for sales channels at a more favorable price.

Considering the balance of beef production, it should be noted that small-scale production still occupies a large share in production. This is justified by the fact that in rural areas subsistence farming is the main source of income for the population. When solving the problem of employment of the population in the village, there will be a reduction in small-scale production and a transition to the industrial type of production, as to a more technological and efficient [2].

In the current development trend, own production in the region will occupy the market (69%), imports and imports from neighboring regions will amount to 31%, with a decrease in the share of imports. The main suppliers of beef will be agricultural organizations. The share of private farms will be reduced to 23.2%, this is due to the unprofitability of small-scale production compared with the use of industrial methods of production of beef.

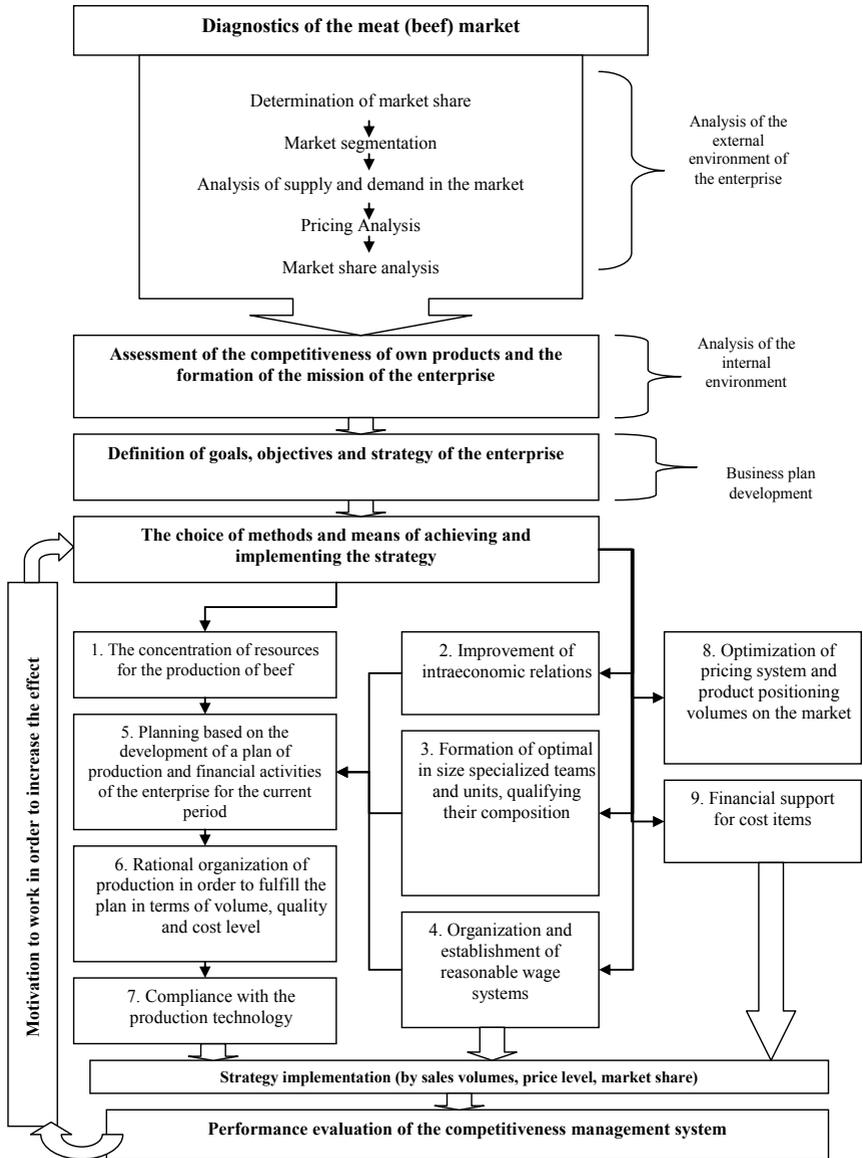


Figure 1 - Model of managing the competitiveness of the business of marbled meat in agricultural organizations

The growth of beef production in peasant (farmer) farms is related to the availability of credit resources for the development of small business and the application of modern ecological methods for the development of farming in the Urals, which is based on the harmonious combination of animal husbandry within the ISO 9000-2000 standards. With an average number of cattle on the farm no more than 40 heads, the load on the environment is within the established norms. As a result, products from these farms can be certified and sold as an “environmentally friendly product”, with an appropriate mark-up on the products, which allows break-even production.

In general, conducted studies to improve the organizational and economic mechanism to improve the efficiency of the beef cattle industry in agricultural organizations suggest the following:

1. On the territory of the Perm Territory there are natural and climatic conditions and organizational and production reserves for breeding beef cattle. The implementation of a national project for the development of the agro-industrial complex allows agricultural organizations to purchase procured breeds of Hereford breed, well adapted to local conditions.

2. Growing and fattening beef cattle allow obtaining high-quality beef - marble meat, which is distinguished by a uniform distribution of fat between muscle fibers and has a higher digestibility of the human body. The studies conducted by the author revealed a demand among the population of the Perm Territory and a desire to consume marble meat.

3. The first direction of improving the organizational and economic mechanism. To organize the production of marble meat in agricultural organizations, we suggest introducing a business process that includes the production process and trade. Realization of livestock can be carried out at any stage (growing, rearing, feeding, fattening) with an incomplete production cycle and at the stage of intensive fattening with a complete cycle. The highest economic efficiency is achieved at the last stage of the production of marble meat.

4. The second direction of improvement. In order to increase the efficiency of beef cattle breeding and increase the number of animals, we suggest using as a resource-saving technology transplantation of beef cattle embryos and organizing their supply to agricultural organizations.

5. The third direction of improvement. To assess the effectiveness and security of the marble meat business process, a methodology has been developed and proposed that allows determining the potential opportunities and costs of agricultural organizations with specialization in the industry of beef cattle.

6. The fourth direction of improvement. In a competitive environment to minimize production costs, we propose to organize the integration agro formation - the sectoral economic company Marble Meat LLC, the agricultural organization as a participant and integrator.

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农业生产稳定发展是农村可持续发展的一个重要因素

**STABLE DEVELOPMENT OF AGRICULTURAL PRODUCTION
AS A FACTOR OF SUSTAINABLE DEVELOPMENT OF RURAL AREAS**

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抽象。 本文专门讨论在制裁和实施进口替代政策的背景下发展彼尔姆地区农业生产的必要性。 对农业主要指标进行了分析, 确定了彼尔姆地区食物的自给自足水平; 展示了农村可持续发展的方式

关键词: 区域, 农工业综合体, 农产品, 自给自足, 制裁, 进口替代, 食品。

Abstract. *The article is devoted to the need of development of agricultural production of the Perm region in the context of sanctions and the implementation of import substitution policies. The analysis of the main indicators of agriculture was carried out, the level of self-sufficiency of the Perm region food was determined; the ways of sustainable development of rural areas were shown*

Keywords: *region, agro-industrial complex, agricultural products, self-sufficiency, sanctions, import substitution, food.*

The current state of agricultural food shows that solving the problem of providing the population with food is the most important task of the present time. [3]

Agriculture, with the transition to market relations, is experiencing major production and economic difficulties: the area of farmland has decreased significantly, the livestock population has decreased, and the technical equipment of production has deteriorated. All this led to a significant decrease in the volume of agricultural

production [4]. In addition, in recent years in rural areas there is a need to slow down the degradation processes, in which the continuing unequal prices in the areas of agriculture, the inaccessibility of food markets for agricultural producers increases the number of bankrupt enterprises, and the low solvency of the population hinders the increase in the capacity of the food market and the production of agricultural products at the level of self-sufficiency regions.

The stability of regional development can be viewed as a process of gradual improvement of social, environmental and economic parameters of the region, maximally revealing the interests of the population, entrepreneurial structures and the regional stability management system, allowing taking into account and optimally overcoming risks and timely adapting the socio-economic system to the existing mode of functioning. [1]

The agro-industrial complex has accumulated a lot of problems associated with the restoration of resource potential, inter-sectoral relations, reduction of unemployment and poverty, especially among the rural population, with the correction of errors in the implementation of agricultural policy and in the agrarian market in particular. All of them should be resolved in reasonable priority both in the country as a whole and in each region, taking into account their socio-economic and climatic conditions. Priority should be considered taking into account the achievement of the main strategic goal - improving the quality of life of the inhabitants of the region and meeting their food needs.

That is why the provision of the region with food is of paramount importance, and all the rest are related, ensuring the solution of the primary task.

The problems of the survival of organizations of the agro-industrial complex and increasing the competitiveness of their products are greatly facilitated by combining entrepreneurial interests related to food production on the basis of business-cluster development, especially when Russia joins the WTO.

The need to accommodate business clusters in agricultural production is due to the following:

- the need to more fully utilize the resources of the agro-industrial complex in order to achieve sustainable development of rural areas and strengthen their food independence on the basis of a motivational agricultural business;
- the possibility of overcoming competition within the industry for the sake of producing a competitive agricultural produce of the regional food market;
- the need to reduce the timing of integration processes in the agro-industrial complex, reaching a compromise between the interests of all its participants (agribusinesses, processors, infrastructure organizations, trade structures, research institutes, universities) and the evolutionary management of the agro-industrial system of the region. [7]

The issue of priorities in the economy is mainly associated with the most profitable investment options. But a one-sided approach to the choice of these options creates an assessment bias, since there is no mechanism of responsibility for the results of decisions made for the power management structures. The initial begin-

ning of the development of such a mechanism can be taken by combining relevant criteria, taking into account the interests of the state, agribusiness, regions and the population living in them.

Sustainable food self-sufficiency in the region is associated with the sustainability of the development of its agro-industrial complex and, above all, with the Government's ongoing agrifood policies. Food security exists when the population of the region has access to a sufficient amount of high-quality products. The most important criterion is the level of self-sufficiency in basic agricultural products and the availability of products for the population. [2]

In the Perm Region, the law "On the consumer basket" defines the minimum standards for the consumption of food products by residents of the region. On average, 52.2 kg of meat, 79.6 kg of potatoes, 283.2 liters of milk, 203 pcs. of eggs and 118.1 kg of vegetables are provided per inhabitant per year.

According to the calculations, which are based on the data of Permstat and the "basket", in 2017 agricultural producers of the region could feed their countrymen only eggs and potatoes. The shortage of vegetables was 27%, milk - more than 50%, and livestock and poultry meat - 18.3%. Seventeen years ago, there were also problems with milk production (- 23%), although the minus values would be higher if the calculation was carried out according to the medical norms of nutrition, but we keep on the "consumer basket". [6]

A survey conducted by the Perm Tribune publication showed that experts explain the positive results on potato cultivation since the production of this type of agricultural products was supported by the regional authorities, for example, the Perm potato project. During the analyzed period, the cultivation of areas occupied by planting potatoes increased. Traditionally, the positions of the poultry industry of the region give good results both in egg production and in poultry meat production. In general, the region lags behind in meat production, which does not allow them to provide the population of the region; therefore more than 50% of this type of food is imported from other regions of the country or imported. The main reason for the decline in the development of beef cattle is obsolete equipment and technology in agricultural enterprises of the Perm Territory. This increases the cost of production, and it becomes weakly competitive. The region is lagging behind in milk production. [5]

If self-sufficiency in goods produced in the Perm Territory leaves much to be desired, then with another category of food security in the region - the economic affordability of food is much better. For the previous period, there has been a positive shift in the main types of agricultural products. For example, in 2000, a resident of the region could buy 447.5 kg of potatoes for one month's wages, then after almost two decades his purchasing power increased, and he could buy them 1,250 kg more. A similar increase is observed in poultry meat, which cannot be said for the rest of the analyzed products (table 1). [6]

Table 1
Economic availability of food for residents of the Perm Territory

	2000 r.	2010 r.	2017 r.
Average salary	2502	19283	32438
Average consumer prices (in rubles per kg) / how much you can buy for an average wage:	Potato		
	5,6/447,5	16,4/1175,7	19,1/1698,3
	Dozens of eggs		
	11,3/221,8	24,2/798,1	62,6/518,2
	Liter of milk		
	7/358,9	24,3/793,5	45/720,8
	Beef		
	43,5/57,5	175/110,2	331,56/97,8
	Poultry meat		
42,1/59,4	97/198,7	135,43/239,5	

The table was compiled by the authors using Permstat data.

In the context of sanctions and import substitution, issues related to the provision of food to the population should come to the fore and become of paramount importance. Today, the main task for the agro-industrial complex is to ensure food security. In a short period of time it is difficult and rather difficult to solve. Consider specific measures in this direction. First of all, this is the existing state program for the development of the industry for 2014–2020. The program provides measures to support small farms and agricultural producers: the possibility of obtaining loans, the purchase of machinery and equipment on lease.

It's too early to speak about complete self-sufficiency of the region with products, and it's probably impossible. Each region has its own development program, its own specialization. For example, due to the natural and climatic conditions, the region is not in a position to provide itself with fruits, an interregional exchange of products is required.

The issue of self-sufficiency in the region is directly related to the overall food security of the country. The doctrine spelled out the threshold values of the norm in the main areas. Consequently, agricultural enterprises of the Perm region still have something to do. It is necessary to create favorable conditions for the development of agriculture in the region. In the meantime, today it is difficult to get loans, and the percentage on them is quite high, the allocated subsidies require paperwork. We cannot do without federal and regional support, since according to the program for the development of this industry, it is planned to reach the profitability of agricultural enterprises, taking into account subsidies, by 2020, up to 15%. This is much less compared to other industries.

It is necessary to increase the volume of agricultural production of missing types of products in order to be able to meet the needs of the residents of the region

for these types of products. The Perm region has great potential for conducting modern highly profitable, efficient agricultural production and with a sufficient level of regional and state support; import substitution can stimulate the development and protection of its own agricultural production in the region.

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为国家和市政需求采购农产品，工程和服务的经济，法律和历史方面
**ECONOMIC, LEGAL AND HISTORICAL ASPECTS
OF PROCUREMENT OF AGRICULTURAL PRODUCTS, WORKS AND
SERVICES FOR STATE AND MUNICIPAL NEEDS**

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注解。 下达国家和市政需求订单的机制是管理国家的最有效方式之一。 历史分析表明，在大多数情况下，政府本身是竞争性选择表演者的主要发起者。 文章考虑了俄罗斯国家和市政采购研究所的形成，该领域的法律规制体系。 对采购机制的当前趋势给予了重视，并找到了该程序的具体特征。

关键词：采购，供给，政府需求，合同制度的规范，规范性法律行为，法律

Annotation. The mechanism of placing orders for state and municipal needs is one of the most effective ways to manage the state. Historical analysis shows that in majority of cases the government itself is the main initiator to select performers competitively. The article considers the formation of the Institute of state and municipal procurement in Russia, the system of legal regulation of this sphere. Current trends of procurement mechanism is paid attention and the specific features of this procedure are found.

Keywords: procurement, supply, government needs, regulation of the contract system, normative legal acts, laws

Procurement of agricultural products, works and services for state and municipal needs is a process of rational use of budgetary funds to meet the needs required by the state. This type of activity makes it possible to redistribute funds effectively (tax revenues) to finance the most important and vulnerable areas and structures, which in turn allows for the stable functioning of the state as a whole. In this regard, it should be noted that state and municipal procurements have specific functions (figure 1).

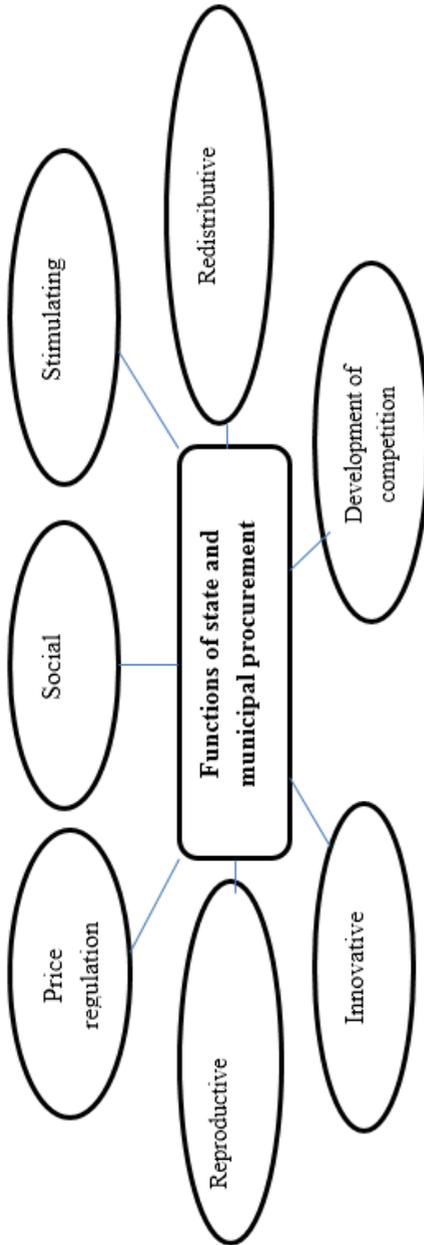


Figure 1. Public procurement and supply functions

In Russia the contracts to meet the state needs started to be regulated far during the reign of Tsar Aleksei Mikhailovich. In 1654, the Decree "On the contract price for the delivery of flour and crackers to Smolensk" was issued, which played a crucial role in the development of the procurement Institute because the transition from tribute collecting to procurement of needed goods was carried out. It became the most efficient for the population. Thus, the decree was the first step towards the establishment of the procurement system.

Further development of procurement fell on the reign of Peter I. That was the time when one of the most important principles of procurement activity was formed. It is preserved today and called the principle of publicity. Then different documents were signed to correct principles of organization and making state tenders (procurements): during the reign of Anna Ioannovna, the Regulations of the Chamber Collegium were signed, during the reign of Elizaveta Petrovna, the "Regulation of the Board of provisions" was published, Catherine the Great in 1776 signed the law "Establishment of the provinces", in which a separate article was devoted to the contract and supply [13].

During the reign of Nicholay I the legislation in the field of procurement has changed significantly. In 1830, the "Regulation on obligations entered into by the Treasury and private persons for contracts and deliveries" was adopted, which was of great importance as it allowed to systematize the procurement system as a whole. This provision has been amended and supplemented for decades and eventually it was in force until 1914.

In the early XX century tenders, supply of organizations with the necessary resources as well as sales of products was conducted on the order of the centers without a making contract at the transition of Russia to the system of the administrative-command economy. At that time, enterprises almost completely lost their independence. In fact, they handed over all the products to the state. This led to the displacement of private capital and the alteration of the entire peasant economy. As a result, almost all means of production belonged to the government.

The change of state policy in the sphere of economy periodically made it necessary to have tenders but often this need faded fast. As a result, the centralization and strengthening of the command system led to the fact that by the end of the first third of the XX century the procurement of goods, works and services for public needs was suspended.

The revival of the public procurement system began only in the last decade of the twentieth century. In the last years of the USSR and in the period of formation of the Russian Federation, a number of normative legal acts aimed at regulating the sphere of orders were adopted. At the same time, these measures were not effective and did not contribute to the creation of a unified procurement system protected from corruption [14].

Only in the 1990s, after Russia's adaptation to a market economy, mention of trading began to appear, and the first document that marked the transition to a free market in the field of orders was the Decree of the President of the Russian Federation "On economic relations and supply of products and goods in 1992" [1]. This law has played a crucial role by abolishing the centralized distribution system. Then the Law of the Russian Federation "On the supply of products and goods for state needs" was adopted [2]. This law defined the updated principles of placing orders – by means of competition. Later, in 1994, the Federal law "About the supply of products for Federal state needs" [3] was adopted, which defines the responsibility of performers for violations of the terms of contracts, as well as the quality of goods, works and services.

An abrupt transformation of planned economy to a market one stimulated the development of procurement system in Russia. It led to the destruction of the centralized distribution system formed over decades, which resulted in the need to return to the system of public procurement and the development of a regulatory framework for the effective implementation of procurement activities in the territory of the state.

Over the next few years, many legal acts to regulate this sphere were adopted.

For effective counteraction to corruption and other illegal phenomena, and also streamlining of system of the state order the Federal law of May 6, 1999 No. 97-FZ "About tenders for placement of orders for deliveries of goods, performance of works, rendering services for the state needs" [4] was adopted. With the adoption of the law, contracts ceased to be concluded spontaneously and relatively effective state control was established. But still, this law had a lot of drawbacks. As it was not worked out precise enough it was specified by many acts which usually were counter to the original source. At the end this legal act after a large number of amendments and additions was canceled.

Thus, the Russian legal base in the sphere of state and municipal procurement was formed in difficult conditions, which often faced certain difficulties. A large number of adopted legal acts were often not coordinated with each other.

The result of this was the emergence of a large number of offenses, where corruption-oriented crimes stand out. It should be noted that the damage caused to the state by corruption crimes in the procurement process can be divided into the following groups:

- material losses;
- quantitative losses;
- quality losses
- loss of reputation

These losses together caused irreparable damage to the state and a whole society. As a result, to counter various crimes and improve the efficiency of the

procurement system in the Russian Federation, Federal law No. 94-FZ of 21 July 2005 "On placing orders for the supply of goods, works and services for state and municipal needs" was adopted [5], which entered into force in January 2006. The most important achievement of this law is the creation of a single economic space in Russia by determining the General order of placing orders for different levels of public power.

However, the introduction of this law did not allow to achieve the solution of the issues of development of fair competition, rational use of budgetary funds, prevention of corruption.

Thus, the entire time period, starting from the appearance of the first mention of the auction, ending with the modern period of development and formation of the system of state and municipal order can be divided into several main stages (figure 3).

Stage one. The procurement system occurrence: from 1654 to the end of the XVIII century. Is characterized by the occurrence of the first forms, principles of procurement. During this period of time, there was no methodology for assessing the effectiveness of procurement activities. The system of penalties and fines for improper execution of the state order was introduced.

Second stage. Historical improvement: from the beginning of the XIX century to 1918. In this historical period, the regulatory base is being significantly reformed, the regulation of the procurement sphere is being strengthened. The placement of state orders becomes to be more systematic. For the first time in Russia specialists begin to study and calculate the degree of Treasury savings from the use of public procurement to meet the needs of the state.

Third stage. Transition: from 1918 to 1930. Despite the short duration of the stage, there are significant changes in the field of procurement in this historical period. The country's transition to a command-and-control system had a negative impact on the system of state and municipal procurement, as the products were distributed by orders from the center. The role of business entities in the economy has significantly decreased, and by the end of the study period the number of placed ads for trading equaled zero.

Fourth stage. The period of the planned distribution orders: from 1930 to 1991. In this historical period, state orders were carried out only on the initiative of the state in accordance with the plans for the development of various sectors of the economy. Thus, due to the formation and development of the command and administrative system, the Institute of public procurement was factually absent.

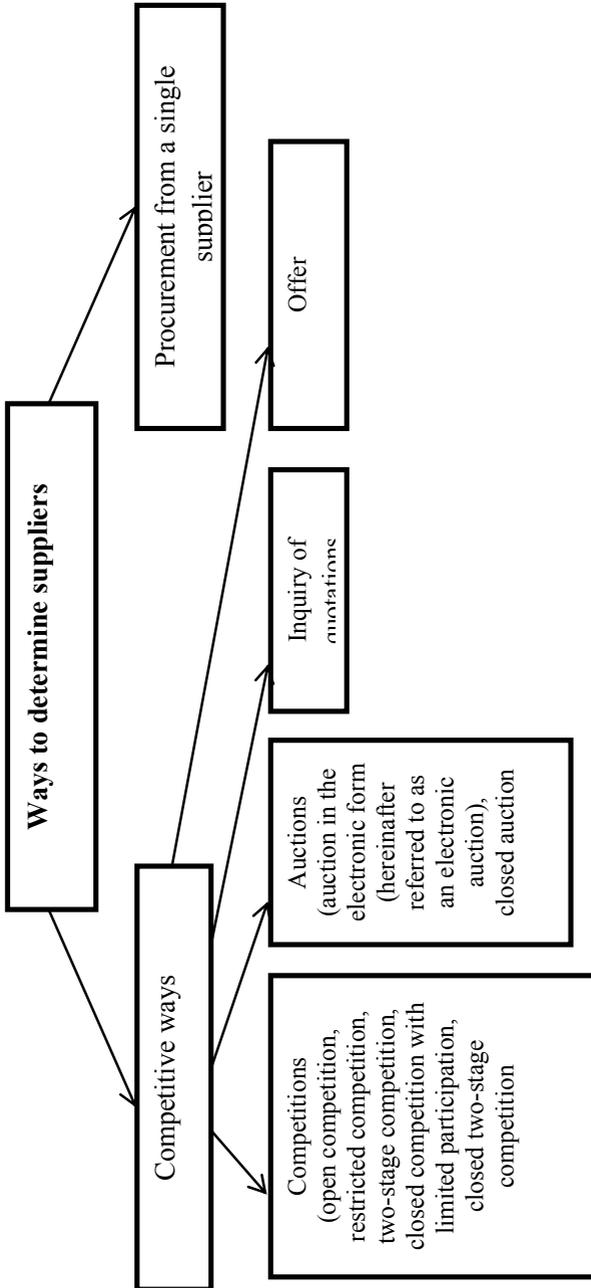


Figure 2. The main methods of determining suppliers at the present stage (according to the law № 44-ФЗ)

Fifth stage. Establishment of a modern procurement system: from 1991 to 2005. It is characterized by a gradual restoration of market relations and a return to the system of public procurement. The basic principles of functioning of system are defined, a large number of normative legal acts is developed. At the same time, the legislation in this period was characterized by the presence of a large number of contradictions and the lack of a unified approach to placing orders at the state and municipal level. As a result, there was no effective mechanism to assess the effectiveness of the procurement system.

Sixth stage. Improvement of a modern procurement system: from 2006 to 2013. The most important step at this stage is to recognize the adoption in 2005 of the law № 94-ФЗ, which allowed to systematize the process of implementation of orders. The amount of budgetary savings was taken as a determining factor in assessing the effectiveness of the purchases made.

Seventh stage. The reform of the modern system: from 2014 to the present time. There is a significant change of the system of state and municipal procurement. A single contract system is being formed, each stage of procurement activities is regulated in detail, and the procurement system becomes more open to society. Comprehensive control (financial, departmental, internal, Treasury, public, etc.) is carried out at all stages of procurement activities, which allows to more effectively prevent and detect illegal acts on the part of performers and customers in this area [7].

Thus, on the way to the formation of a modern system of state and municipal procurement of products, goods, works and services, many stages were passed at each of which, due to the specifics of the historical period, the procurement system changed significantly. At the same time, at the present stage of development of the system, there are a large number of problems that have not yet been solved, including a large number of illegal acts, both on the part of customers and by the performers of the state order.

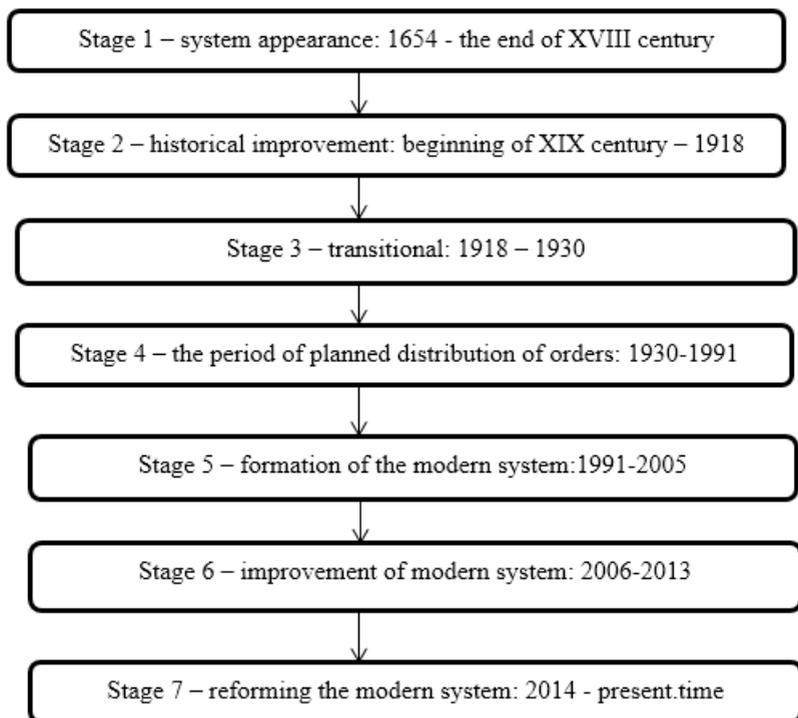


Figure 3. Stages of development of the system of state and municipal procurement in Russia

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UDK: 371.004.303.04. (575.3)

远程教育技术: 确保教育过程的部门和结构的作用 (以Nosiri Khusrav命名的BSU为例)

**REMOTE EDUCATIONAL TECHNOLOGIES:
THE ROLE OF THE DEPARTMENT AND STRUCTURES
ENSURING THE EDUCATIONAL PROCESS
(ON THE EXAMPLE OF BSU NAMED AFTER NOSIRI KHUSRAV)**

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抽象。 本文作者将远程技术视为通过远程操作为学生提供远程知识的机会。 模块培训是塔吉克斯坦教育教育的新阶段。 我们考虑部门工作的功能和内容在教育和方法论综合体的发展以及远程学习的方法论支持方面的变化。

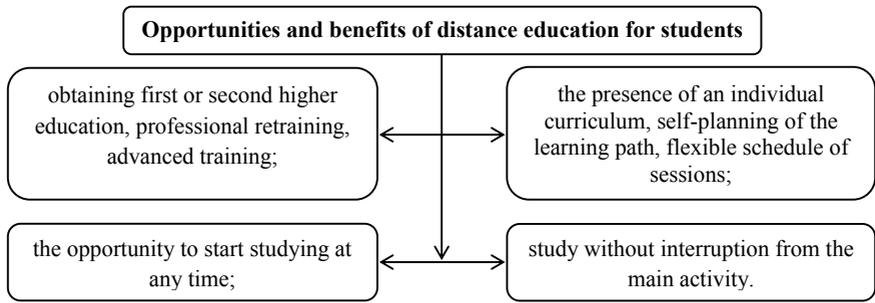
关键词: 信息, 通信, 技术, 计算机, 计算机网络, 远程教育, 部门, 大学。

Abstract. *The authors of this article consider the remote technology as the way of giving opportunity for students to get remote knowledge by remote action. Module training is a new stage in the educational education of Tajikistan. We consider the change in the function and content of the work of the department regarding the development of educational and methodological complexes and methodological support of distance learning.*

Keywords: *information, communication, technology, computer, computer networks, remote education, department, university.*

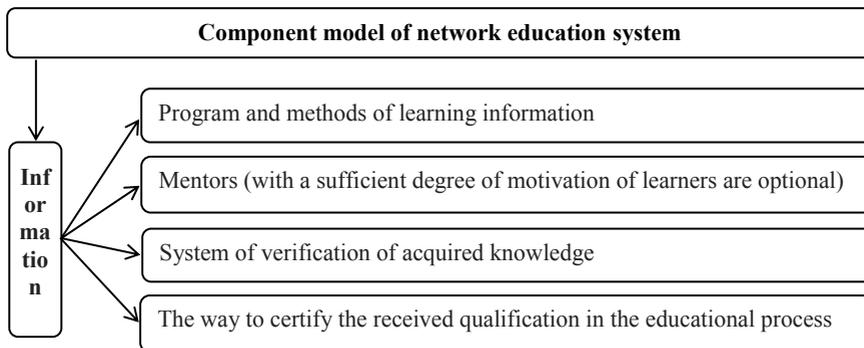
The educational institution organizes a remote educational technology in order to provide the learner with the possibility of a qualitative mastering of educational programs at the place of temporary residence or place of residence. Distance education (DL) is a modern technology of the educational process, new for each educational institution of the Republic of Tajikistan, which arose in connection

with the development of information technology (IT) and computer equipment. “The concept of creating and developing a unified system of distance education in Tajikistan” gives the following definition to distance education. DL is a complex of educational services provided to a wide range of population in the country and abroad using a specialized educational environment based on the use of the latest information technologies providing a volume of educational information at a distance (satellite television, computer communications, etc.) information transfer using computer technology contributes to the quality of educational services: TO provides access to high-quality higher education and restizhnogo diploma for students from distant villages, where for economic reasons can not be placed high school or university branch [2]. Opportunity to DL is also important for every resident of a large city, since it contributes to expanding the choice of universities and developing computer technologies in the educational process, without whose knowledge it is now impossible to improve the professional quality of education in each area of activity.



Picture 1.

Having successfully passed the final certification, the student receives a final document of the state sample (diploma of higher education, of incomplete higher education, professional retraining, certificate, certificate of professional development).



Picture 2.

When creating and implementing educational products and using distance education technology, certain features of the formation of the department's relationship are assumed as a unit of production of values and related organization (center, department, university, etc.)

The attributes of distance education are the following:

- ✓ *No time limit. Mail receive and read at any time. Contact between the teacher and students is carried out without a strict schedule;*
- ✓ *No restrictions in space. Materials are received or sent from any location;*
- ✓ *Synchronous training. The use of forms of dialogue in which both the teacher and the student are simultaneously involved in the learning process;*
- ✓ *Asynchronous learning. The use of forms of dialogue in which the student and the teacher are not simultaneously involved in the learning process;*
- ✓ *Linear and non-linear learning. Training can be structured by the teacher and the student. The use of test and hypertext form of education. They form the basis of the concept of development of relations between the department and the organizational structure [4]. The concept of development of this relationship is to develop a partnership from a position of socially responsible marketing, providing for meeting the needs, needs and interests of the target, the market and satisfying the interests of the consumer more effective than the competition from the competitors, while strengthening the welfare of consumers and the whole society.*

With the social orientation of the activity of an educational institution, conditions are created for solving a wide range of socially important problems, i.e. ethics and social responsibility of educational institutions are being approved as key factors in the development of the image of an educational project that provides its organization.

With the introduction of distance education technology, it implies the use of modern and constantly updated equipment and advanced technology.

Already for the second academic year, the Nosiri Khusrav Bokhtar State University trains specialists in the system of distance education. The university has 43 departments, of which 20 are directly included in the technology of the DL. In view of the first experience, the attitudes of the departments to subsidiaries were different. According to the degree of introduction of the technology of preschool education, the functions of university and special departments are differentiated.

The “Department-University” attitude develops in this way: at the first stage, the university conducts market research activities that study the needs of business and government agencies for specialists with different levels of education, complexes of different competencies, needs of the population for education, solvency, and analysis of the potential possibilities of a city, region, region [1]. The university develops a business plan for educational services and makes proposals for the development of teaching materials for teaching materials, taking into account the specific features of distance technology, the presence of faculty members for additional workload at certain “cost of hours.” Compulsory percentages of paying students for the development of the department are agreed.

The university pays for the organization and conduct of vocational orientation work, an advertising campaign, student recruitment, work flow, movement of a contingent until the time of obtaining a certificate, certificate or diploma. With the help of didactic materials, the administration of the educational portal of the university provides a learning process.

It should be noted that prior to the beginning of the learning process, the university participates in the development of a very easy-to-use “friendly” interface, enabling users who do not know much computer knowledge to use the program. It should be written that a clear, simple and convenient interface is required [3].

In a situation when a crisis has hit the country, in particular a demographic one, when the requirements for higher education institutions in the field of training and competition are constantly increasing and competition is growing, a partial or full transition to a modular education, which is considered a new educational product, is needed. In this case, the department develops modules for the subjects, with the formulation of the goals and objectives of training in the form of competence and expected results. Justifies the number of modules by separating their content on certain thematic concentrates.

By organizing interactive interaction carried out by participants in the learning process, both in on-line mode and through communications, you can use various information technology tools, such as telephone, fax, interaction software, computer video conferencing, etc. In developing the training course, the department plans to apply several technologies in the course simultaneously.

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休闲活动是防止学生破坏性行为的一种手段
**LEISURE ACTIVITIES AS A MEANS
OF PREVENTING THE DESTRUCTIVE BEHAVIOR OF PUPILS**

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注解。本文致力于预防孤儿院№13“v。的学生之间的破坏行为的问题。作者引用了斯塔夫罗波尔地区的纳杰日达，引用了A. Bass和E. Darki的测试问卷调查结果，用于诊断破坏性反应：攻击性和敌意性，并根据诊断结果给出了学生行为的特征，通过参加装饰工作室“非常熟练的手”，提出预防工作计划，确保儿童的正常发展，证明工艺品休闲活动是防止孤儿在以下情况下破坏性行为的有效手段：逆转自我表达和儿童自我实现的过程；对活动过程中产生的人际关系的主观满意度；尊重每个孩子的人格权利；与儿童进行民主沟通的组织。

关键词：学生，孤儿院，破坏性行为，预防，休闲活动，装饰和应用活动。

Annotation. *The article is devoted to the problem of the prevention of destructive behavior among the pupils of the orphanage №13 "v. Nadezhda of the Stavropol Territory, the author cites the results of a test questionnaire by A. Bass and E. Darki intended for the diagnosis of destructive reactions: aggression and hostility and gives a characteristic of the behavior of pupils according to the results of diagnostics, proposes a plan of preventive work ensuring the normal development of children through participation in decorative -applied studio "very skillful hands", it proves that arts and crafts leisure activities are an effective means of preventing destructive behavior among orphans at the following conditions: reversal to the processes of self-expression and child self-realization; Satisfaction with interpersonal relationships arising in the process of activity; respect for the rights of the personality of each child; organization of democratic communication with children.*

Keywords: *pupils, orphanage, destructive behavior, prevention, leisure activities, decorative and applied activities.*

As practice shows, the majority of children enter an orphanage from dysfunctional families, whose parents lead an immoral way of life, inadequately perform their parental duties. The adverse microclimate of these families creates objective prerequisites for the emergence in these children of destructive behaviors that are asocial in nature, they, as a rule, neglect to study, they have poor academic performance, they often do not attend classes at school [3]. The overwhelming majority do not have any individual hobbies, they are not engaged in sections and circles, do not attend exhibitions, theaters, read very little. Getting into an orphanage, most of these children “close” from others, and with the slightest external influences from educators, children’s groups show embitterment, emotional rudeness, irascibility, impudence, aggression, they are often characterized by selfishness, indifference to the experiences of others, hardship, lack of authorities, cynicism, physical aggressiveness prevails in behavior, heightened anxiety, fear of wide social contacts, inability to find a way out of difficult situations, prevalence protection of other mechanisms that regulate behavior [1]. Such children need special participation and support.

We all understand that a person who demonstrates asocial behavior is not able to find himself in society. The timely detection of children prone to destructive behavior, the analysis of the prerequisites leading to the emergence of destructive behavior is the initial pedagogical task of the orphanage. Next, there should be preventive work with such students, namely, the use of leisure activities. For these children are selected lessons "like", which not only would they like, but would have been obtained from them.

Leisure activity performs the functions of expanding, deepening, compensating subject knowledge, familiarizing children with various sociocultural activities, expanding communicative experience, becoming a means that helps to adapt a pupil to a normal life [5]. The main thing is that the content of the leisure activities of the orphanage should be filled with interesting, exciting, useful material.

Psychological research on the identification of destructive behavior among the pupils of an orphanage was held on the basis of the state institution for orphans and children left without parental care “Orphanage (mixed) No. 13” v. Nadezhda Stavropol Territory, which was founded in December 1999 [7]. To date, the institution has 23 children: 17 boys and 8 girls, aged 6 to 20 years. Of these, only one is an orphan, and the rest are social orphans, whose parents are deprived of parental rights for improper maintenance, raising children and dealing with them.

In our experimental work, we used a test questionnaire developed by Arnold Bass and Ann Darcy in 1957 and intended to diagnose destructive reactions: aggression and hostility [2]. The authors of the test questionnaire share the concepts of "aggression" and "hostility." Aggression is a phenomenon that is realized in a specific behavior, in a specific action - a threat, or damage to others. Hostility is a reaction that develops negative feelings and negative evaluations of people and events and the following types of reactions are distinguished [4]:

1. Physical aggression - the use of physical force against another person.
2. Indirect - aggression, in a roundabout way directed to another person or not directed at anyone.
3. Irritation - readiness for the manifestation of negative feelings at the slightest arousal (short temper, rudeness).
4. Negativism is an oppositional manner in behavior from passive resistance to active struggle against established customs and laws.
5. Offense - envy and hatred of others for real and imaginary actions.
6. Suspiciousness ranges from mistrust and caution towards people to the belief that other people plan and cause harm.
7. Verbal aggression - the expression of negative feelings through the form (cry, squeal), and through the content of verbal responses (curses, threats).
8. Guilt - expresses the subject's possible conviction that he is a bad person, that evil is doing, as well as remorse of conscience felt by him.

Physical aggression, indirect aggression, irritation and verbal aggression together form the total index of aggressive reactions, and resentment and suspicion constitute an index of hostility. The questionnaire consists of 75 statements, to which the subject answers “yes” or “no”.

An experimental study took place in September 2018-2019 school year. 19 pupils took part in it. The following results were obtained:

Table 1

	Level	Number of pupils	The percentage of the total number of children
Index of hostility	Low	-	0%
	Average	15	79%
	Tall	4	21%
Index of aggressiveness	Low	3	16%
	Average	12	63%
	Tall	4	21%

Each of the indices has a qualitative and quantitative characteristic. It can vary from almost complete absence to its limit value. Whatever a person is, she must have a certain degree of aggressiveness and hostility. A low value or the absence of at least one of the indices speaks of passivity, personality records. Excessive indices, on the other hand, determine a personality that can become conflicted, unable to find a way out of problematic situations, incapable of collective activity. Each index level corresponds to a certain pupil behavior.

Table 2

Index level	Pupil behavior
Low	He is in good contact with his peers and can find a common language with everyone.
Average	He can carry on a dialogue, restrains his aggression well, knows how to change his opinion, if necessary. Not capable of excessive sharpness, disrespect for the interlocutor.
Tall	Can not cope with anger, uses verbal abuse. Not admired, seeking to impose their opinions on others, by all means, firmly uphold their beliefs.

6 pupils of the orphanage have a high index of hostility or aggressiveness. Two pupils revealed a high level of both indexes.

Table 3

№	Full name	Age years	Hostility index	Index of aggressiveness
1.	Burlachenko Daria	12	High level	Average level
2.	Glushko Vyacheslav	11	High level	Average level
3.	Malashenkov Ivan	10	High level	High level
4.	Prozorovsky Yuri	18	Average level	High level
5.	Seliverstova Natalya	20	High level	High level
6.	Fedorova Anastasia	13	Average level	High level

Pupils with a high level of one of the indices, with all their differences in personal characteristics and characteristics, have some common features. These features include the poverty of value orientations, lack of enthusiasm, narrowness and instability of interests. They have emotional rudeness and anger, both against their peers and against surrounding adults.

Preventive work with pupils who show signs of destructive behavior: aggression, hostility is a complex, multidimensional process and a long time. The primary task for teachers is a theoretical analysis of the reasons for the destructive behavior of pupils. This may be not only the clinical signs of certain variants of mental disorders, but also those functional and dynamic prerequisites that determine the occurrence of these disorders. Analysis of the composition of the children's contingent with destructive behavior shows that more than half of the children are from dysfunctional blood or guardianship families, whose parents or guardians have asocial lifestyle or used physical force against them. What created the objective prerequisites for the emergence in these children of destructive behavior that is asocial in nature. This is clearly seen in the example of children:

Burlachenko Daria (12 years old) - an orphan. She entered the orphanage in 2016 from a guardian family. The guardian was a paternal aunt on the father's line, who took Dasha and her older brother to her family after the death of their parents. According to the girl, it was very difficult for her to be in a new family, her aunt constantly found reasons to scold her, and was always not happy with her. Twice the girl ran away from home, and with each return to this family, the situation was even more aggravated. The children themselves became the initiators of their being placed in an orphanage.

Glushko Vyacheslav (11 years old) is a social orphan, both parents are alive. Vyacheslav entered with his sister (9 years old) and brother (14 years old) to an orphanage in the summer of 2018 from a shelter, where they spent about a year. It's not the first time that Vyacheslav's mother is deprived of her parental rights, she's already taken three children from her for mistreatment. According to the children, the mother worked in the house of culture, in amateur activities, the father worked there as a janitor. But parents did not always go to work, they abused alcohol, often found out the relationship with children. Her father repeatedly beat his mother, she left home for a week, for two. Children had to starve. Vyacheslav rarely attended school. The indifferent attitude of parents to their children, can be traced and sow the day. Mother only visited children in an orphanage once, arguing that she had no time, because she recently gave birth to another child. Vyacheslav is a very difficult child, he has a poor performance in school, he is characterized by rudeness and boldness in communication, both with pupils and adults. Vyacheslav is an internal account in an orphanage.

Malashenkov Ivan (10 years old) - social orphan. In the family, he was an average child. Mother is not working anywhere, raising children alone. Lived family can be said for some child benefits. From the words of the child, they often changed the housing, they did not have their own. Children often did not attend school and were engaged in theft. Mother abused alcohol. With the deprivation of rights from the mother, the younger child was taken by the relatives of the father, and Ivan and his older brother were sent to a shelter, and a year later they arrived at the orphanage. Now Ivan is with his brother in an orphanage for more than six months, studying in 4th grade, his academic performance is satisfactory. Mother or any relatives did not appear in the walls of the orphanage. Ivan is on the internal account, as he uses obscene words in his speech, he evades from fulfilling his duties.

Prozorovsky Yuri (18 years old) - social orphan. Yura entered an orphanage at the age of 10 from a shelter along with her older sister. Mother brought up children alone, the boy never saw his father. Nowhere else, a working mother often gathered at her company companies who abused alcohol and cigarettes. The boy began to smoke early, to drink alcohol, did not attend school, wandered. When he arrived at the orphanage, Yura showed physical aggression for a long

time towards the pupils, evaded the responsibilities of the pupils, did not study well, disrupted classes at school, and agreed with adults. Two times he stayed in his second year at school. For a long time, and this is about four years, Yura has been on the internal registration of an orphanage. In May 2018, by the decision of the orphanage meeting, it was decided to remove Yura from the register, since improved behavior, school performance. For all the time that the boy is in an orphanage, his mother never visited him.

Natalia Seliverstova (20 years old) - social orphan. She arrived at an orphanage in 2014 from a shelter in which she was a little over two years old. Natalya grew up in a family where there were 5 children. She was the penultimate child. Natalia did not see her father even once. Mother saw, earned a part-time job. When the guardianship took the children from the family, the three older children were already over 18, so Natalia and her younger sister (10 years old) were taken to the orphanage. Both girls had a low level of intellectual development. Girls never attended school. Already from the orphanage they went to school for the first time. At that time, Natalia was already 14 years old. Natalya stood out very much, in addition to the age difference between classmates, she was very tall and large girl. She went to school with reluctance. As a response, Natalya began to use physical force against her offenders. From the 6th grade, the girl began to learn externally. Now, at the age of 20, she is a 9th grade student, her academic performance is weak, and she will take lightweight examinations. After the girls were taken from the family, the mother was deprived of parental rights. In 2013, the mother gave birth to another child, whom in the summer of 2018 the guardianship organs were seized.

In the future, after the diagnosis and clarification of the reasons for the destructive behavior of the pupils, a plan of preventive work, - conditions are created to ensure the normal development of children. All these children with pronounced reactions of destructive behavior should be involved in the leisure activities of the orphanage.

All of the above students are engaged in the decorative and applied studio "Very skilled pens." Classes in the studio are a tool that helps them adapt to normal life; make it possible to get to know yourself (what it is, what it can do) by participating in diverse activities; solve the problem of employment (narrows the space of destructive behavior); perform pre-profile training to continue their education in professional institutions.

A feature of the studio is a variety in creativity: working with paper, cloth, cross-stitching, beads, ribbons, weaving macrame. The program "Very skillful pens", developed by the author, has been reviewed and introduced into the work of the orphanage since 2012. The program is designed to work with children from 7 to 18 years old and consists of two blocks:

1. Direction for girls.

- 1 course "Molding" (from 7 to 8 years);
- 2 course "Paper and cloth" (from 9 to 10 years);
- 3 course "Embroidery" (from 11 to 12 years);
- 4 course "Making souvenirs" (from 13 to 14 years);
- 5 course "Knitting" or
- 6 course "Soft toy" (from 15 years).

2. Direction for boys.

- 1 course "Molding" (from 7 to 8 years);
- 2 course "Paper and cloth" (from 9 to 10 years);
- 3 course "Work with a cloth. Making souvenirs"(from 11 to 12 years old);
- 4 course "Making souvenirs" (from 13 to 14 years);
- 5 course "Macrame" (with 15 years).

The main objective of the program is to form practical skills of decorative and applied activities (marking, cutting fabric, sewing, embroidering, weaving and modeling) among pupils of the orphanage, raising culture and work organization (accuracy, accuracy of work, high-quality processing of products, rational use of materials). , adherence to safety when working with technical means), the ability to think, compose, create original works. Profile classes not only combine various types of practical activities, but also reveal to the children the uniqueness of various types of folk art, which carry centuries-old ideas about the beauty and harmony of the surrounding world. Making toys, embroidery, weaving and modeling, all this makes children accustomed to the multinational culture of the peoples of our country. What contributes to a tolerant, "tolerant" perception of their traditional values. The program of applied education promotes the involvement of children in independent work, influences the development of creative initiative and ingenuity. Every child needs not only activity as imitation, but also freedom of creativity. The task of the teacher is to direct the child's activity to the right direction. Children with destructive behavior need to feel that they are able to create beautiful things with their own hands, that they are the creators of their lives. As a result, the content of the program "Very skillful hands" on decorative and applied education of children from an orphanage is aimed not only at obtaining practical skills, but also at carrying out preventive work among children with destructive behavior: fostering a negative attitude towards selfishness, cruelty, violence to people and nature in general; education in the need and willingness to interact with people regardless of their nationality, social or religious affiliation, views or worldviews; understanding and acceptance of a foreign culture, values, foreign opinions, awareness of belonging to the world community; education independence in the organization and conduct of decorative - applied activities.

The composition of the studio is based on the interests of the pupils and their age criteria. The duration of classes is determined by the statute of the institution and is 40 minutes. The schedule is made taking into account the most favorable mode of work and rest for children, the age characteristics of children and the established sanitary and hygienic norms.

The leisure activity of the studio “Very skillful hands” is based on the following principles:

- availability of information. Pupils are provided with full information about the circle and its work: goals, tasks, planned work, requirements for pupils;
- confidentiality. Everything that is said in the circle classes regarding specific pupils should not be the property of third parties. This is a natural ethical requirement, which is a prerequisite for creating an atmosphere of trust, security and self-disclosure. What is very important for children of orphanages, especially for children with destructive behavior;
- voluntariness. A pupil chooses a studio circle (direction) independently, has the opportunity to move from one to another, thereby realizing his ideas and interests. It is an interesting activity demanded by the child that is able to provide preventive work on the formation of "correct" behavior;
- psychological and physical security. Physical and verbal aggression is unacceptable in the studio;
- alternation of activities.

Pupils, regardless of the group’s choice, are invited to participate in various activities in this area, taking into account age and individual characteristics: in reporting exhibitions, competitions, festivals, in preparations and holding open classes, etc. In such events, pupils demonstrate their creative results, expand their personal experience, they develop friendly communication skills, emotional and moral improvement. Many of the crafts made by the pupils are intended as souvenirs for relatives and friends, which is very important for these children. As a result, children are reduced aggressive and hostile attitude towards others. By participating in contests and festivals, the child feels his importance, his self-esteem rises, he realizes that thanks to his work he is raising the prestige of his institution. So Burlachenko D., Seliverstova N. took more than once prizes in district and regional competitions.

The main forms of conducting classes are: conversation; play activities, workshops. The structure of occupations includes three parts.

The theoretical part is an explanation of a new material, of an educational nature, acquaintance with history, with national traditions, with the basics of technology implementation, etc. The task of the teacher to convey the necessary information in an accessible and interesting form. The second part is practical work that helps to learn the topic of the lesson, to consolidate the skills and abilities needed

by the child. Here, the teacher of the circle should focus on the development of certain social skills and abilities in children, create and maintain an atmosphere of friendliness and cohesion in the circle - this contributes to the personal growth of the pupils, reducing emotional stress. The third part is the summing up of the lesson, the formation of conclusions, the children's self-assessment of their work in the lesson, the determination of the prospects for the next lesson. Here, pupils can share their feelings, impressions, opinions, talk about their mood. As a result, children develop the ability to hear and listen, and this is an important component of reducing destructive behaviors that are asocial in nature.

When working with children who have been diagnosed with signs of destructive behavior, they should: make demands on pupils to perform this or that job, taking into account not the wishes of themselves, but the possibilities and interests of the children; Be sure to include these children in collective activities, emphasizing their importance; broaden the minds of students; not fix the attention of others on the lungs manifestations of aggressiveness; praise the pupils at least for the slightest "victories", for good behavior. Then these children will seek once again to hear the praise. These pupils should feel that they are valued, want to see them more restrained, generous, able to control themselves, that they need to get rid of bad deeds.

The teacher who works with such children should be attentive, predict the actions of the children, and also build their work in such a way as to help them in every possible way in overcoming the difficult situation for them. He should pay attention to the slightest changes in behavior, in the mood of children [6].

So, in order for decorative and applied leisure activities to be an effective means of preventing destructive behavior among orphans, the following conditions must be met: turning to the processes of self-expression and self-realization of the child; Satisfaction with interpersonal relationships arising in the process of activity; respect for the rights of the personality of each child; organization of democratic communication with children.

Thus, as a result of preventive work, a child with destructive behavior will have: experience of interacting with peers and adults in the creative atmosphere of a common cause; participation in creative contests and festivals; enriching them with the necessary practical knowledge and skills; increase their intellectual and spiritual development. The role of preventive work is that, with proper organization, it can prevent or eliminate the changes in the behavior of children that are not yet becoming sustainable. Subject to the timely implementation, the prevention of destructive behavior can give significant positive results in a shorter time.

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高等教育体制改革的现代整合过程
**MODERN INTEGRATION PROCESSES
IN REFORMING THE SYSTEM OF HIGHER EDUCATION**

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注解。 俄罗斯的教育是社会系统中最重要因素，提供了获取知识和技能的过程。 后来，这些知识，能力和技能被有效地用于教育过程参与者的专业活动，这意味着他们为国家发展做出贡献。 目前，俄罗斯教育体系正处于改革阶段。 改革的基础是使教育制度符合国际行为和协议。

关键词：教育改革，大学，高等教育，硕士学位，博洛尼亚进程，研究工作，硕士论文，能力。

***Annotation.** Education in Russia is the most important element of the social system providing the process of obtaining knowledge and skills. Later this knowledge, abilities and skills are efficiently used in the professional activities of the participants of educational process that means that they contribute the state development. Currently, the Russian education system is at the stage of reform. The basis of the reforms is to make the educational system correspond to international acts and agreements.*

***Keywords:** education reform, University, higher education, master's degree, Bologna process, research work, master's thesis, competence.*

The changes in the labour market, in social and economic realities, new requirements to the graduates of educational institutes and their social and professional competencies, need of higher education institutes graduates by the employers made it necessary to reform the Russian education system.

There were changes in every education level - from the general education to higher professional and post-professional education. Millions of people such as pupils, their parents, school teachers, students, University teachers, etc. are involved in the reforms. Therefore, the current reforms of education have a great public response.

Our country is currently in the process of transforming its higher education system. The result of this reform was the division of higher education into 3 levels: bachelor's, master's and postgraduate studies.

What caused Russia to adopt this system? In 2003, our country became a member of the Bologna process to create a pan-European educational space, which firstly had been mentioned in the universal Charter of universities, signed on September 18, 1988 in Italy in the city of Bologna by the main European States.

Russia, having joined the Bologna agreement and other international instruments which allow to enter into a united educational system, has assumed certain obligations arising from these documents. In fact the obligations are: the Russian higher education system should be reformed in such a way as to become equivalent to European education and be accepted by the European community. One of the main elements of the Bologna process, creating opportunities for personal growth, supporting the cooperation of universities at the international level, is the mobility of the teaching staff, students and graduates.

In Europe, the higher education system has been divided into two levels for a long period of time: bachelor's and master's degrees. Training of bachelors is mainly carried out by colleges, and masters – by universities. Specialists still argue about the necessity and effectiveness of this educational practise. However, about 160 Russian universities are currently training masters in more than 90 different specializations, and their number is constantly growing [1].

Turning back to history, we can recall that the master's degree in Russia was approved by the decree of Emperor Alexander I in 1803. People with this degree could be the head of a department in the higher education institute. In 1819 the "Regulations in obtaining the academic degrees" was accepted. It regulated the way of passing the exams, defence of thesis and awarding academic degrees. The University Charter abolished the degree of candidate of Sciences in 1884. Since that time in Russia only two degrees - master and doctor of Sciences could be awarded.

Later after 1917 the training of master was canceled. But because of the perestroika process which started in our country in mid-80s of XX century which

influenced almost every aspect of life, the training was continued. The decree of the Ministry of science and education, higher school and technical policy of the Russian Federation of 13.03.1992 "On the introduction of a multi-level structure of higher education of the Russian Federation" training of bachelors and masters began to be carried out simultaneously with the training of certified specialists.

The multilevel system of higher education meets the needs of a market economy in the best way in which the labour market places are in special demand on the flexibility and mobility of the labour force. At the same time, the introduction of a two-level system does not cancel the classical traditions of the Russian (Soviet) higher education. For a number of specialties, multi-level training will be maintained, leading to the assignment of the degree "certified specialist".

Today, the magistracy is the second level of the three-level system in the level of higher education. The task of magistracy is to train professionals with deeper specialisation who can solve difficult problems. The main aim of the magistracy program is to prepare professionals for successful promotion in Russian and international companies, as well participating as analytical, research and consulting activities.

In the modern sense, the master is an erudite specialist, capable of research, analytical and consulting activities, who owns modern information technology and methodology of scientific creativity. To be more precise: master — a specialist in a wide profile, which is ready for analytical and research activities and has modern methods and technologies of scientific knowledge. The need for highly qualified personnel with a master's degree is really manifested not only in higher educational applications as teachers or in research organizations, but also in companies and organizations of various fields and forms of ownership. The skills acquired during the master's degree are relevant not only to those who plan to link their future career with teaching at the University and science, but also to employees of various fields of activity, because even the most highly qualified specialist in his field must be able to present his knowledge to others, this also needs to be learned. [3]

A graduate of the master's degree is able to focus more deeply on the study of highly specialized issues, to work out in detail the areas necessary for professional activity, especially in the innovative sphere.

In addition, training in the master's degree gives students the experience of scientific work and allows you to master the skills of research. Even during the period of study at the University, the master can try himself as a researcher in order to make a decision to continue his studies in graduate school.

Initially, master's programs in our country were perceived as research programs. They were thought to prepare students to teach or make researches. This limited the field of their use and reduced the demand. But this is not entirely true. Of course, master's programs should have a strong research component, but in ad-

dition, in the educational process they should teach the skills of collecting, analyzing and using information for decision-making.

The quality of training of University graduates largely depends on the successful solution of the problems facing the modern Russian economy. It is important to reorient Russia to an innovative and socially oriented model of development. Important factors in the formation of the masters of certain competencies prescribed in the curriculum of the educational programs of universities are the desire, ability, skills of graduates in the use of knowledge and their application in professional activities when working in the industrial complex of Russia.

There are many organizational innovations in the Russian educational sphere. There are educational programs in the sphere of higher education which appear nowadays. But it should be said that the new programs will be constructive only if they meet the requirements of professional activity in the development after mastering basic bachelor's program [6].

Master's programmes are gradually replacing the so-called "second higher education" from the market. Magistracy is a higher level of higher education, its program is based not on the repetition of disciplines passed in the University of a different profile, but on the transfer of previously acquired knowledge to a new level and a new subject area.

Perm state agro-technological University in 2010 joined the number of participants of the Bologna process in the Perm region. The master's program, created at the faculty of Economics, Finance and Commerce, is based on many years of experience in training specialists in Economics and management. Currently, there is intensive work to improve the quality of training of masters on the basis of state educational standards of the new generation. The implemented master's program "Production management" contains in-depth special knowledge with a pronounced research component, a significant proportion of independent work and is aimed at the formation of competencies that allow graduates to perform high-level intellectual functions, comprehensively solve a variety of tasks with the use of knowledge of the latest technologies and techniques. Its mission is to meet the needs of public authorities and subjects of the real sector of the economy in high-quality specialists in production management.

The program provides individual educational training of undergraduate students, which makes it possible to conduct effective research, analytical and practical activities in the fields and areas of industrial management. Creation of actual methodical and organizational base allows the undergraduate to master the basic competencies in the field of solving problems of organization of production and management.

Master's students have the opportunity to consider different approaches and opinions of outstanding scientists, experts, highly qualified specialists indepen-

dently, that makes this course especially relevant and in demand. Graduates of the master's degree successfully work in companies and organizations of various sectors of the economy, focused on research, scientific and pedagogical, design, experimental, technological, performance and organizational activities. Master's program classes are conducted by leading professors and associate professors of the University as well as by future employers. Master's students are trained at the enterprises of various forms of ownership

Currently, the study of master's programs in the direction of "Management" and "Economics" in agricultural universities not only provides an opportunity to gain deeper knowledge in the field of management, Economics or Commerce to specialists of the agricultural sector, but also allows graduates who have graduated from technical universities under the program of specialization to master the relevant fields of education.

Master's education, in addition to fundamental scientific training provides instrumental knowledge and skills that are valued by modern employers in any field of any activity. Today, the demand for master's programs is growing, as employers want to get specialists who have received, in their view, "full" higher education - education at the master's level, because the bachelor's degree is not yet perceived as a full-fledged diploma of higher education. In the difficult political, social and economic conditions of the country in the sanctions period, economic and management training of master's students is appointed to get an adequate education to find the right guidance in making management decisions [2].

Currently, the problem of employment of graduates is an actual problem of modern universities. The previous model of "study – work" becomes irrelevant. In Soviet times, a student was supposed to change the main activity from educational to labour, that means that the employer looked at the student having higher education as at a specialist. In this model, the distribution and compulsory employment of graduates was considered as the start of a career. Currently, many students get their first work experience when combining study with work. This means that there is no distinction between education and professional development. Therefore, the model of "education through life" becomes very popular [4].

It should be agreed that Russia really needs the education reform. With the current system it is hard to believe in quality increase of human capital which is integral for development prospective of the whole economy. The lack of qualified personnel is one of the main constraints to business development in Russia. It is still not easy for enterprises to find graduates who do not need to be retrained. And it is almost impossible to find a specialist who knows not only modern knowledge, but also a foreign language.

In conclusion, it should be noted that the process of development and formation of personality in all professional spheres is becoming more dynamic. Cur-

rently, professional activity - the longest stage, the implementation of which is due to the ongoing educational processes. Continuous education in our country is becoming particularly important, as in the current socio-economic situation is constantly expanding areas of integration of various sectors of the Customs Union. Hence, it can be concluded that the governments of countries directly interested in improving the professional skills of the population should make the doctrine of continuing education the predominant direction of the educational policy of the state. [5]

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1970 - 1980年在雅库特北极和北部地区对农村青年进行专业培训
**PROFESSIONAL TRAINING OF RURAL YOUTH IN THE ARCTIC AND
NORTHERN REGIONS OF YAKUTIA IN 1970-1980**

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注解。本文讨论了1970 - 1980年代雅库特北极地区职业技术教育的发展。20世纪60年代Yakut ASSR的工作年轻人，特别是北极农村定居点的教育水平非常低。雅库特的传统农业分支需要大量年轻人涌入。然而，年轻人不情愿地去驯鹿农场工作。苏联领导层密切关注进一步提高农业的任务，并在雅库特的职业技术教育机构面前确保为国民经济各部门系统培训技术工人。

在大型先进的国有农场和农业机械企业的基础上建立农村中等职业学校是必要的。随着1970 - 1980年代职业学校网络的扩大，农业工业综合体的劳动力资源得到了质的改造，牺牲了年轻人的利益。

关键词：北极农村青年，雅库特，职业培训，职业技术学校，青年政策。

Annotation. *The article discusses the development of vocational technical education in the Arctic regions of Yakutia in the 1970-1980s. The educational level of working young people, especially in Arctic rural settlements, was very low in the Yakut ASSR in the 1960s. Traditional branches of agriculture in Yakutia needed an influx of young people. However, the youth reluctantly went to work in reindeer farms. The Soviet leadership paid close attention to the tasks of further raising agriculture and set before the vocational-technical educational institutions of Yakutia the task of ensuring the systematic training of skilled workers for all branches of the national economy.*

The creation of rural secondary vocational schools on the basis of large advanced state farms and agricultural machinery enterprises was deemed necessary. With the expansion of the network of vocational schools in the 1970-1980s there was a qualitative renovation of the labor resources of the agro-industrial complex at the expense of the young people.

Key words: *rural young people of the Arctic, Yakutia, vocational training, vocational-technical school, youth policy.*

Professional orientation is one of the most important and at the same time one of the most difficult decisions in the life of a young person. Every year the choice of profession is becoming increasingly difficult due to the fact that some of them eventually become less relevant and popular, and they are replaced by new professions that meet the requirements of the country's economy in the present and in the future [1, p.1037]. In the Soviet period, the problem of vocational orientation of aboriginal rural youth of the North was also acutely on the agenda. Vocational education and vocational training play a fundamental role in the life of young people in order to prepare them for work, to acquire professional skills, which undoubtedly affect the labor market [2. p.11].

The study of the problem of training agricultural personnel in the republic in the 1970-1980s was reflected in the research of a number of scientists. The development of agricultural educational institutions and the problems of training specialists of the agrarian sector in this period are considered in the collection of scientific papers "Vocational education of young people in the Yakut ASSR" [3]. It is worth noting the article of S. N. Gorokhov and N. P. Shamaeva, which shows the development of public education and science in the specified period under conditions of developed socialism [4].

The issue of training qualified local personnel from the number of small peoples of the North in the period under review is the work of V.I. Boyko and N.V. Vasiliev [5, 6], U.A. Vinokurova [7], O. N. Ptitsyna [8]. The authors analyzed in detail the problems of training specialists from the local population by branches of agriculture.

The great importance for the study of the youth of Yakutia in 1970-1980's is represented in the work of I. A. Argunov [9,10], which allow to depict the social portrait of young people in the village of Yakutia in the late 1970s and their life-style as well. Also, a certain contribution to the study of the topic was made by the scientific works of M.N. Borisov [11] and N.N. Tikhonov [12]. Their studies show the socio-economic problems of the Yakut village, including the training of personnel in secondary specialized educational institutions of the republic.

In the 1970s and 1980s, the role of rural youth increased. It actively participated in socio-economic processes occurring in rural areas, and represented a significant part and the main resource for replenishing the workforce with resources mainly for the agricultural sector of the economy. The Soviet leadership paid close attention to the tasks of further boosting agriculture, realizing that the modernization of agricultural production can be accomplished not only extensively by a general increase in the number of workers of mechanized labor, but also intensively as a result of a significant change in their qualitative structure. A new stage in the development of agriculture was unthinkable without the systematic training of qualified personnel for agriculture, mainly from among the youth. At every stage

of socialist construction, professional and technical training of personnel had to carry out the tasks characteristic of a certain period. In connection with the changes in the nature and content of labor in the conditions of a radical restructuring of the socialist economy, acceleration of the scientific and technological revolution, as emphasized at the 27th Party Congress, the requirements for general education and vocational training of people were increasing [13].

In the 1960s, the educational level of working youth was very low in the Yakut ASSR. This is evidenced, for example, by the fact that in 1963 out of 539 people in 5 villages of 4 northern regions (Arylakhsy Verkhnekolymsky, Olerinsky and Khalarchinsky Nizhnekolymsky, Selennyahsky Ust-Yansky, Ulakhan-Chistaysky Momsky regions) only 10 people had higher education, 101 had secondary special and general education, 173 - secondary education, 158 - primary education, the number of illiterate people was 97 people. The educational level of young people engaged in material production was especially low: reindeer herding, hunting, fishing [14, p.55]. Therefore, by the Decree of the Council of Ministers of the Yakut ASSR of August 20, 1964, it was decided to organize training farms in rural areas to train working youth, and also to organize nomadic training plants in the Arctic areas [15, p.104].

The vocational-technical schools of Yakutia were tasked with ensuring the systematic training of skilled workers for all sectors of the national economy.

In 1975, 11 rural vocational schools with a total of 2,599 students worked in Yakutia. From 1970 to 1975 they prepared 5890 skilled young workers for the Ministry of Agriculture, including 3241 machine operators [16, p.26].

In February 1975, the Central Committee of the CPSU and the Council of Ministers of the USSR adopted a resolution “On measures to expand the network of secondary rural vocational schools and to improve their work” [17]. It envisaged the implementation of major measures to further improve and expand the training of skilled workers in secondary vocational schools. The creation of rural secondary vocational schools on the basis of large advanced state farms, agricultural machinery enterprises and complexes, including educational, laboratory and public housing units, was recognized as necessary. The development of three-year rural vocational schools that provide secondary education has contributed to the further improvement of general educational training and the cultural and technical level of rural workers, and the retention of young people in the village.

Raising the level of general education provided an opportunity to expand and deepen the content of curricula and programs. More attention was paid not only to mastering skills and acquired habits, industrial training, but also to theoretical, scientific and technical training, and the general development of students. New subjects were introduced into the curricula. Social science, aesthetic education, the economy of production, special subjects were unified in content and volume

of educational hours. The educational process was increasingly introduced with technical training means.

An integral part of the teaching and pedagogical process was industrial training, during which students mastered practical knowledge, learned to work effectively and efficiently. Vocational technical education was inseparable from labor education. Compared with the secondary school, vocational schools had much more opportunities for labor education directly in the process of vocational training and practice, students of vocational schools together with workers actively participated in the implementation of national economic plans.

During this period, the republic gradually expanded the network of vocational schools. So in 1980, there were 25 vocational schools in Yakutia, where 6,500 people studied, i.e., in 2.5 and 3 times more respectively in 1965 [18, c.47] January 1988 in the Yakut ASSR there were 25 day vocational schools, in which 8,988 people were enrolled. The number of students in the vocational secondary school of the republic grew annually, and the output of qualified young workers increased accordingly, but despite this, the vocational technical school covered only 17.6% of the needs of the national economy sectors for skilled workers (according to the calculations of the State Committee for Vocational Education of the Yakut ASSR) [19, c.31].

However, the majority of secondary vocational schools were located in the central part of Yakutia, where many young people from the northern regions found it difficult to reach and enroll because of the high cost of air tickets and other social factors, such as accommodation, food, etc. away from home. And in the North of Yakutia, only two secondary vocational schools worked, which could not accept everyone.

The first in 1964 in the North of Yakutia in Ust-Yansky district was opened vocational school number 25. In the spring of 1965, the school was relocated to the village of Sangar in the Kobyai district and was renamed Sangar GPTU-9. The school was originally prepared by the profession tractor-driver - bulldozer, plumber, exceptional driver. With the emergence of the need for training for oil and gas geology enterprises, the Sangar GPTU-9 changed its profile to training in the following specialties: assistant driller, high fitter, diesel operator of drilling rigs [20, p. 150].

In 1973, Chersk secondary vocational school SPT-21 was founded in the Nizhnekolymsky district of the Yakut ASSR. It was the only school in the USSR that trained skilled workers by professions such as: junior reindeer breeder, field assistant radio operator, all-terrain vehicle hunter-mechanic, all-terrain vehicle driver, exceptional dock-mechanic who prepared 400 highly skilled reindeer herders for 10 years. In 1985, 32.5% of all students in the vocational education system in Yakutia studied there. However, as it noted in the article of Kuzmina R.A. and

Kharitonova V. N., SPTU-21 experienced annual difficulties in recruiting students to the group of hunters and reindeer herders [21, p.41].

Kuzmina R.A. and Kharitonova V.N. explained this situation by a whole complex of factors:

Firstly, the difficulties in forming the groups of reindeer herders and hunters in Chersk SPTU-21 were caused, first of all, by the significant dropout rates of schoolchildren from rural schools of the North, in particular, the lack of staffing of 8th grade schools in the reindeer herding areas of the republic.

Secondly, the low level of prestige of the vocational education system in general, compared with other types of education: school, secondary special, etc.

Thirdly, there were difficulties of adaptation of students of the Northern peoples to the conditions of the secondary vocational school.

Fourthly, there was the weak material and technical base of vocational schools [22, p.43].

During the years of Soviet power, the life of the peoples of the Far North radically changed. The changes affected all aspects of their life, including the traditional types of labor. The improvement of living conditions, the mechanization of labor, and the emergence of new professions also affected reindeer husbandry. One of the main problems of this traditional branch of the national economy has become the lack of qualified herding staff.

Reindeer husbandry needed an influx of young people. However, the youth reluctantly went to work in reindeer herds. Some part of it was alienated from the original types of labor of the peoples of the North. The researchers noted that it is difficult for a person who grew up in the village to adapt to the extreme conditions of the tundra. Adaptation to new conditions was slow and difficult, as no one was engaged in the physical and psychological preparation of the youth.

In the period under review, the main supplier of qualified personnel for reindeer breeding was a comprehensive school, where in the 8-10th grades the basics of veterinary medicine, reindeer breeding, mechanization and economics of reindeer breeding were studied. In the years of the 9th five-year plan, the task of completing the transition to universal secondary education was solved. At the XXV Congress of the CPSU (1976) it was reported that 98% of 8th grade graduates continue their education. According to the Republican Labor Committee, by the beginning of the XII five-year plan in the republic 60% of state farm machine operators and 75% of livestock breeders were young people under thirty years old [23, p. 167].

During these years the possibilities for obtaining secondary education were expanding. If, starting from the 1950s, it was common to think that only secondary school should be the source of education, in the 1970s a significant part of graduates mastered school general education programs in vocational schools. [24, p. 142].

The concentration and mechanization of production associated with the trans-

formation of collective farms into state farms, guaranteed wages, reduction of excessive labor overload, regulation of the working time budget had a positive effect on the consolidation of labor resources in agriculture. Continued to the beginning of the 70s reduction in the number of agricultural workers in the republic was halted, and the number of the agricultural population stabilized. With the expansion of the network of vocational schools, there has been a qualitative renewal of the labor force of the agro-industrial complex at the expense of young people.

It should be noted that the creation of vocational schools in the Arctic regions of Yakutia, despite all the shortcomings, had a positive effect not only in the lives of young people in the Arctic, but also in the economy of Yakutia in general.

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从塔吉克斯坦Khatlon地区Kulyabsky区的合格农业人员培训历史(1930–1950s)

**FROM THE HISTORY OF TRAINING OF QUALIFIED
AGRICULTURAL PERSONNEL FOR THE KULYABSKY ZONE
OF THE KHATLON REGION OF TAJIKISTAN
(1930-1950S)**

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抽象。 本文致力于在塔吉克斯坦Khatlon地区开发新土地期间培训合格农业专家的过程。

关键词: 农业, 技术人员, 处女地开发, 机械和拖拉机站, 高等和中等专业教育机构。

Abstract. *The article is devoted to the process of training qualified agricultural specialists during the development of new lands in the Khatlon region of Tajikistan.*

Keywords: *agriculture, skilled personnel, development of virgin lands, machine and tractor stations, higher and secondary specialized educational institutions.*

During the period of development of virgin and fallow lands, agricultural relocation and the training of agricultural personnel played an important role in the state policy, which contributed to the rational distribution and allocation of domestic labor resources, the consistent development of the economy, the improvement of the material well-being of the peasants and the growth of the cultural and everyday life of village workers. This decision was made at the September 1953 Plenum of the Central Committee of the CPSU, after which the country took a long-term course on the intensification of agriculture. Measures were envisaged to increase the yield, develop and introduce new lands in the crop rotation, improve the operation of the machine-tractor stations, and increase the number of qualified agricultural personnel.

Khatlon region (formerly Kulyab and Kurgan-Tyube regions) was one of the regions of Tajikistan, the development of virgin and fallow lands of which was urgently needed. During this period, Khatlon Oblast is becoming a major agro-industrial center of national importance, where food production is increasing. Agriculture had to fully satisfy the food needs of a growing region. To carry out the measures planned for the development of virgin and fallow lands, skilled personnel were required by machine operators, builders, agronomists, land reclamation agents.

The very question of training agricultural personnel was necessary to be resolved as soon as possible, as required by the state program, and the success of agricultural development depended on its correct solution. It was necessary to train not only the executives of collective farms, state farms and machine-tractor stations, but a large number of personnel in working professions. In turn, the solution of this problem required extensive construction in the countryside of residential buildings, social and cultural facilities.

In connection with the foregoing, the leadership of the republic, the party, Soviet, economic bodies directed all their efforts to the organizational and economic strengthening of the collective farms. An important link in this process was the transfer of TOZs (Friendly Society of Land Users) to the Charter of the agricultural artel, which became widespread during the third five-year plan. On June 11, 1939, the Council of People's Commissars of the Tajik SSR adopted a resolution "On the process of transferring toses to the Charter of agricultural markets", which provided financial assistance to the units that transferred to the Charter of the artel [2,80-81].

The collective farms pulled the remaining individual farms into their orbit, covering 98.7% of dekhkan yards and 100% of dekhkan sown areas [7.96].

One of the most important issues in the complex of tasks on the organizational and economic strengthening of collective farms was the question of training personnel in mass professions and machine operators. With the enormous help of the state only for 1939-1940. In the republic a large group of specialists for agriculture was trained. During this period, 912 tractor drivers, 46 brigade mechanics, 20 combiners, 12 local mechanics were trained in the Kulyab zone of the Khatlon region. In schools and through coursework 1890 people were trained - accountants, accountants, field brigade foremen and others [3.49].

Much attention in this period was paid to the mechanization of agriculture of the republic, especially cotton growing. For this purpose, in 1938, an additional 3 new MTS were built, including Khovalingskaya, 235 tractors were delivered, including 175 STZ-NATI and 60 "Universals", as well as 20 15-foot combines [6].

There were also other agricultural equipment. Accordingly, the volume of tractor works increased, their quality increased, and the cost price decreased. This was largely due to the massive competition of machine operators, whose leadership was in the center of attention of the state.

In 1938, 10 and in 1939, 15 veterinarians were assigned to work in the Tajik SSR by order of the USSR People's Commissariat of Agriculture [1.39].

The process of training professional workers was primarily dependent on the improvement of their general educational level. The scale of this work can be judged from the following data: in the 1930s. in the Khatlon region, 96% of field brigade leaders, 85% of heads of livestock farms, 91% of collective farm chairmen, 53% of the directors of the machine-tractor stations, 90% of the chief engineers, 98% of the heads of the workshops had a primary education [5.96].

And despite this provision, the issues of raising the general educational level of workers were not given due attention. Accordingly, many collective farm chairmen were poorly versed in the organization of collective farm production, economics, and finance, had poor ideas about science and best practices, and did not have organizational skills. Naturally, the collective farms that headed such managers had low production rates [6].

Local authorities, district agricultural administrations did not pay enough attention to attracting young people from production, state farms and collective farms to study agricultural colleges and universities. So, for example, in 1957 at the Tajik Agricultural Institute, out of 1,120 students studying, only 10 people represented the collective farm peasantry [7.96]. In 1954, this agricultural university graduated 39 agricultural specialists, of which 15 people were assigned to the Khatlon region. Of course, the rest were sent to work in the collective and state farms of other regions of the republic. The needs of such a huge territory could not be met by highly skilled workers [6]. From 1950 to 1955 The correspondence department of the Tajik Agricultural Institute graduated only 8 people [5,93].

A number of measures were taken to increase the number of agricultural specialists in schools of the Khatlon region. From 1956, the transition to new curricula began: labor lessons and workshops on agriculture, engineering science and electrical engineering were introduced, school workshops were established [7,86].

To solve the problem of strengthening the connection of schools with practice, many seven-year schools improved the polytechnization of education.

In 1958, the Ministry of Higher Education of the USSR approved new rules for admission to universities, in which great importance was attached to on-the-job training. In the future, universities received the right to enroll in the first place people with at least two years of practical work in the industrial and agricultural sphere of production or in other sectors of the national economy and culture, who positively manifested themselves in this work. This rule also began to apply to the demobilized from the ranks of the Soviet Army and Navy.

The participants of the Great Patriotic War, as before, were admitted to universities without competition. For persons eligible for non-competitive admission to the university, allocated up to 80% of the places from the plan of admission to the university. At least 20% of the places were provided to young people who graduated from specialized secondary schools and general education schools [7.99].

At that time, the Central Committee of the Communist Party of Tajikistan to increase the training of agricultural specialists obliged the directors and secretaries of party organizations of higher educational institutions to conduct more outreach work among the youth of collective farms, MTS, state farms, cultural institutions on the rules of admission to universities, specialized educational institutions, to assist in the preparation for exams. For example, in 1957, the installation acted to carry out priority enrollment to universities of at least 60% of young people working in various sectors of the national economy and having at least 2 years of work experience, having positively manifested itself in labor [4.49].

The rector of the agricultural institute was entrusted with ensuring the admission of students mainly at the expense of rural youth. To implement these decisions, active propaganda work was carried out with young people: at secondary schools, for those who worked in manufacturing, preparatory groups were organized for admission to the university. All necessary measures were taken to admit higher educational institutions to the best part of young people from industry. Explanatory work was also conducted among high school students on the feasibility of gaining industrial experience in industry, construction and agriculture.

Due to the fact that agricultural specialists in the districts of the region were still not enough, according to the Decree of the party and local authorities "On measures to further improve the agronomic and zootechnical services for collective farms" of August 20, 1955, it was decided to strengthen the economically weak collective farms more experienced and skilled personnel. Graduates of institutes and other secondary and secondary special educational institutions were sent to areas of the region to work on collective farms, state farms and MTS.

These specialists were recommended as agronomists and livestock specialists, deputy chairmen of collective farms, foremen of production brigades and heads of livestock farms. Collective farms were recommended to set, according to the decision of general meetings, monthly salaries of agronomists and zootechnicians of collective farms depending on length of service and qualifications in approximately the following sizes: to agricultural specialists working on the collective farm as agronomists or zootechnicians with higher education, from 70 to 90 %, with secondary education - from 60 to 80% of workdays and cash surcharge charged to the chairman of the collective farm [9,112]. It was also envisaged to issue all types of additional payments and material incentives, in accordance with the current decrees of the party and the government, for the chairmen of collective farms in the industry for which they are responsible.

The development of virgin and fallow lands in the Khatlon region contributed to the solution of personnel problems in agriculture, strengthening the economy of collective and state farms, increasing production of agricultural products and animal husbandry. All this made a significant contribution to the economic development of the Khatlon region and improving the living standards of the local population.

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学习和保护圣地的问题

PROBLEMS OF STUDYING AND PRESERVING SACRED SITES

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注解。 圣地和相关的仪式代表了土着人对人与环境的精神和物质联系的看法。与他们有关的宗教禁令的圣地允许保护其起源的性质，植物和动物的多样性。 文章展示了萨哈（雅库特）共和国圣地保护的现代法律基础。 制定了立法分析。

关键词： 圣地，文化遗产，萨哈共和国（雅库特），法律，法令，保护，登记。

Annotation. *Sacred sites and related rituals represent the indigenous folks' ideas about the spiritual and material connection of man and the environment. The sacred sites with related to them religious prohibitions allow to preserve the nature in its origin, diversity of plants and animals. The article shows modern legal base of sacred sites protection in the republic of Sakha (Yakutia). The analysis of the legislation is worked out.*

Keywords: *Sacred sites, objects of cultural heritage, the Republic of Sakha (Yakutia), law, decree, protection, register.*

An integral part of any cultural heritage of any folk is sacred sacral sites which are spiritual, historical and cultural heritage which is subject to protecton, salvation and recreation. The descripton of associated cultural landscapes in UNESCO Convention, 1972 about the protection of the world cultural and nature heritage is the widest and the closest to the description of a sacred site. "There are either big or small districts and paths, routes or other linear landscapes which are either long or short. It can be both physical and intellectual objects kept in spiritual, cultural tradition and practise of a folk. The attributes of associated cultural landscapes include immaterial ones such as acoustic, kinetic, olfactory and visual." [1]

Careful attitude towards the old folk memory represented in historical and cultural memorials which are sacredly significant for the ethnicity, the reservation of cultural heritage are obligatory features of civilised society. Together with natural resources, the objects of cultural heritage are crucial for national self-awareness

and self-respect development as well as to preserve the identity. They form moral of the society, cultural lifestyle. It is impossible to complement the loss of cultural values. That is why it is necessary to protect the heritage and sacred sites in particular.

It is notable that the interest to study sacred sites increases in different parts of Russia as well as in the territory of post-Soviet countries. It can be explained by the fact that there is a tend to come back to the traditional forms of religious practise and because the interest to the history of religion increases. The ecological problems, careful attitude to the nature, rational utilization of natural resources become more important for the society. Sacred sited with its prohibitions still help to preserve nature in its original state with the diversity of plants and animals. Recently as there are more possibilities to preserve natural and cultural heritage, they make ecological and religious tourism more popular.

The state of the sacred sites makes people feel preoccupied because of the economical and ecological changes and also the industrial exploration in Siberia. There are researches of sacred sites of Siberian folks in Altai Mountains. Made by C.D. Almashev [2], I.A. Jernosenko, [3], R. V. Oparin[4], C. D. Almashev and others. [5], in Buryatia B. T. Gomboev[6], B. A. Zandanova[7], T. B. Budaeva[8], in Yamalo-Nenets Autonomous district, in Amur region A. I. Mazin[9]. These researches aim to define the legal status, archaeological exploration, making documents, museumification of the sacred sites.

The group of scientists from the Institute for Humanities Research and Indigenous Studies of the North, Yakutiya including such scientists as L.I. Vinokurova, E. N. Romanova E. N., V. B. Ignatieva [10,11,12] has studied the sacred sites of Yakutia by monitoring it. During the study, the scientists applied to the sacred sites and detected the connection between man's activities and the environment: a person - a sacred site - nature.

The researches of sacred sites of specialists from Arctic State University of **Culture and Arts**, Yakutiya are very significant. They were made by U.A. Vinokurova, V.F. Yakovleva, V.I. Bochonina[13] L. P. Dambaeva[14,15].

Sacred sites and their associated rituals reflect indigenous peoples' perceptions of the spiritual and material relationship between man and the environment – it is not only their vital biological importance, but also it is the knowledge forgotten by many that indigenous peoples can impart to us. The rituals done in the sacred sites are the actions which help to actualize the connection and the values of the world around us. The destruction of a sacred site or non-performance of the ritual destroy the connection "a person - nature". To consider sacred sites only as natural or cultural heritage means to narrow their significance. The cult of sacred sites is a living tissue of culture together with nature. If the memory disappears, the spiritual connection with the place disappears as well and then the sacred site

itself disappears. Northern folks believe in it. The issue of preservation and usage of cultural heritage including sacred sites is one of the most urgent in the world as its spiritual and material potential is highly valueable. Sacred (sacral) sites are included in culture, science and education.

G.P. Haruchi, the researcher of Nenets ethnicity, reasonably notes that "a sacred site has no clear borders as it blends with the surrounding landscape. Usually it is located in a markable places, near some special shape, on the top of a hill, on the bank of a lake. The lake itself can also be sacred. Fishing here is either prohibited or the fishers are supposed to sacrifice a part of their haul to the spirit of the lake. If there is a stone in this place, the shaman could "recognize" one of the spirit's images in it. The shaman would announce the site as sacred, then it should be revered by everybody or only by the family." [16] Using the previous researches as a base, the scientist added the information to the map of sacred sites and made her own classification in which the general cult Nenets sites are listed: 1. public sanctuaries within a certain territory; 2. family sanctuaries; 3. the sanctuary inhabited by the facility; 4. sacred sites appeared in connection with certain events [17].

Russian legislation does not have the notion "sacred sites", but the specialists use the notions "historical and cultural objects", "noteworthy places" including "places for religious rites" and others to describe the status of sacred sites. These object are legally registered and protected by the executive organs by making the protection zones around the objects. The legal status of the sacred sited can be regulated by different ranches of law nowadays. They can be an object of historical and cultural heritage as well as specially protected nature zones. But we will study the legal status of the sacred sites as the object of legislation about state protection of the objects of cultural heritage (memorials of history and culture).

State protection of the object of cultural heritage (memorials of history and culture) is one of the prior tasks of state authorities of Russian Federation, state authorities of subjects Russian Federation and local authorities.

According to article 3 of the Federal law N 73-FZ [18] objects of cultural heritage include objects of real estate (including objects of archaeological heritage) and other objects with the territories historically connected with them, works of painting, sculpture, arts and crafts, objects of science and technology and other objects of material culture which arose as a result of the historical events representing value from the point of view of history, archeology, architecture, town planning, art, science and technology, aesthetics, Ethnology or anthropology, social culture and which are the certificate of epochs and civilizations, real sources of information about the origin and development of culture .

The law distinguishes the following types of cultural heritage objects:

memorials

ensembles

noteworthy places - are the artificial creations or natural and artificial creations including the places of traditional location of folk art crafts;**places for religious rites**;

Thus, sacred (sacral) sites can be considered as the objects of cultural heritage as the noteworthy places and, hence, they should be legally protected and its location, size of territory should be registered in the cadastral information administration to be included to real estate cadastre.

According to article 16.1 of the Federal law No. 73-FZ "About objects of cultural heritage (historical and cultural monuments) of the people of the Russian Federation" the Federal body of protection of objects of cultural heritage, municipal body of protection of objects of cultural heritage, the natural or legal person (further - the applicant) has the right to send to regional body of protection of objects of cultural heritage the statement for inclusion of the object possessing signs of object of cultural heritage in the register with Appendix of data on location of object (the address of object or in its absence of the description of location of object) and its historical and cultural value[19].

The regional protection authority of cultural heritage objects which received the application to register the object possessing signs of object of cultural heritage should organize the work to state historical and cultural value of the object in time no more than ninety working days from the date of registration in regional protection authority of objects of cultural heritage of the specified statement work on establishment of historical and cultural value of the object possessing signs of object of cultural heritage, including with involvement of experts in the field of protection of objects of cultural heritage.

After the period mentioned above expires, the regional authority of protection of cultural heritage objects makes a decision to include the object of cultural heritage into the list of revealed objects of cultural heritage or to reject including the object into the list and informs the applicant about the made decision in period which can not exceed three work-days from the date of making the decision, it also attaches the duplicate of the decision.

The object which has features of the cultural heritage object, in respect of which the application was sent to register it, is the revealed object of cultural heritage since the regional authority of protection of the cultural heritage objects makes the decision to include the object into the list of revealed objects of cultural heritage.

The revealed object of cultural heritage is subject to state protection in accordance to Federal law N 73-FZ before the decision either to include or to reject including it into register list is made.

It is necessary to organize work to include the revealed objects of cultural heritage List of revealed objects of cultural heritage of the republic of Sakha (Ya-

kutiya) to protect the territories of curiosities, historical and cultural memorials.

Currently in the territory of the republic of Sakha (Yakutiya) there are 16 noteworthy places revealed, studied and included to the register list of the objects of cultural heritage (memorials of history and culture) of the folks of Russian Federation. These noteworthy places are located in the territory of Tulagino-Kildiamskii district which are respected by people as the special sacred sites where the ethnogenesis of sakha (yakut) folks took place. They include:

- The noteworthy place "Bysahtaah Meadow";
- The noteworthy place "the place where Marzhai (Mardiai) family lived";
- The noteworthy place "Oi Bes Meadow";
- The noteworthy place "alaasa Saasyr cape";
- The noteworthy place "Yurung Blgunniah meadow";
- The noteworthy place "Hara Bulgunniah meadow";
- The noteworthy place "Oiuu Hatyng area";
- The noteworthy place ' Us Tiit meadow";
- The noteworthy place "Native place of Hotu Usman family";
- The noteworthy place "Kumahtaah meadow";
- The noteworthy place "Togus titteeh tomtordooh Aar toyon Bulgunniah";
- The noteworthy place "Native place of Soguru Usman family";
- The noteworthy place "Uuraahy sire meadow";
- The noteworthy place "Ese Bastaah meadow";
- The noteworthy place "Uuraahy Ysyah Sire";
- The noteworthy place "The Ytyk-Kuel lake".

All the noteworthy places mentioned above are related to the origin and early history of the sakha (yakut) folk. This was the fact why the noteworthy places of Tulagino caught the attention of the ethnographers.

Exclusion from the register of cultural heritage is made on the basis of the conclusion of the state historical and cultural expertise in the case of complete physical loss of the object of cultural heritage or loss of historical and cultural significance (proven historical and cultural expertise) on the basis of the decision of the Government of the Russian Federation. The physical loss can not be applied to the noteworthy places as the soil factually can not be lost.

Thus, the analysis of the legalprotection of noteworthy places as the way to save sacred sites and protect them from the industrial and agricultural developing showed:

1. To name the noteworthy place the place of interest is one of the most effective ways to protect sacred (sacral) sites in the Sakha (Yakutia) territory from the industrial and agricultural development.

2. It is almost impossible to exclude the noteworthy place from the list of the objects of cultural heritage because the exclusion of an object from the register list of cultural heritage is made based on the state historical and cultural expertise in

case of total physical loss of the object of cultural heritage or loss of cultural and historical value of the object (it should be proved by historical and cultural expertise) and it should be based on the decision of the Government of Russian Federation. The physical loss can not be applied to the noteworthy places as the soil factually can not be lost.

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社会数字化是可持续发展的一个因素

**THE INTERMEDIARY ROLE OF THE RUSSIAN FEDERATION
IN THE SETTLEMENT OF THE NAGORNO-KARABAKH CONFLICT**

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注解。 该条讨论了俄罗斯联邦旨在解决纳戈尔诺 - 卡拉巴赫冲突的作用和调解努力。 概述了通过国际机构的活动进行法律和和平监管的基本行动, 并强调只有在所有行动者的直接互动下才能达成妥协解决办法。

关键词: 纳戈尔诺 - 卡拉巴赫冲突, 俄罗斯联邦的中介作用, 欧安组织明斯克会议

Annotation. *The article discusses the role and mediation efforts of the Russian Federation aimed at resolving the Nagorno-Karabakh conflict. The basic actions for legal and peaceful regulation through the activities of international institutions are outlined and there is emphasized that the compromise resolution is possible only with the direct interaction of all actors.*

Key words: *the Nagorno-Karabakh conflict, intermediary role of the Russian federation, OSCE Minsk Conference*

Today in the Caucasus region there is a tense situation due to the Nagorno-Karabakh conflict that started about 25 years ago, primarily between the states of Armenia and Azerbaijan. The region of Nagorno-Karabakh officially belongs to Azerbaijan, which invokes the right to territorial integrity. However, Armenia and the authorities of Nagorno-Karabakh desire the disputed region to become an independent state, based on the right to self-determination. International organizations, like the Organization for Security and Cooperation in Europe (OSCE) and the United Nations (UN) attempt to resolve the conflict by proposing agreements and drafting resolutions (as formed No-822, No-853, No-874, No-884). Although since 1994 a ceasefire should appease the violence, the conflicting situation continues and the dispute has not yet been solved as “*peace is not merely the absence of formal war*”¹.

¹Nordstrom, C. (2004). *Shadows of War: Violence, Power, and International Profiteering in the Twenty- First Century*. Berkeley: University of California Press, p. 141.

The Nagorno-Karabakh conflict is also of great importance in contemporary international relations. Thus, the Russian Federation is involved in the conflict as a peacekeeper, who is trying to bring the parties to a compromise and a peaceful settlement of the conflict. Turkey and, to a lesser extent, Iran, are also involved in processes related to the Nagorno-Karabakh Republic, and therefore there is still the potential to turn the Caucasus into what was in the seventeenth and eighteenth centuries: a battleground between Russia, Turkey, and Iran². The interest in developing the region's energy resources has become a key reason for the presence of a number of Western countries and their participation in the economic transformations taking place in the Caucasus.

*"Russia and the Western countries have different, mutually exclusive interests in the Caucasus"*³. However, it is the Russian Federation that is rightly considered the most influential, authoritative and interested party among the states that have expressed their own interest in mediation between the parties.

Russia's leading role in the peace process is due to a number of factors—its historical involvement in the developments in the region, its positive relations with the parties to conflicts and the desire to avoid unpredictable developments near its borders. In particular, in the Foreign Policy Concept of the Russian Federation, *'the formation a good-neighbor belt along the perimeter of Russia's borders, to promote elimination of the existing and prevent the emergence of potential hotbeds of tension and conflicts in regions adjacent to the Russian Federation'*⁴ is singled out as the main directions of Russian foreign policy.

Undoubtedly, Russia has a significant potential for rendering a crucial impact on the course of events in the Caucasus, in particular, on the settlement of the Karabakh conflict not only in an intermediary way but also simultaneously satisfying its own ambitions. In somehow Russia is interested in maintaining the status quo in the conflict between Azerbaijan and Armenia to prevent Armenia and Azerbaijan from leaving its sphere of influence and in order to have levers of influence on Western countries.

In the settlement of the Nagorno-Karabakh conflict in 1993, the Russian Federation first *"came to the conclusion that only observers are not enough to settle the conflict - a peacekeeping operation is needed with the use of the forces of disengagement of the belligerent parties, as well as facilitating the negotiation process"*⁵. It is on the incentive to constructive dialogue made the main emphasis of Russia's mediating role⁶. However, their interests in the region are also taken into account by the Russian side. They are realized at the expense of claims to the role of sole mediator.

²Souleimanov, E. Understanding ethno-political conflict: Karabakh, South Ossetia, and Abkhazia wars reconsidered. London: Palgrave Macmillan, 2013.

³Asli Fatma Kelkitki. Turkish-Russian relations: Competition and Cooperation in Eurasia. New York, NY: Routledge, 2017, p. 47.

⁴Igor Torbakov, 'Putin's Russia Defines its Foreign Policy Agenda', www.eurasianet.org/departments/insight/articles/eav6728.00.5.html

⁵Kazimirov V. Russia and "Minsk Group" of CSCE / Today. October 14, 1994

⁶Speech by Minister of Foreign Affairs S.V. Lavrov at the press conference in 2011

To date, Russia is one of the co-chairs of the OSCE Minsk Conference. This institution received a *"basic mandate to resolve this conflict"*¹. Later in the period 1993-1994. Changes in Russian foreign policy aimed at resolving conflicts were manifested. *"One of the important instruments of Russian mediation policy in the conflict zone of Nagorno-Karabakh was the peacekeeping operation. Already on March 20, 1992 in Kiev, eleven CIS states, including Azerbaijan and Ukraine with reservations, signed an agreement on a group of observers and collective peacekeeping forces"*².

Looking back and analyzing the activities of the Minsk Group, many claim mediation efforts on Nagorno-Karabakh have turned out to be a complete fiasco and that these efforts themselves have prolonged the conflict although the co-chairs, in response, have laid the blame on the parties. The fruitless and endless talks, during which Baku has repeatedly offered a high autonomy for Nagorno-Karabakh within Azerbaijan's territorial integrity, the Armenian side continues to try to obtain independence for the breakaway region, neither compromise nor agreement has been achieved.

In the past few years, with no more real plan or proposal, the Minsk Group's visits to the region and shuttle diplomacy-like efforts generated only criticism and distrust in both countries, especially in Azerbaijan. There have been calls in Azerbaijan to reform the Minsk Group: some officials and common people have negative perceptions not only towards the Minsk Group as a whole, but towards each co-chair³.

Russia, which traditionally considers the entire Caucasus its sphere of interest, has been quite active in the negotiation processes, sometimes beyond the framework of the Minsk Group. However, the Kremlin's engagement also raises criticism, particularly in Azerbaijani public, as Russia's position does not seem objective due to numerous factors.

Russia's involvement in the mediation process is rather dictated by its own interests than by some altruistic goals. First of all, Russia prevents growth of power of Turkey and Iran over the region, which would mean loss of part of its levers for the Russian Federation. Second, in addition to the geopolitical reasons, the region of Nagorno-Karabakh is important for the Russian Federation due to Azerbaijan's abundance in oil and gas resources. Furthermore, important oil and gas pipelines are passing through the territory of Nagorno-Karabakh, which link the two belligerents with the Russian Federation, and then with Europe. Russia obviously need to ensure safe and interrupted supplies of oil and gas to Europe, and therefore is preserving the administrative condition of Nagorno-Karabakh as it used to be in times of the Soviet Union was the best choice for the Russian Federation to keep control over the vast oil and gas resources available on the abovementioned terri-

¹Zdravomyslov A.G. The international conflicts in the former Soviet Union. M.: Aspect Press, 1999

²Kazimirov V. Russia and "Minsk Group" of CSCE / Today. October 14, 1994

³<http://thepoliticon.net/analytics/172-time-to-reform-the-minsk-group.html>

tory. Finally, the possibility to use peacekeeping forces stipulated in the Bishkek Protocol⁴ provides Russia with additional levers of tension on both Azerbaijan and Armenia, thus raising the state's authority and influence in the region.

As it has already been stated earlier in this paper, future development of the situation in Nagorno-Karabakh is very hard to forecast due to its high turbulence and great danger of reexplosion of the frozen conflict. However, based on above-mentioned, it can be said that the situation will be likely to have three scenarios of its subsequent development:

- start of hostilities between Azerbaijan, on the one hand, and Armenia and the self-proclaimed Nagorno-Karabakh Republic, on the other hand;
- conservation of the frozen conflict in its current state;
- resolution of the conflict, namely thanks to involvement of international mediators.

Being the most active participant in resolving this issue and pursuing its national interests in this region, Russia has always played a key role in resolving this conflict. On the other hand, the US and EU are trying in every possible way to prevent Russia from increasing its role in this matter, otherwise, this would lead to strengthening of Russia's positions in the South Caucasus. Today, the US has stepped up its mediation efforts to resolve the Karabakh problem by creating a close alliance with Turkey, Georgia and Azerbaijan, gradually including the countries of this region in its orbit. Armenia, in fact, is the only South Caucasian country that works closely with Russia and is its faithful ally. The Karabakh issue is one of the important and priority issues both in Armenia's foreign and domestic policies. It is very important for Armenia to actively participate its ally - Russia in resolving this issue and what position it will take in it. The further pro-Russian policy of Armenia will largely depend on Russia's position in the Karabakh issue.

The majority experts would agree that prolonging the Nagorno-Karabakh conflict is in the best interests of Russia, which, through this conflict and mediation process, is eager to keep control over the region, sell weapons to both belligerent countries and make them depend on Moscow's will. Therefore, any constructive changes in the settlement of the conflict are not anticipated as long as Russia is in charge as a mediator for the Kremlin will put its efforts, at least, to maintain the status-quo.

To sum up, the situation in the conflict zone remains extremely tense. The cease-fire regime is constantly violated by both sides, as a result of which hundreds of people die. On April 1, 2016, a new war broke out, which is now called the "April War" or, more rarely, the "Three Day War", where heavy equipment and artillery were used, and considerable damage was incurred, unlike earlier incidents.

⁴https://peacemaker.un.org/sites/peacemaker.un.org/files/ArmeniaAzerbaijan_BishkekProtocol1994.pdf

Despite Russia's efforts to reconcile the parties through meetings in Kazan in 2013 and other similar events, it is not yet possible to reach a consensus (or, perhaps, never or not in the near future), as the concluded agreements are not carried out bilaterally. One of the parties necessarily violates them, thereby provoking another. Today snipers on both sides of the border are actively working on the contact, while civilians suffer particularly from peaceful bombings, sniping shots and changing frontier control.

Nobody can also say with certainty that in the future the conflict will again turn into a hot stage, but if it ever happens, then the peacekeeping activity on the part of Russia or another third entity will already be insufficient.

The parties cannot come to any compromise due to the antagonistic nature of their territorial disputes for Nagorno-Karabakh. Most recently, both Azerbaijan and Armenia have started actively deploying their troops on the mutual borders, which raises fears among the international community that a new war for Nagorno-Karabakh might start already in the near future. The subsequent development of events is hard to forecast due to the turbulence of the situation in Nagorno-Karabakh. Among three possible scenarios of events, namely compromise between Azerbaijan and Armenia, continuation of the frozen stage of the Nagorno-Karabakh conflict or re-ignition of direct hostilities between Azerbaijan and Armenia, the third variant looks most probable taking into consideration the current situation and lack of any grounds for mutual compromise between the conflicting parties. Mediation of the international community will be likely to play a key role for preventing direct hostilities in South Caucasus in the near future. Indeed, from the very beginning of the Nagorno-Karabakh conflict after the collapse of the Soviet Union, Russia hasn't expressly supported either of the parties, but still provided them both with armaments in the period from 1992-1994, and blocked intervention of third-party states in the conflict. The conflict in the region is beneficial to Russia thanks to the fact that it can help keep its military presence in the region as peacekeeping forces, thus affecting both Azerbaijan's and Armenia's domestic and foreign policies, and most importantly, it gets an opportunity to control the level of prices on oil and gas, as the conflict prevents Azerbaijan from becoming a major exporter of energy resources and replace Russia as the EU's main trading partner in the field of oil and gas supplies.

Therefore, maintaining the status quo between Azerbaijan and Armenia is a great tool for Russia to maintain its influence in the region, and make other countries take into account its own interests. Russia can contribute into this conflicts regulation, by demonstrating diplomatic initiative and supporting existing international principles, which include territorial integrity and respect of national sovereignty. The achievement of the mentioned decision is a complicated process and demands responsible moves and liabilities of all Parties, their Leaders and peoples to make it once and for all real.

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为什么牛奶不酸?
WHY MILK DOES NOT SOUR?

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注解。 本文讨论了牛奶技术加工的新技术, 这是一些消费者认为最关键的问题。

关键词: baktofugirovanie, 巴氏杀菌, 超巴氏杀菌, 乳制品加工

Annotation. *The article discusses the new technology of technological processing of milk, the most critical perceived by some consumers.*

Keywords: *baktofugirovanie, pasteurization, ultra-pasteurization, dairy process*

The fact that all milk is not real: some kind of chemistry is added to it, or it completely loses its useful properties after pasteurization, can be heard not only from ordinary consumers, but also from natural scientists [1, 2].

A common misconception: heat treatment makes the milk unhealthy, the milk does not sour - it means not natural.

Consider what happens to milk in the process of modern industrial production of drinking milk pasteurized, melted, ultra heat-treated and sterilized.

Depending on the mode of heat treatment, whole, normalized and skimmed milk can be of the following types: pasteurized, baked; sterilized; ultrapasteurized.

Pasteurization was proposed in the middle of the XIX century by the French microbiologist Louis Pasteur.

For pasteurized milk, a long-term heat treatment mode is used (at 63–65 ° C for 30–40 min), or 70–80 ° C for 30 min [3-6]; short (at 85–90 ° C for 0.5–1 min) or instant pasteurisation (at 98 ° C for a few seconds).

Exposure time and pasteurization temperature are interconnected by dependency at which the exposure time decreases with increasing temperature, for example, for whole drinking milk (formula 1.1) and is selected in the neutral zone area, when 99% of pathogenic and conditionally pathogenic microorganisms die

(diphtheria, typhoid, tuberculosis bacilli, streptococci, and others), but the effect of temperature on protein, organoleptic and other properties of milk is still minimal (Fig. 1) [7]:

$$\ln \tau = 36,84 - 0,48t, \quad (1.1)$$

where τ - holding time (c) at temperature t , °C.



Fig. 1. The dependence of the pasteurization temperature on the duration of exposure

Currently, the pasteurization mode is 87-93 ° C, 20 s. is predominant [5].

For other types of milk, the formula for the dependence of exposure temperature on the duration will be different. For example, for melted milk, a thermal regime of 85-99 ° C is taken for 3-5 hours or 105 ° C for 15 minutes, depending on the fat content of the milk, and in this case, the effect on the dairy components is more significant [7].

Under these pasteurization regimes, vegetative forms of microorganisms die in milk, however, the spores remain in a viable state and, when favorable conditions arise, begin to develop intensively. With an increase in the temperature of pasteurization, thermophilic microorganisms are more effectively suppressed, spore forms remain viable.

Therefore, these types of milk stored at low temperatures for a limited period of time - no more than 36 hours. However, when pasteurizing 62-63 ° C with a shutter speed of 20-30 minutes Almost all vitamins and other nutrients are preserved. Such milk is not recommended to boil. When boiling, the composition of milk also changes: the content of vitamins B and C decreases by almost 2 times, the content of nutrients decreases by 15-20% due to the formation of protein, fat and calcium salts on the walls of dishes. If milk porridge is brewed, pasteurized milk should be added to the almost ready porridge before stewing.

When combined, a relatively new technology - bactofugation and pasteurization in the process of milk processing ensures the guaranteed quality of pasteurized milk with a shelf life of up to 10 days. Bactofuging is a process that uses a specially designed hermetic centrifuge Bactofuge (r), designed to separate bacteria and their spores from milk.

The combination of bactofugation of milk with pasteurization improves the efficiency of the latter: for example, pasteurization at a temperature of 72 ° C destroys up to 99.2% of the total number of bacteria, and pasteurization at the same mode in combination with baktofugirovanie at a temperature of (55-56) ° C reduces the bacterial content in milk up to 99.83%.

At the same time, the highest efficiency of bactofugation is achieved at a temperature of 60-70 ° C, which ensures the efficiency of raw milk purification by 90.09% from aerobic and 99.8% from anaerobic spores [5].

Despite this, pasteurization cannot be used in canning products, since pasteurized milk, even in hermetically sealed containers, is a favorable medium for the sprouting of anaerobic microflora spores. For the purpose of long-term preservation of products, sterilization or ultra-pasteurisation is used.

Depending on the equipment used, the milk is sterilized at a temperature of 140 to 150 ° C to 5 s. under pressure, after which it is cooled and packaged under aseptic conditions [6].

With ultrapaste milk for 2 seconds. heated to 135–150 ° C and instantly cooled to 4–5 ° C. In contrast to the process of pasteurization, microorganisms are completely destroyed. In contrast to sterilization, due to the very short time of exposure to temperature — the change in the useful constituents of milk is relatively less (protein, vitamins, etc.). During short-term heat treatment, microorganisms die faster than physical and chemical changes occur in milk. According to some data, foliar acid, vitamins B₁₂, C and B₁ are partially destroyed during ultrapasteurization, but less so than during sterilization [7, 8].

Milk after such processing is suitable for use for a long time (6 weeks or more), if the package is not opened.

Opened packaging of both pasteurized using baktofugation and sterilized and ultrapasteurized milk is stored in the refrigerator for no more than 36 hours, since

on opening, microorganisms-psychrotrophs, which multiply well under conditions of positive low temperatures of the refrigerator, could get into the milk from the air. If this happens - this milk is not suitable for human consumption or for the preparation of a fermented milk product.

If there is a need to prepare a fermented milk product or cottage cheese from milk, it is necessary to add lactic acid microorganism starter or 5-10% fermented milk product (ryazhenka, kefir, etc.) and keep at the optimum temperature for 4-6 hours - before fermentation, if ryazhenka is used - 37-39 ° C (since it consists of thermophilic lactic acid cultures); 29-32 ° C - kefir, because The main microorganisms of kefir fungi (kefir starter) are mesophilic.

The most valuable components of milk are proteins. They are of biological value comparable to proteins of meat and fish and are digested more easily [6].

Milk proteins consist of three main types: casein, albumin and globulin. All of them are dissolved in raw milk. Casein accounts for 76-86% of the total milk protein. Casein is the main protein of cottage cheese, cottage cheese products and the initial component of the protein substances of cheeses. Albumin in milk is 6 times less than casein. Globulin is contained in an amount of 0.1%, but it has antibiotic and immune properties and serves as a source of antibodies that protect the body from infection.

Whey proteins contain more amino acids than casein. The nutritional value of casein is 0.8, while whey protein approaches unity. Casein has some deficiency of sulfur-containing amino acids. Since whey proteins have an excess of these amino acids, they supplement casein in milk.

In general, a short-term, high-temperature process of ultrapasteurization (for milk included in the composition of combined foods, known as food extrusion), is characterized by minimal losses of food and biologically active substances, in comparison with other heat treatment methods [9].

Studies of the properties of protein-containing products, protein isolates and concentrates during extrusion are considered in various aspects: inactivation of anti-aliasing factors, improvement of protein digestibility and digestibility, changes in the content and chemical modification of amino acids, formation of amino acids, formation of functional properties of protein products.

Short-term high-temperature treatment affects the technological properties of whey proteins due to changes in the structure of proteins (in particular, it is more difficult to obtain rennet from this milk), but does not cause changes in their biological value [9, 10].

It is with the progress in the heat treatment of milk that minimizes the time of high-temperature exposure, along with the improvement in the quality of raw milk, the improvement in the functionality of milk, which is so necessary to improve the protein and calcium-phosphorus metabolism, especially for children, pregnant and lactating women, the elderly [11, 12].

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三重互易系统中的相互作用，来自氯化钠和氯化钾以及硝酸盐
**PHASE INTERACTION IN A TRIPLE RECIPROCAL SYSTEM FROM
SODIUM AND POTASSIUM CHLORIDES AND NITRATES**

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注解。 该研究首次通过差热分析 (DTA) 和预测META的非变体相平衡的方法研究了Na, K // Cl, NO₃系统中盐的相互作用。 结果表明, 该系统属于连续系列固溶体 (NRTR)。 非方差三重点48KNO₃ + 5NaCl + NaNO₃ 47 (EQ.%) 在217.3°C下被证实。 发现使用元方法预测没有稳定对角线的HPTP系统中固体溶液的三重最小值的可能性。

关键词: 三联系统, 固溶解最小, 差热分析, 三相相互作用预测

Annotation. *For the first time, the research studied the interaction of salts in the Na, K // Cl, NO₃ system by differential thermal analysis (DTA) and by method of predicting non-variant phase equilibria of META. It is shown that the system belongs to the class of continuous series of solid solutions (NRTR). Nonvariance triple point 48 KNO₃ + 5 NaCl + NaNO₃ 47 (EQ.%) was proved at 217.3 °C. The possibility of using the meta-method to predict the triple minimum of solid solutions in HPTP systems with no stable diagonal was found.*

Keywords: *triple mutual system, minimum of solid solutions, differential thermal analysis, forecasting of triple phase interaction*

The triple mutual system of Na, K // Cl, NO₃ is particularly interesting for the study, as the two sides of the square of the compositions are double solid solutions: on the basis of the chlorides of sodium and potassium with a minimum at 660 °C, and on the basis of nitrates of sodium and potassium with a minimum at 222 °C equivalent to a ratio of 1:1 in both cases. NaCl - NaNO₃ eutectic system: e = 6.5% NaCl + 93.5% NaNO₃ (EQ.%) at 298,3 °C, and in the system KCl-KNO₃ excluding the eutectic e = 6,8% KCl + 93,2% KNO₃ at 323°C, salts form the incongruent

melting compound of composition $KCl \cdot 4KNO_3$ with peritectics at 13.5% of KCl and $361^\circ C$. All these data were worked out using DTA method [1] and correspond to the reference data given in [2-5].

To understand the topological framework of the studied system better, we make the equation of exchange reaction and calculate the conditional thermochemical effect of the reaction:



According to the classification of A. G. Bergman [6] the studied system belongs to the reversible-mutual type, that is, both diagonals are metastable and do not divide the square of compositions into stable subsystems, which is quite typical for triple mutual systems, where continuous series of solid solutions of components are formed.

The considered system was previously studied by the method of cross sections of visual - polythermal analysis [7], where the authors found the formation of triple eutectic at $212^\circ S$ composition (EQ.%): $48 KNO_3 + 5 NaCl + 47 NaNO_3$ (Fig. 1).

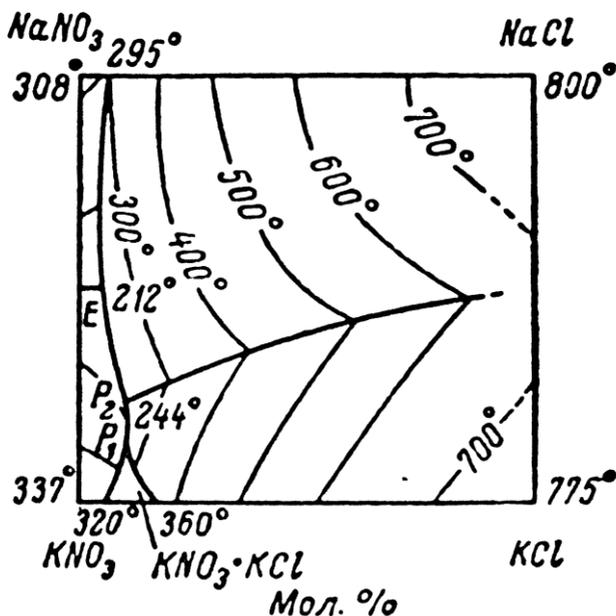


Fig.1. The diagram of fusibility triple mutual system of Na, K // Cl, NO₃-according to [7]

We verified the data on triple eutectic stated in [7] by the method of differential thermal analysis on the installation [8] with Pt/Pt-Rh thermocouple pre-calibrated to the temperature of 306.5^o C. For the experiment, KNO₃, NaNO₃, NaCl salts of the "c. p." classification were used, which were previously dried in a muffle furnace with periodic mass control at the temperature of 130^oC. The temperature of the phase transitions was detected by the beginning of the thermal effects on the cooling curve.

The resulting cooling diagram of the composition 48 KNO₃ + 5 NaCl + 47 NaNO₃ (EQ.%) shows the natural peak with the beginning at $t = 217.3^{\circ}\text{C}$ (Fig. 2), corresponding to the triple melt crystallization. The type of the peak - with smooth, as if "blurred" transitions of the curve of the beginning, fracture and end of the peak indicates that the triple point is rather a minimum of solid solutions than eutectic, which is characterized by more sharp forms of the peaks of the thermal curve. The recorded temperature of the triple phase transition is 4 ^oC higher than declared in [7].



Fig.2. Thermogram of crystallization of 48 KNO₃ - 5 NaCl - 47 NaNO₃ (EQ.%)

The study of the possibility to forecast compositions in systems with a predominance of solid solutions of components belonging to the class of systems with continuous series of solid solutions (NRTR) by META-nonvariant method is particularly interesting. As there is no stable diagonal in the Na, K // Cl, NO₃ system, we conditionally divide the square of the compositions into two triangles

of the metastable diagonal from the right side of the equation (1) and calculate the pseudo-double nonvariant point for it according to the melting temperatures of the NaCl (801°C) and KNO₃ (334.5°C) salts forming it by the META method [9]: 13.5 NaCl + 86.5 KNO₃ (EQ. %) at 305°C.

The obtained conditional values for the pseudo-double nonvariant point together with the above-mentioned characteristics of double eutectic cut are used to predict the possible triple nonvariant composition in the triangle KNO₃-NaCl-NaNO₃ by the META method according to the algorithm [10]. Results 48.4 KNO₃ + 3.2 NaCl + 48.4 NaNO₃ (EQ.%) at 220°C.

Comparing the calculation data with the experimental data, we obtain a deviation in composition in absolute values of 0.4 - 1.8 % by components or a relative deviation in composition = 1.3%. The calculation temperature (220°C) is different from the experimentally recorded one (217.3°C) by 2.7°C, what in relative terms is 1.2%. We will conduct an experimental study of the calculated composition as well as the previous one. Figure 3 shows a thermogram of the cooling composition 48.4 KNO₃ + 3.2 NaCl + 48.4 NaNO₃, where there is a single peak of the phase transition corresponding to the beginning of the melt crystallization at a temperature of 222.8°C.



Fig.3. Thermogram of composition crystallization
48,4KNO₃-3,2 NaCl-48,4NaNO₃(mol.%)

As the calculated composition is very close to the non-variant one, in this case the liquidus temperature is fixed (the liquid - solid solution transition), and the visual separation of the liquidus and solidus peaks is impossible due to their mutual overlap due to the close location to each other.

The analysis of the obtained results allows us to state that for this triple mutual system, which is a continuous series of solid solutions of salts, the method of forecasting META is an effective research tool for identifying the triple minimum of solid solutions, as it repeatedly narrows the search area and reduces the volume of experimental studies of triple compositions from several tens to 3-5 refining experiments.

Conclusion

1. The system Na, K // Cl, NO₃ in topological terms is a continuous series of solid solutions of salts based on chlorides and nitrates of sodium and potassium and refers to the reversible-mutual in the conditional thermochemical effect of the reaction of mutual exchange equal to -1,975 kJ/ EQ.

2. The system produces a triple minimum of solid solutions 48 KNO₃ + 5 NaCl + 47 NaNO₃ (EQ.%) at $t = 217.3$ °C.

3. Adaptation of the developed method of meta forecasting for the system belonging to the class of HPTP and representing in topological aspect the undifferentiated square of structures is carried out.

4. The adapted method of calculation of the META method has shown its effectiveness for predicting the phase interaction in the reversible-mutual system Na, K // Cl, NO₃ class HPTP - deviation of the calculation data and experiments is 1.3 % in composition and 1.2 % in temperature.

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锂和钾氟化物和氯化物三元相平衡相互作用体系的研究
**STUDY OF THE TERNARY PHASE EQUILIBRIUM RECIPROCAL
SYSTEM OF FLUORIDES AND CHLORIDES
OF LITHIUM AND POTASSIUM**

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注解。通过差热分析法计算出系统Li, K // Cl, F的三元共晶的特征: $E_1 = 46 \text{ LiF} - 6.5 \text{ KCl} - 47.5 \text{ KF}$ (EQ. %), 4650S; $E_2 = 56 \text{ LiCl} - 3.5 \text{ LiF} - 40.5 \text{ KCl}$ (EQ. %) , 3460°C。结果表明, 所研究的系统属于奇异类型。显示了对于奇异系统使用三重共晶META的预测方法的可能性, 并且计算了关于实验的预测误差。

关键词: 三元相互作用系统, 最小固溶体, 差热分析, 三元相互作用预测

Annotation. *Characteristics of the ternary eutectic of the system Li, K // Cl, F were worked out by the method of differential thermal analysis: $E_1 = 46 \text{ LiF} - 6.5 \text{ KCl} - 47.5 \text{ KF}$ (EQ.%) at 4650S; $E_2 = 56 \text{ LiCl} - 3.5 \text{ LiF} - 40.5 \text{ KCl}$ (EQ.%) at 3460°C. It is shown that the studied system belongs to the singular type. The possibility of using the method of prediction of triple eutectic META for a singular system is shown and the prediction error with respect to the experiment is calculated.*

Keywords: *ternary mutual system, minimum of solid solutions, differential thermal analysis, forecasting of ternary phase interaction*

Fluorides and chlorides of alkali metals have a high heat capacity, and therefore can be considered as phase-transfer materials for the accumulation and transfer of thermal energy. The aim of this work is to study the ternary mutual system Li, K // Cl, F to clarify the characteristics of the ternary phase transitions and the construction of a fusibility diagram.

According to directory V. I. Posypaiko and E. A. Alekseeva [1] the square of compositions of Li, K // Cl, F system divides into two triple subsystems LiF – KCl – KF and LiCl – LiF – KCl stable diagonal LiF-KCl. [1] states that the system of

the ball is studied by applying thermal and x-ray diffraction analysis (N. M. Haendler, etc.) and visual-polythermal analysis (Berezin S. I., etc.) and the characteristics of ternary eutectics: E_1 : 46 LiF - 6.5 KCl - 47.5 KF (EQ.%) at 468°C; E_2 : 56 -3,5 LiCl-LiF - KCl 40,5 (EQ.%) at 346°C.

The equation of exchange reaction in the studied triple mutual system follows:



According to the classification A. G. Bergman [2] this system is singular, and along the stable diagonal LiF - KCl there is a bundle region.

To identify the exact composition and temperature of the quasi-binary eutectic at a stable diagonal experiments were carried out by differential thermal analysis (DTA). shown in Fig. 1-3.

Experimental studies were carried out on a pre-calibrated DTA plant [3] with Pt/Pt-Rh Thermocouple with a lower supply in platinum crucibles. Salts of "c.p." class were used, they were pre-dried in a muffle furnace at a temperature of 130°C with periodic control of the mass to its complete stabilization. Hitches with a total weight of 0.1 g were placed in platinum crucibles and subjected to several heating-cooling cycles at a speed of about 10°C/min.

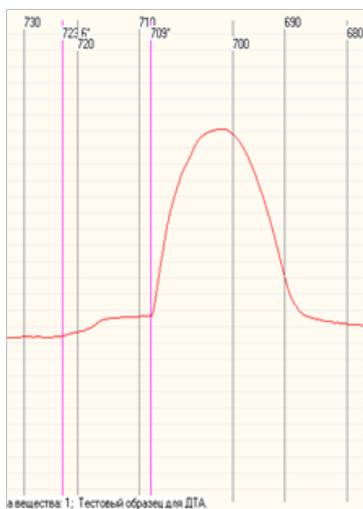


Fig.1 Heat the cooling curve of the 21-LiF – KCl 79



Fig.2 Thermal curve of cooling system 20% LiF - 80% KCl



Fig.3 Thermal cooling curve 19% LiF - 81% KCl

A fragment of the phase diagram of a quasi - binary LiF-KCl system is constructed based on the experimental results (Fig. 4). Double nonvariant point melts at 711°C and 19% EQ. LiF.

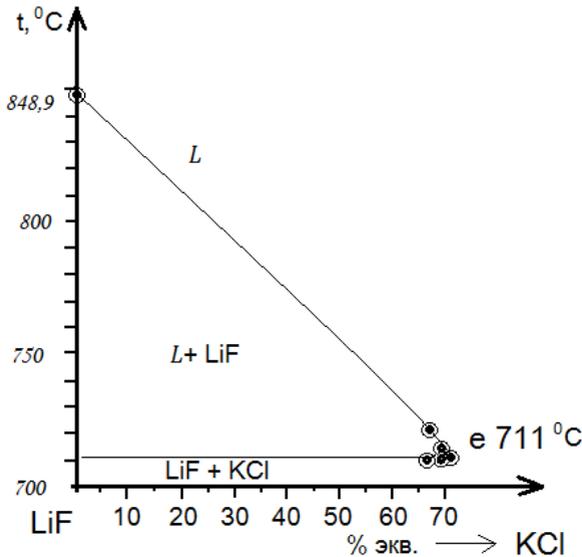


Fig. 4. Fragment of the melting diagram of a quasi-binary system LiF - KCl/

We studied each ternary stable subsystem has been in two ways - theoretically using the calculation method META [4], taking into account the data obtained and experimentally by DTA method on the installation [3].

The calculation of ternary eutectic stable triangles LiF – KCl - KF and LiCl – LiF – KCl was made on the basis of the melting temperatures of the salts forming the system and data on two-component cut elements (table. 1) that form triangles compositions, including stable diagonal triple mutual system..

Table 1

System	Percentage of 1st substance (EQ. %)	Nonvariant point type	Temperature, °C	List of references:
KCl-KF	55	e	606	[5]
LiF-KF	50	e	480	[5]
LiCl-LiF	70	e	503	[5]
LiCl-KCl	58	e	350	[5]

Melting point of salts of the system: LiF - 848,9⁰ C [6], LiCl - 610⁰C [7], KCl - 771⁰C [8], KF - 858⁰C [9].

Subsystem LiF - KCl - KF. According to the literature data [1] the eutectic of the system is observed at 46 LiF - 6.5 KCl - 47.5 KF (EQ.%) and temperature 468⁰C. We prepared and studied this material experimentally. A fragment of the obtained cooling diagram from the melt with a fixed phase transition is shown in Fig. 5. The graph shows a single peak of crystallization at a temperature of 465.3⁰ C, which indicates the eutectic nature of the studied composition. The recorded temperature of the eutectic transition is 2.7 °C lower than that of previous researchers [1].

For this system we calculated the composition of the 45 eutectic LiF-KCl 5-50 KF (EQ.%), with a melting point of 476⁰C. The prediction error of the composition does not exceed 2.5%, which is within the permissible experimental deviations. The melting point calculated above the experimental 11⁰C, which is 2.3%.

Subsystem LiCl - LiF - KCl. According to the literature [1] eutectic is formed in the subsystem at 56 LiCl - 3,5 LiF - 40,5 KCl (EQ.%) and 346⁰C. The findings helped to work out the peak at the temperature 346.1⁰C (fig.6) that proves findings of the preious researches completely.

When predicting the characteristics of triple eutectic meta-data were obtained: composition of 51.6 LiCl - 11 LiF - 37.4 KCl (EQ.%) with a melting point of 346.3⁰ C. Comparison of the experimental data and the forecast shows that the deviation in composition in absolute values is in the range of 3 - 7.5%, and the temperature forecast is completely the same as the experimentally determined values.

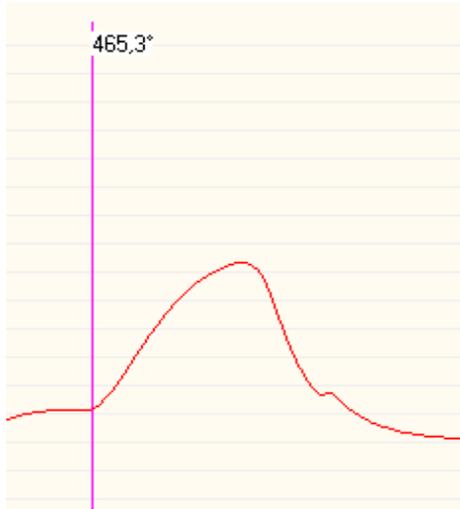


Fig.5. Thermogram of crystallization of 46LiF-6.5 KCl-47.5 KF (EQ.%)



Fig.6. Thermogram of crystallization of 56LiCl-3,5 LiF-40,5 KCl (EQ.%)

Based on the data of the previous researchers [1] and our own experiments we made the refined phase diagram of the ternary mutual system Li, K // Cl, F (Fig.5).

Conclusion

For the first time the system Li, K // Cl, F was studied using differential thermal analysis and META-modeling method [4]. The exchange reaction equation in the ternary mutual system is composed, the thermal effect of the reaction is calculated, which is equal to - 75, 312 kJ/EQ. (-18 kcal/EQ.). This made it possible to classify this system as a singular one. According to the results of two studies revealed an eutectic composition with the characteristics of:

E_1 : 46 LiF - 6.5 KCl - 47.5 KF (EQ.%) at 468°C;

E_2 : 56 -3,5 LiCl-LiF - KCl 40,5 (EQ.%) at 346°C.

The data of our own research, including the use of the META-prediction method[4], correspond to the reference data [1].

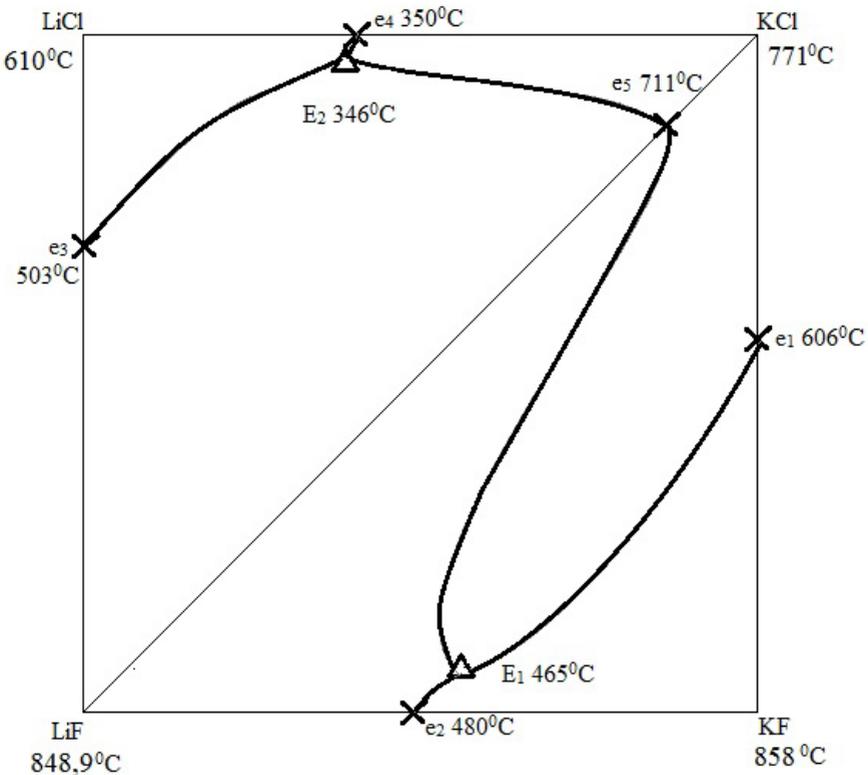


Fig.5. Phase diagram of ternary mutual system Li, K // Cl, F

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