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Article



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ON THE IMPORTANCE OF STAFFING FOR THE DEVELOPMENT OF THE ARCTIC ZONE OF RUSSIA

Abstract: In the article, the authors examine the inclusion of the Arctic in the orbit of global economic and political interests, accompanied by active influence on the traditional economy and traditional way of life of the indigenous peoples of the North, namely: development of integration mechanisms for the positive transformation of the economic behavior of indigenous peoples, increasing their subjective and economic well-being. The determinants of economic behavior, including those of small indigenous peoples of the North, have been developed and detailed. Using the works of Russian scientists, examples of the influence of determinants on the formation of the characteristics of economic behavior in the indigenous population and its transformation are presented. Further directions of research are proposed to identify the relationship between economic well-being and life values in representatives of indigenous peoples with reference to location, nationality, and age.

Key words: Arctic, indigenous peoples of the North, economic behavior, life values, determinants, features, modeling, well-being.

Language: English

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Introduction

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The only difference is that the effect of this "decisive rule" was supplemented by procedures and approaches to accumulating the bulk of income from the development of natural resources in the Arctic at

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the all-Union level. Later, in the first quarter of the 21st century, the recipients also included the head offices of the largest energy and resource companies developing the resources of the Arctic and Siberia.

That is why the purpose of this monograph is to present unresolved problems, the implementation of which can ensure the progressive development of the economy and social sphere of the Arctic and create acceptable conditions for life and activity not only for the current but also for future generations of compatriots.

Without the formation of the framework and conditions for the participation of various economic agents - companies (large, small and medium; trans-regional and local; traditional and high-tech; focused on financial and economic results and leading a traditional non-commodity economy, etc., etc.), the solution to this key problem does not seem possible. The first step on this path is to achieve mutual understanding on those issues and problems that are raised and illuminated on the pages of this monograph.

In this regard, one cannot fail to note the heroic initiative of the Department of Regional and Municipal Management of Development of Northern Territories of the G.P. Luzin Institute of Economic Problems of the Federal Research Center "Kola Scientific Center of the Russian Academy of Sciences" (chief researcher, Doctor of Economic Sciences, Professor Tatyana Petrovna Skufyina) to unite and establish interaction between colleagues - researchers from different scientific organizations, different scientific schools and different approaches to solving problems of the Arctic and the North.

Main part

The concept of sustainable development, which combines the principles of social justice, economic efficiency, and environmental safety, is the basic paradigm in managing the development of Arctic states. This concept also underlies the current stage of development of the Arctic zone of the Russian Federation. Thus, according to V. Leksin and B. Porfiryev, the redevelopment of the Russian Arctic can be considered effective only in the conditions of a balanced extraction of all natural resources and restoration of the potential of the environment, diversification of the economy and mutually beneficial economic cooperation with foreign countries, a balance of places of employment and the system of population settlement.

Researchers in the field of regional development note that one of the factors of the sustainability of the regional economic system is the state of human resources. Their qualifications and volume determine the limitations of economic development, affect migration flows and should be taken into account when developing and implementing economic, social and migration policies of the regions. This means that

sustainable regional development requires timely provision of selected priorities with qualified personnel, which determines the need for their advance professional training, and also places increased demands on the quantitative and qualitative composition of personnel as one of the key factors in the functioning and effective development of the regional economy.

In this context, the staffing of the regional economy can be interpreted as a comprehensive process of filling the regional economy with the necessary quantitative and qualitative personnel required to implement strategic priorities in order to achieve sustainable regional development. The process of staffing the regional economy aimed at achieving sustainable regional development should be continuous and include the following mandatory stages:

1. Assessment of the current personnel structure of the regional economy.
2. Formation of a forecast of the economy's personnel needs, taking into account the strategic priorities for the region's development.
3. Informing the population to involve them in the process of staffing, including professional orientation of the population.
4. Determination of sources for meeting the personnel needs of the regional economy.
5. Training and retraining of personnel.
6. Distribution and employment of personnel.

An assessment of the current (existing at the present time) personnel composition of the regional economy through a set of quantitative and qualitative indicators allows us to characterize the existing personnel potential, assess its sufficiency and the level of compliance with the priorities of the socio-economic development of the region.

Forecasting the prospective personnel needs of the economy is one of the main components of the mechanism for managing the region's personnel potential. The generated forecasts are the basis for determining the volumes and profiles of personnel training in the vocational education system, justifying the opening of new areas and specialties of training, determining priority professions (specialties) for vocational training, additional vocational education, advanced training and retraining of personnel. Since this stage largely determines the content of other stages of personnel provision, it is important when forming a forecast of the personnel needs of the regional economy to take into account the priorities of strategic development of regions, the requirements of leading employers, initiators of investment projects, as well as structural changes occurring in the regional economy.

Having a forecast of the regional economy's need for personnel is important not in itself, but from the point of view of making management decisions about "who to train", "how much", "are the region's

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internal resources sufficient to cover the forecasted need", therefore the next stage of personnel provision is the study and identification of sources of personnel resources. The main source of ensuring the regional economy's need for personnel is traditionally the training (retraining) of personnel in the system of professional and additional education. For some types of regions, the most effective and widespread is the attraction of interregional and foreign labor migrants.

The final stage in the process of staffing the regional economy is the distribution and employment of personnel.

From the authors' point of view, the central link accompanying the entire process of staffing the regional economy should be informing the population to involve it in the staffing process, including through systematic career guidance work. It is the orientation of the population, primarily young people and applicants, to the needs of the regional economy, their awareness and interest, motivation for a conscious professional choice that determines the structure and quality of staffing the regional economy. Sociological studies show that the correct choice of profession reduces staff turnover by 2 times, reduces the cost of retraining workers by 1.5 times, and increases labor productivity by 10-15%.

Potential users who should be provided with information on the region's human resources in an accessible form are practically all individuals, representatives of employers, government bodies, and the education system. Every day, people, companies, and educational organizations potentially involved in the human resources process make choices by answering the questions: "What specialists are in demand now and in the future?", "What education should I/my child receive?", "Are there enough qualified personnel in the region where the company plans to develop its business?", "What changes should be made to training programs to take into account the requirements of the regional economy?" and others.

It is possible to make optimal decisions that are beneficial both for the individual and for society if you have objective information. It is also important to ensure that information on the human resources of the regional economy is disseminated in a user-friendly form according to the principle of "simple - understandable - useful", ensuring understanding and effective use of the necessary information.

The key benchmark for sustainable balanced development of the region is improving the quality of life of the population. This is evidenced by the

research of leading regional economists and the goals recorded in the documents of strategic planning at the regional level. In the work of S. A. Ivanov it is shown that the regional socio-economic subsystem of personnel provision of the economy has a positive effect on the three-component structure of the category of quality of life of the population: the standard of living of the population of the region - the lifestyle of the population of the region - the health and well-being of the population of the region - and thus plays an important role in the implementation of the main strategic goal of the region's development - improving the standard of living of the population.

Figure 1 reveals the content of the personnel provision process and its role in the concept of sustainable development of the region.

The concept of sustainable development assumes the achievement of well-being of both present and future generations of people, therefore, it is not entirely correct to consider the development of human resources in the region through the prism of the implementation of short- and medium-term priorities. The instrument for achieving sustainable development in the region is the strategy of socio-economic development, which sets out long-term strategic goals, objectives, and priorities for the development of the region. In this regard, the process of human resources should be synchronized with the strategy of regional development, interconnected with long-term development priorities at the federal, macro-regional, regional and industry levels.

Effective management of human resources, taking into account the strategic vision of the development of the regional economy based on the proposed stages, has a positive impact on the social (literate self-determination, employment and work in the specialty, increasing personal income of citizens, etc.) and economic (increased labor productivity, growth of the gross regional product, reduced costs of retraining workers, etc.) components of the sustainable development of the region.

The appropriate staffing of the regional economy allows for the creation of favorable conditions for economic growth, provides an opportunity to reach a new technological level and create/maintain social stability of the population. This, in turn, leads to the achievement of the main goal of sustainable balanced development - improving the quality of life of the population. Consequently, the staffing of the regional economy is one of the factors of sustainable development of the region.

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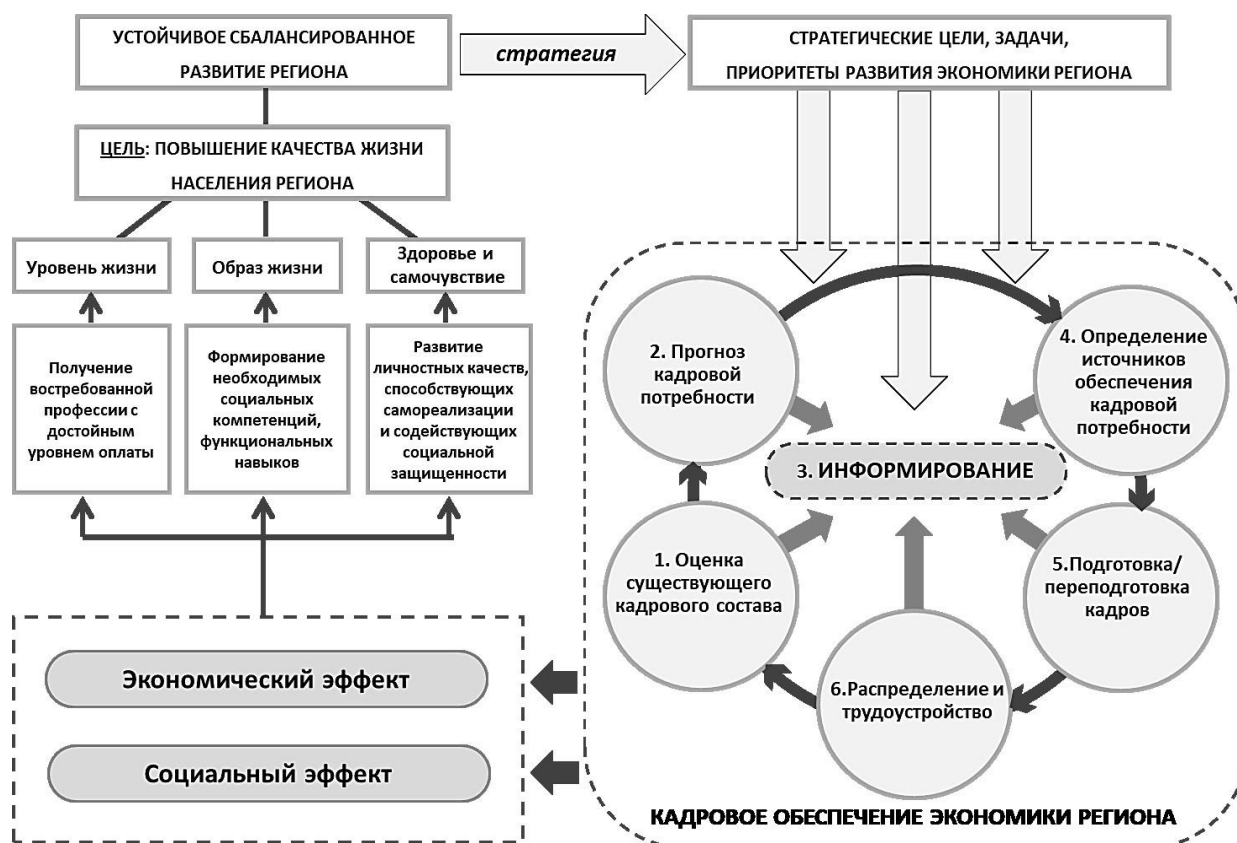


Figure 1. Personnel provision and its role in achieving sustainable development of the region

Due to the specific nature of the Arctic regions, expressed in harsh natural and climatic conditions, remoteness and inaccessibility of territories, migration outflow of population, reduction of the working-age population, the problem of personnel provision of Arctic regions is the most acute in comparison with other regions of the Russian Federation and requires careful attention. Moreover, this problem was aggravated by the termination of state support for the northern and Arctic regions as a result of Gaidar's reforms of the 1990s.

The importance of staffing for the sustainable development of the regions of the Arctic zone of Russia, which have the status of priority geostrategic territories of the Russian Federation, is objectively confirmed by the results of various analytical rating studies, sociological surveys of leading employers, and the substantive content of documents regulating the socio-economic development of the Arctic regions.

In addition, at the current stage of the "redevelopment" of the Arctic Zone of the Russian Federation, a mechanism for the development of Arctic territories through a system of "support zones" has been proposed, which involves the implementation of large-scale priority investment projects that have a significant multiplier effect and are capable of becoming drivers of the comprehensive socio-economic development of the Russian Arctic.

Investment activity is the most important factor in the sustainable socio-economic development of the Arctic Zone of the Russian Federation and its regions, contributing to the creation of social and industrial facilities, growth of the gross regional product, and the creation of jobs.

Within the framework of the state program "Socio-economic development of the Arctic zone of the Russian Federation for the period up to 2035" it is planned to implement 145 priority complex investment projects, the total cost of which will amount to more than 5 trillion rubles, including 1.5 trillion rubles of budget funds. The need to implement large-scale technologically complex projects in the extremely harsh conditions of the Arctic zone of the Russian Federation determines the high importance of human resources, on which the economic efficiency of a particular project directly depends.

In 2017, the volume of investments in fixed capital directed to the economy of the Murmansk Region, the Nenets, Yamalo-Nenets, and Chukotka Autonomous Okrugs amounted to about 1,500 billion rubles (8.5% of the total Russian volume of investments in fixed capital). At the same time, the migration outflow of the population from these regions amounted to about 90 thousand people, and in the structure of this outflow for all the analyzed regions, more than 60% is the educated working-age population. Over the past eight years, the most global

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losses of the working-age population were suffered by the Murmansk Region (20%) and the Yamalo-Nenets Autonomous Okrug (10%). According to the demographic forecast of Rosstat, the downward trend in this indicator for the Murmansk Region is long-term, for the Yamalo-Nenets Autonomous Okrug it will last until 2035.

In this context, the question of who will carry out the development of the Arctic becomes logical. Figure 2 emphasizes the specificity of the Arctic regions, which is manifested in the multidirectional flows of financial and human resources.

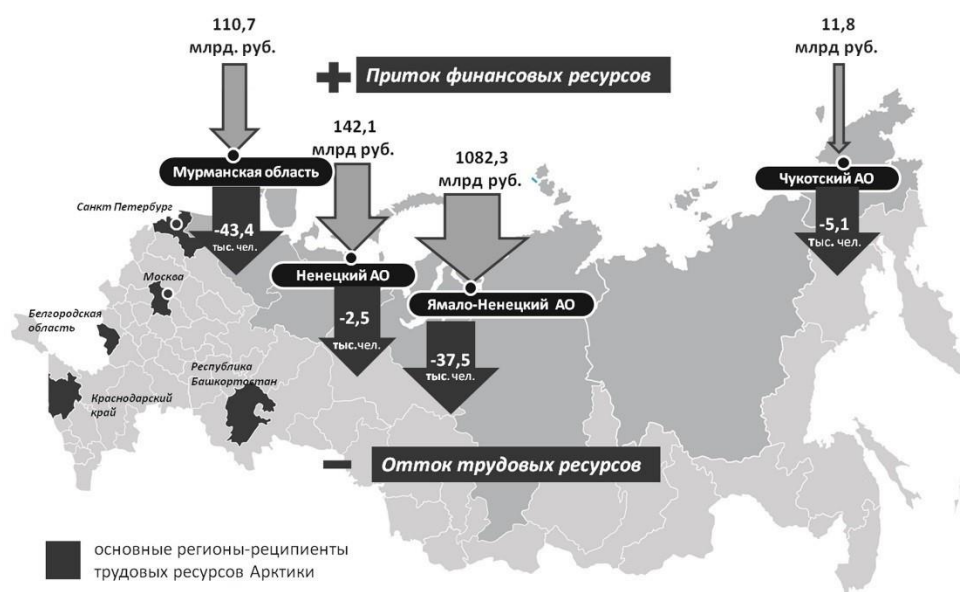


Figure 2. Diagram reflecting the multidirectionality of resource flows required for investment activities in the regions of the Arctic zone of Russia, 2035.

Thus, the course towards strategic development of the Arctic and the uninterrupted implementation of large-scale investment projects, on the one hand, and existing resource limitations, on the other, poses for the governing bodies of the Arctic regions, in addition to the traditional task of increasing investment attractiveness, a serious task of attracting and retaining personnel as the most important resource for investment activity in the Arctic zone of the Russian Federation.

External and internal challenges, the creation of support zones, and the integrated development of the regions of the Russian Arctic actualize new tasks for education and science, and require modern, innovative technologies for efficient management in extreme conditions. This requirement is determined by both the natural and climatic conditions of the Arctic zone of Russia and the resulting scientific capacity of almost the entire spectrum of the listed areas of economic activity. To solve the tasks set, qualified personnel with a certain reserve of health are needed, capable of continuously adapting to technological changes by improving existing skills or entering a new trajectory of professional development. In connection with the above, the role of personnel provision in the context of the project approach to the socio-economic

development of the Arctic zone of Russia becomes decisive in the fate of a particular project, since Arctic projects actually form an order for personnel.

Effective human resource provision for the economy of the Arctic regions will help solve a wide range of economic and social problems, among which the most important for the Arctic are: the introduction of new science-intensive technologies in priority sectors of the economy, increased labor productivity, increased labor market balance, the ability to combine an individual's desire for social fulfillment and a successful professional career in the conditions of the Arctic zone of the Russian Federation. This means that human resource provision for the economy, focused on the needs of innovative development, is one of the determining factors for the sustainable development of the Arctic regions. The strategic documents on the development of the Arctic zone of Russia note that the current state of socio-economic development of the Arctic Zone of the Russian Federation is characterized by the presence of risks and threats associated with negative demographic processes, migration outflow of qualified personnel, as well as an imbalance of supply and demand in the labor market in professional and territorial terms.

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Risks and threats associated with demographic and migration processes are quite easily confirmed and measured by objective data from state statistical reporting. To assess the current state of personnel provision in the Arctic regions, it is proposed to use a calculation coefficient that allows assessing the level of imbalance between supply and demand in the labor market in professional terms.

A detailed analysis of the professional composition of supply and demand in the labor market of the Arctic regions revealed a large number of structural imbalances. Thus, in 2023, according to the Rostrud information array, in total for all Arctic

regions, supply (the number of citizens wishing to find employment) exceeded demand (the number of vacant jobs declared by employers) in the labor market for the following large groups of occupations: managers, highly qualified specialists, service workers, housing and communal services and trade workers, unskilled workers. The excess of demand over supply is characteristic of the professions of skilled workers in industrial enterprises, construction, transport, operators, machine operators, and mid-skilled specialists are also in demand (Figure 3).

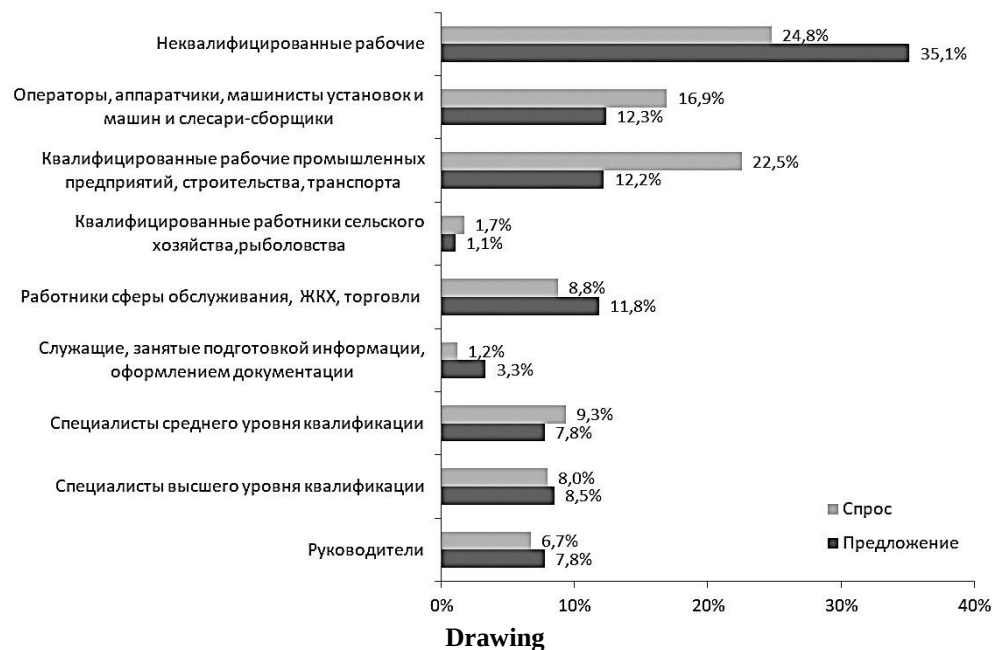


Figure 3. Comparative analysis of supply and demand in the labor market of the Arctic zone of Russia by major occupational groups, 2023

In order to determine the coefficient of structural mismatch between supply and demand in the labour market in the Arctic regions, which makes it possible to assess the degree of difference in the structures of supply and demand for the main large groups of occupations, the Ryabtsev index was calculated for the 2023 occupations under consideration.

The calculation results (Table 1) show that the Arctic zone of Russia as a whole is characterized by a significant level of difference in the structures of supply and demand in the labor market, exceeding the average Russian value. This is a restraining factor in the sustainable development of the Arctic territories and indicates that the supply of human resources in the region does not meet the needs of the regional economies. This threat is most critical in the Yamalo-Nenets and Chukotka Autonomous Okrugs. The labor

market in the Murmansk Region, the Republic of Karelia and the Komi Republic is more balanced.

To study the prospective state of personnel provision of the economy of the Arctic regions in the context of the implementation of the assigned strategic tasks, a forecast of the economy's need for personnel with professional education was formed, which is based on a combined approach that involves a combination of a macroeconomic method for forecasting the economy's personnel needs and surveys of leading employer companies. In addition, the forecast values of the economy's need for personnel were calculated in accordance with the current documents of strategic planning of the Arctic regions, which ensured that the forecast took into account the priorities of strategic development.

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Table 1. Coefficient of structural mismatch between supply and demand in the labor market in the constituent entities of the Russian Federation that are part of the Arctic Zone of the Russian Federation, 2023

Entities that are partially or fully part of the Arctic Zone of the Russian Federation	Structural mismatch coefficient between supply and demand	Interpretation: the level of difference between the structures of demand and supply
Republic of Karelia	0.117	Short
Komi Republic	0.107	Short
Republic of Sakha (Yakutia)	0.198	Essential
Krasnoyarsk region	0.247	Essential
Arkhangelsk region	0.174	Essential
Murmansk region	0.073	Short
Nenets Autonomous Okrug	0.257	Essential
Chukotka Autonomous Okrug	0.458	Significant
Yamalo-Nenets Autonomous Okrug	0.388	Significant
Arctic zone of Russia	0.191	Essential
Russian Federation	0,170	Essential

Methodologically, one of the components of the annual additional need of the economy for personnel is the need associated with the implementation of investment projects and the need for their staffing. In the course of interaction with executive authorities and a survey of leading employers implementing large-scale projects for the development of the Arctic, it was revealed that in the Arctic zone of the Russian Federation, organizational mechanisms for interaction between executive authorities and employers-investors are poorly developed. Employers implementing (planning to implement) investment projects for the development of the Arctic territory do not develop or do not communicate to the executive authorities of the constituent entities of the Russian Federation strategies (plans) for staffing to identify the need for personnel for the purpose of their early

professional training. This prevents an objectively accurate assessment of the investment component of the need (the forecast of the need for personnel may be seriously underestimated and poorly correspond to the real situation in the economy). The forecast of the annual additional need for personnel for the medium-term planning horizon was formed for two levels of education: secondary vocational (hereinafter referred to as SPO) and higher ((HE). The obtained values of the forecast annual additional need for personnel can be characterized as “moderate”: for the period up to 2035, the total volume of the annual additional need of the economy of the Arctic zone of the Russian Federation for personnel with SPO is stable and amounts to about 25 thousand people, with higher education - at the level of 14 thousand people (Table 2).

Table 2. Forecast of the annual additional demand of the economy for personnel, taking into account the level of professional education in the territories of the subjects of the Arctic zone of Russia, 2019–2025, people.

Territories of the subjects of the Arctic Zone of the Russian Federation	2019		2021		2023		2025	
	SPO	IN	SPO	IN	SPO	IN	SPO	IN
Total for the Arctic Zone of the Russian Federation	25 831	13 565	24 458	13 470	24 677	13 645	24 619	13 620
Yamalo-Nenets Autonomous Okrug	7 810	4 280	7 840	4 310	7 920	4 360	7 960	4 400
Arkhangelsk region*	7 190	2 780	5 950	2 760	6 090	2 810	6 030	2 760
Murmansk region*	6 068	3 790	6 078	3 770	6 079	3 800	6 084	3 820
Krasnoyarsk region*	2 365	1 660	2 343	1,590	2 348	1 630	2 338	1 620

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Komi Republic	999	475	954	465	922	450	910	435
Nenets Autonomous Okrug*	600	245	575	255	580	265	590	270
Chukotka Autonomous Okrug*	634	245	575	230	595	240	570	230
Republic of Sakha (Yakutia)	165	90	143	90	143	90	137	85

The share of investments is about 8-10% of the total volume of personnel needs in the Arctic Zone of the Russian Federation. When launching investment projects in the support zones of development of the Arctic zone of Russia, the values of the need will increase by the number of new jobs created.

The presence of an objective forecast of the “Arctic” economy’s need for personnel is a guideline for the development of regional personnel provision systems from the point of view of making management decisions on the volumes and profiles of personnel training in the vocational education system, retraining of unemployed citizens, and attracting labor migrants.

The annual flow of graduates from the vocational education system traditionally serves as the main source of covering the economy’s need for personnel. Table 3 shows the share of coverage of the annual additional need of the economy for personnel with secondary vocational education by graduates who studied under SPO programs.

The share of coverage of the needs of the economy of the Arctic zone of Russia for personnel with secondary vocational education due to graduates of the full-time SPO system is on average 50% (provided that employment of graduates is guaranteed). This indicator takes on different values by regions of the Arctic: for example, for the Chukotka Autonomous Okrug, the need is fully covered by graduation, and for the Yamalo-Nenets Okrug, only by a third.

Figure 4 shows the extent to which the output of the higher education system in full-time education provides for the annual additional need of the Arctic regions’ economies for personnel with higher education.

On average, for the Arctic zone of Russia, the share of coverage of the economy’s need for personnel with higher education by the higher education system is about 30%, taking into account graduates of all forms of education - 65%.

Table 3. The share of coverage of the annual additional need of the economy of the Arctic zone of Russia for personnel with secondary vocational education due to graduates of the full-time secondary vocational education system, 2023–2024, %.

Subjects of the Arctic Zone of the Russian Federation	2023	2024
Total for the Arctic Zone of the Russian Federation	48.4	51.7
Murmansk region	63.9	66.2
Yamalo-Nenets Autonomous Okrug	28.2	28.8
Arkhangelsk region	59.7	71.3
Krasnoyarsk region	37.2	37.5
Komi Republic	50.6	53.5
Nenets Autonomous Okrug	40.8	42.6
Chukotka Autonomous Okrug	106.9	114.5
Republic of Sakha (Yakutia)	53.9	62.2

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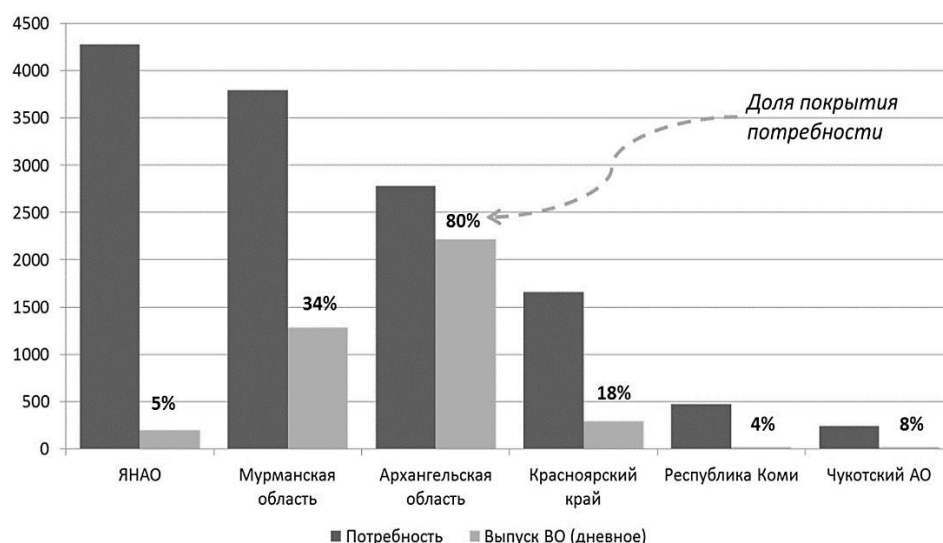


Figure 4. Meeting the economy's needs for personnel with higher education through university graduations (full-time) in the Arctic regions of the Russian Federation, 2023

Thus, in the course of the study of the prospective state of human resources provision of the economy of the regions of the Arctic zone of Russia, a forecast of the annual additional need of the economy of the Arctic regions for personnel with vocational education was formed. It was revealed that the output of the vocational education system of the Arctic regions, considered as the main source of covering the annual human resources need, cannot

fully meet this need (Figure 5). This means that the internal labor resources of the Arctic regions are already insufficient for human resources provision of the regional economy. Taking into account the planned development of the Arctic through the implementation of a large number of investment projects in the future, the problem of human resources provision will only worsen.

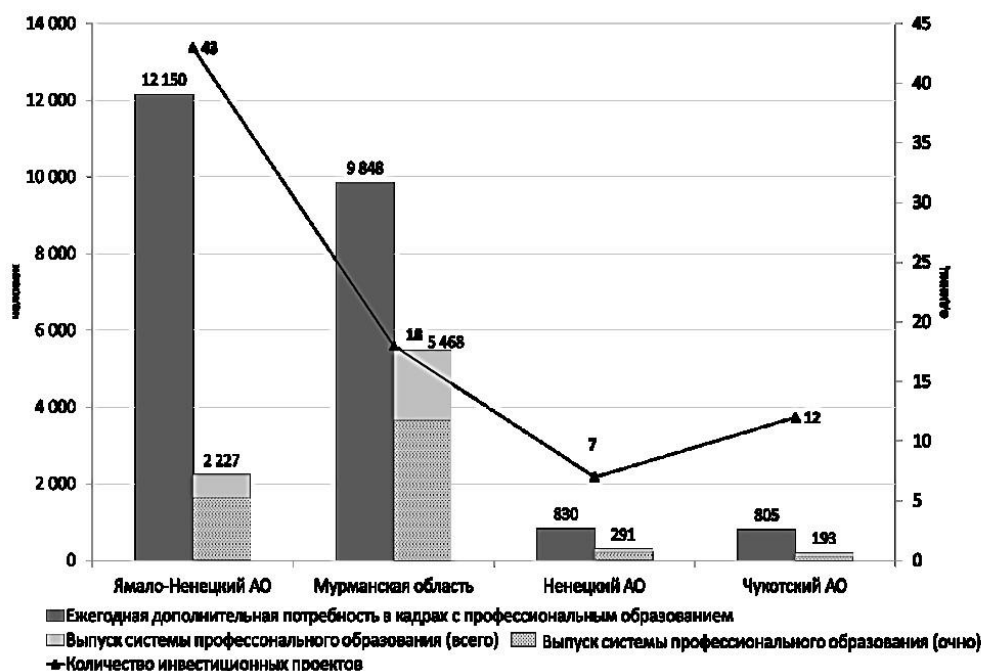


Figure 5. Annual additional demand of the economy for personnel with vocational education and graduation of the vocational education system by regions of the Arctic zone of Russia, 2024

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However, for a number of objective reasons, the vocational education system does not have the task of fully meeting the region's economy's needs for labor resources. This is due to the presence of other sources of personnel provision - the unemployed, labor migrants, institutional population, etc., and the possibilities of inter-industry flow of labor resources, retraining of personnel. The specificity of the Arctic industrial complex is its high corporatization, as a result of which the corporate education sector is very developed, providing applied, targeted professional training and retraining of personnel, taking into account the employer's requirements as much as possible. However, the lack of effective organizational mechanisms for interaction between executive authorities and employers makes it difficult to objectively assess this segment of specialist training. In addition, a distinctive feature of providing the economy with labor resources mainly in relation to underdeveloped Arctic territories is the high prevalence of the shift method of labor organization; according to the results of a survey of employers, the need for labor resources in the Arctic zone of Russia is covered by shift workers on average by 15%.

In the context of implementing priority investment projects, the issue of qualitative and structural compliance of the graduates of the vocational education system and the personnel needs of the economy of the Arctic Zone of the Russian Federation, formed taking into account the selected priorities, is important. To conduct such an analysis, the forecast indicators of the provision of the annual additional need for graduates of the vocational education system in the Arctic Zone of the Russian

Federation were detailed by large groups of specialties/areas of training (here in after - UGSN).

As shown above, the integral need for personnel with higher education is not fully met by university graduates. In this regard, most UGSN will experience a shortage of university graduates. At the same time, there are a number of UGSN of public and humanitarian profiles, characterized by an overproduction of graduates, for which the share of coverage exceeds 100% (table 4).

Taking into account the objective availability of other sources of labor resources, there will be no serious labor shortage for the UGSN, where the share of personnel needs is 60-90%. On the contrary, there is a significant shortage of training personnel with higher education for the other UGSN. Among these are the UGSN that are critically important for the economy of the Arctic zone of Russia, including those that provide training for specialists for priority investment projects in the Arctic regions.

The situation with the imbalance between the need and the output of the professional education system in UGSN in different regions of the Arctic zone of Russia differs and is associated with the peculiarities of their specialization and the priorities of the regional economy.

The analysis showed that there is a structural discrepancy between the training of personnel in the higher education system of the Arctic Zone of the Russian Federation and the real economic demand for specialists. The system of secondary vocational education in the Arctic Zone of the Russian Federation is more balanced, but in general has similar disproportions.

Table 4. Differentiation of the UGSN by the share of coverage of the forecasted need of the economy of the Arctic zone of Russia for specialists with higher education due to university graduates, 2024

Share of coverage of the economy's need for specialists	Large groups of specialties/areas of training	including those providing training for specialists for priority investment projects
More than 100%	37.00.00 — Psychological Sciences; 39.00.00 — Sociology and Social Work; 40.00.00 — Jurisprudence; 38.00.00 — Economics and Management; 42.00.00 — Mass Media and Information and Librarianship	
Share of coverage of the economy's need for specialists	Large groups of specialties/areas of training	including those providing training for specialists for priority investment projects

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60–90%	45.00.00 — Linguistics and literary studies; 49.00.00 — Physical Education and Sports; 33.00.00 — Pharmacy; 29.00.00 — Light Industry Technologies; 54.00.00 — Fine and Applied Arts; 46.00.00 — History and Archeology; 51.00.00 — Cultural studies and socio-cultural projects; 31.00.00 — Clinical medicine; 43.00.00 — Service and tourism; 44.00.00 — Education and Pedagogical Sciences; 34.00.00 — Nursing	13.00.00 — Electric and thermal power engineering; 06.00.00 — Biological Sciences; 19.00.00 — Industrial Ecology and Biotechnology; 14.00.00 — Nuclear energy and technology; 09.00.00 — Computer Science and Engineering
30–60%	25.00.00 — Air navigation and operation of aviation and rocket and space technology; 04.00.00 — Chemistry; 32.00.00 — Health Sciences and Preventive Medicine; 41.00.00 — Political Science and Regional Studies; 01.00.00 — Mathematics and Mechanics	26.00.00 — Engineering and technology of shipbuilding and water transport; 21.00.00 — Applied geology; mining; oil and gas engineering and geodesy; 05.00.00 — Earth Sciences; 23.00.00 — Ground Transport Engineering and Technology; 35.00.00 — Agriculture; forestry and fisheries; 18.00.00 — Chemical technologies; 15.00.00 — Mechanical Engineering; 20.00.00 — Technosphere Safety and environmental management; 16.00.00 — Physical and technical sciences and technologies
Less than 30%	27.00.00 — Management in technical systems; 30.00.00 — Fundamental medicine; 28.00.00 — Nano technologies and nano materials; 22.00.00 — Materials technologies; 03.00.00 - Physics and astronomy; 36.00.00 – Veterinary and animal science	08.00.00 — Construction Engineering and Technology; 02.00.00 — Computer and Information Sciences; 11.00.00 — Electronics; Radio Engineering and Communication Systems; 12.00.00 — Photonics; instrumentation; optical and biotechnical systems and technologies

In the current conditions, the list of in-demand Arctic professions that meets current and future demands of the labor market should serve as a guideline for adjusting the structure of training and retraining of personnel in the professional education system of the Arctic zone of Russia, opening new specialties and areas of training, and connecting educational resources of other regions of Russia.

The demand for professions in the labor market of the Arctic regions is primarily due to the dominance of certain sectors of the economy, which act as locomotives or drivers of development of the regions of the Arctic zone of Russia. The main sources of information on in-demand professions include the Rostrud information array on vacancies declared by employers to state employment service agencies, surveys of leading employers in the Arctic, data from

personnel portals, as well as regional lists of "TOP-region" professions and specialties of secondary vocational education, the most in-demand, new and promising. The presented sources of information on in-demand professions cover various areas of activity in the search and training of personnel: the activities of employment services, the personnel policy of employers, the activities of executive authorities in terms of guidelines for professions in demand by the regional economy. Thus, it can be stated that the main criteria for determining demand are the mass nature of the profession, as well as the key importance of the profession for the regional economy.

Thus, the mining and oil and gas industry of the Arctic needs personnel with such professions as mine surveyor, mining engineer, mineral beneficiator, geologist, miner, geophysicist, driller, oil and gas field

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development engineer, underground electrical fitter, drilling rig operator, etc.

The specifics of the transport network of the Arctic zone of Russia are manifested through the personnel need for sailors, captains, ship repairmen, drivers for a wide variety of equipment, mechanics for repairing various types of transport, dispatchers and logistics specialists, etc.

The comprehensive development of the Arctic involves the construction of new infrastructure facilities aimed at solving not only socio-economic problems, but also national security issues. The most in-demand professionals are concrete workers, masons, tilers, fitters of various specializations, design engineers, cost engineers, etc. The economic complex of the Arctic zone of Russia complements the development of agriculture and fisheries, which are important from the point of view of developing the specific biological resources of the territory and employment of the population. Thus, in the Arctic zone of Russia, the following professions are in demand: veterinarian, livestock specialist, reindeer herder, hydrobiologist, fish harvester, fish processor, etc.

In addition, it is worth remembering that about 2.4 million people permanently reside in the Arctic zone. This, in turn, determines the need for qualified specialists in the social sector and the service sector to develop the region's infrastructure and create favorable conditions for human life and professional activity. Among the professions most in demand in the social sphere, we can note doctors of various specializations, nurses, teachers, and kindergarten teachers. According to analytics from the recruiting portal HeadHunter, there is currently a high demand for specialists in the sales sector (22% of the total number of vacancies posted in the regions studied) - sales cashiers, consultants, sales managers, merchandisers, etc.

The demand for innovative and technological development of the Arctic zone of Russia requires knowledge of IT technologies and competent specialists in this field - software engineers, software developers, engineers for automated process control systems, database administrators, information security specialists, etc. Considering the lists of the most popular professions for each Arctic region separately, we can highlight several professions that are in high demand in each Arctic region: concrete worker, nurse, car driver, accountant, cook, pastry chef and electric and gas welder. At the same time, there are also distinctive features in the territories of the Arctic Zone of the Russian Federation associated with the predominance of "iconic" economic sectors for the regions. For example, the largest ice-free port in Russia is located in the Murmansk Region, and the region accounts for more than 16% of the total Russian fish production. This determines a high demand for qualified personnel whose professional

activities are related to navigation and ship repair, as well as fish production and processing. The economic development of the Yamalo-Nenets and Nenets Autonomous Okrugs is connected with the industrial development of the Arctic mineral resource base and the formation of the necessary infrastructure for this development. The list of the most in-demand professions for these regions includes an oil and gas production operator, a driller, a drilling rig operator, as well as a wide range of construction industry professions.

A powerful shipbuilding cluster has been created in the Arkhangelsk Region, specializing in the construction of nuclear submarines, surface ships, vessels of various classes and ship repair. Therefore, there is a high demand for specializations related to shipbuilding - ship fitters, assemblers - finishers, pipefitters.

Reindeer herding is not only a traditional socially significant type of economic activity in a number of Arctic regions, but also a promising direction for the economy. In the Chukotka and Nenets Autonomous Okrugs, as well as in the Republic of Sakha (Yakutia), such professions as reindeer herder and veterinarian are more often in demand on the local labor market.

The leading industry of the Republic of Sakha (Yakutia) is diamond mining, in connection with this, there is a need for the following specialists in diamond production: diamond cutter, diamond cutter. Analyzing the current professional composition of personnel, determined by the list of in-demand professions in the labor market of the Arctic regions, we can conclude that at present, a "renaissance" of blue-collar professions is observed in the Arctic zone of Russia. Indeed, according to Rostrud, in 2023, more than 60% of all vacancies declared by employers to state employment agencies in the constituent entities of the Arctic zone of the Russian Federation were for skilled workers, including operators, machine operators, machinists, and mid-skilled specialists. This trend is confirmed by the results of studies on forecasting the prospective annual additional personnel needs of the Arctic zone economy, presented above: the need for personnel with higher education is estimated at 6-8 thousand people annually, with secondary vocational education - at 25 thousand people. The need for workers is traditionally covered by graduates of the secondary vocational education system and training/retraining of citizens in the system of additional vocational education. This fact does not diminish the role of a highly qualified personnel base for the successful development of the Arctic. Today, the Arctic requires competent managers and executives who must have scientific, technical, economic and psychological potential, engineering and economic knowledge, the qualities of a traditional manager and research scientist who are able to assess the effectiveness of innovative projects.

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There is a shortage of such very rare professions as oceanologists, permafrost specialists, cryologists, the absence of which does not allow solving the pressing problems of the Arctic territories. These include the deformation of buildings in permafrost conditions, disruption of the stability of structures, the effects of climate change. These professions, which require higher education, are not so widespread, but they are no less important in the modernization of the economy and the innovative development of the Arctic zone of Russia.

In the modern conditions of a dynamically changing world, it is becoming more important every day to answer the question: "What specialists will be in demand in the future?" In relation to special Arctic territories, getting an answer to this question is especially relevant, since the Arctic is a powerful strategic reserve of our country for the future, which must respond to the global challenges of the modern economy.

By 2050, about 30% of all hydrocarbons will be produced in the Arctic. Most investment projects for the development of the Arctic are long-term; they involve the development of mineral deposits, the development of which takes from 10 to 30 years or more. Thus, in the coming decades, the demand for Arctic minerals will remain quite high. This determines the need for highly qualified personnel who meet modern technological trends in the extractive industries of the economy, meeting the requirements of environmental friendliness and energy efficiency.

Due to the remoteness and lack of developed transport infrastructure in the regions of the Arctic zone of Russia, domestic companies are beginning to develop an active policy for the development of Arctic resources using the latest technologies, including unmanned aerial vehicles (UAVs, drones) capable of operating in the harsh climatic conditions of the Arctic. Russian oil companies implementing unmanned technologies in the Arctic are PAO Gazprom Neft and PAO NK Rosneft.

Among the Arctic "jobs of the future" that are already appearing on the horizon today are: operator of unmanned aerial vehicles for exploration of deposits; systems mining engineer; eco-analyst in the extractive industries; engineer of automated systems for monitoring, development, extraction and processing of mineral deposits; specialist in the processing and interpretation of ground geophysical data; operator for monitoring and managing the trajectory of drilling (geonavigation) of wells; specialist in the field of rational nature management in the oil and gas sector. The Northern Sea Route is the main shipping lane of the Russian Arctic and one of the most important elements of the economy of the Arctic regions. The need to develop the Northern Sea Route today is largely due to the intensive development of the Arctic mineral resource base. In

addition, in recent years, there has been an increase in interest in the transit use of the NSR on the part of developed foreign countries.

The report "Climate Change and Its Consequences in the Russian Federation", prepared by Roshydromet in 2024, states that the rate of warming in the Russian Federation is two and a half times higher than the rate of global warming. The information presented expands the prospects for using the NSR and creates favorable conditions for year-round transit navigation on this route.

Given these trends, in the near future the labour market may see vacancies for specialists in the field of traffic management and navigation systems in the Arctic, marine infrastructure systems engineers, ice-class marine vessel navigators, and vessel traffic management system operators designed to ensure optimal routes for vessels in ice navigation and the Far North.

The development of the NSR will lead to the modernization of the corresponding port infrastructure, in connection with which the professions of specialists in the operation of ports and terminals, specialists in ensuring the information security of maritime information systems will be in demand.

Thus, when discussing the topic of which professions determine the future of the Arctic regions, it can be stated that the priorities of the strategic development of the Arctic, defined in the program documents of its development, are long-term. The Arctic is, first of all, the richest diversity of the natural resource base, as well as the possibilities of using the Northern Sea Route, which in the future should become a major transport artery of the planet. These priorities determine the professional field of the future, formed by the professions of key sectors of the Arctic economy, which are transformed under the influence of modern technological trends.

It should be noted that the complex of natural factors of the Arctic — low temperatures combined with strong winds, short cold summers, high humidity, polar night and day, insufficient solar radiation, geomagnetic activity — has a pronounced negative impact on the workers' bodies. Climatic features are conditions that, on the one hand, impose restrictions on the possibility of human labor in the Arctic and cause the need for regular medical and preventive measures, on the other hand, increase the requirements for professional and general cultural competencies of potential employees. Leading employers, including those implementing investment projects for the development of the Arctic, highlight the following professionally important qualities that employees must possess: good physical health; adaptability to work in the conditions of the Far North; high level of labor and technological discipline; ability to work in stressful situations and in conditions of increased labor intensity; readiness to solve complex non-

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standard problems, calculate the consequences of actions; strong will, ability to move towards the result, despite the obstacles; determination, courage, endurance, conscientiousness. Thus, professionally important qualities of employees, along with high professionalism, include motivational attitudes, as well as the state of physiological and psychological health. The analysis of the state of personnel provision showed that not only the current situation, but also its forecast indicates a discrepancy between the existing qualifications of employees, the level of personnel training and the requirements of the regional economy in the territories of the subjects of the Russian Federation that are part of the Arctic zone of Russia. The presence of a time lag in the training of specialists does not provide an opportunity for the rapid adaptation of the structure of personnel training to the needs of the regional economy. This means that there is an aggravation of the crisis in the personnel training system both for the regional economy of individual subjects and for the Arctic zone of Russia as a whole, which in the future will lead to a professional and qualification imbalance between the demand and supply of labor in the labor market.

This problem is complicated by negative demographic and migration processes, a decrease in the number of able-bodied and economically active population, the focal nature of production placement and mono-specialization of the regional economy in a number of subjects of the Arctic zone of Russia. Structural disproportions in the personnel training system lead, on the one hand, to the presence of unclaimed specialists in the labor market, and on the other hand, to a shortage of workers in certain professions. This reduces the productivity of social production, the growth potential of the regional economy and the efficiency of using human resources, leads to the impossibility of implementing strategic priorities and a decrease in the competitive advantages of the Arctic regions. A negative consequence of such trends is that even an insignificant number of the population of the Arctic Zone of the Russian Federation, who have received higher or secondary vocational education, are forced to work outside their specialty, often "sinking" to positions/professions with a lower professional and qualification status. All this has a direct impact on the quality of his life, and thus hinders the achievement of the main goal of sustainable balanced socio-economic development of regions, which is formulated in regional development strategies.

In the context of a general shortage of personnel, the existing professional and qualification imbalance between the supply of personnel and the demands of the regional economy necessitates the search for fundamentally new approaches aimed at the formation and rational use of the human resource potential of the Arctic regions.

Currently, neither the state program of the Russian Federation "Socio-economic development of the Arctic zone of the Russian Federation for the period up to 2035", which envisages the creation of "support" zones and the implementation of investment projects, nor the strategies for the socio-economic development of individual Arctic regions contain comprehensive sections devoted to the staffing of the economy. The documents lack specific indicators characterizing the number of jobs created ("how many?"), requirements for the professional and qualification structure of jobs ("which ones?"), and sources of staffing ("from where?"). There is no section regulating the staffing of the economy of the Arctic Zone of the Russian Federation in the federal bill "On the development of the Arctic zone of the Russian Federation". In the current conditions, the most important task of government bodies is to develop a state program for long-term staffing of the Arctic zone of Russia, including: training and retraining of qualified specialists taking into account the forecast of personnel needs; attracting personnel from other regions and their maximum retention in the Arctic; forming a system for searching for personnel reserves. It is relevant to create such documents for each Arctic region - the section on staffing should be a mandatory component of the strategy for the socio-economic development of the region or should be adopted as a separate document synchronized with the regional development strategy. As an example, we can cite the regional target program "Staffing of the Strategy for Economic Development of the Murmansk Region for the Period up to 2035", which functioned in the region until 2035.

Based on a comprehensive and in-depth study of official documents of the state strategic planning system of the subjects of the Arctic zone of Russia, information portals of regional executive authorities implementing management in the sphere of education, economy, labor and employment, sociological research, resolution documents of all-Russian and international conferences on Arctic topics, scientific publications and publications in the media, the key problems that arise at each stage of personnel provision in the Arctic regions of Russia are systematized. An in-depth analysis of these problems showed that the professional and qualification imbalance that hinders the sustainable development of regions is a multifaceted problem that does not have a single solution, but requires consideration and interaction of many factors: economic, social, psychological, etc. (Figure 6).

In the management of regional development, methods are used that can be classified into three categories: organizational, economic and socio-psychological. Consequently, approaches to solving the above problem involve the complex use of various methods of administrative regulation, economic incentives, motivational and educational work.

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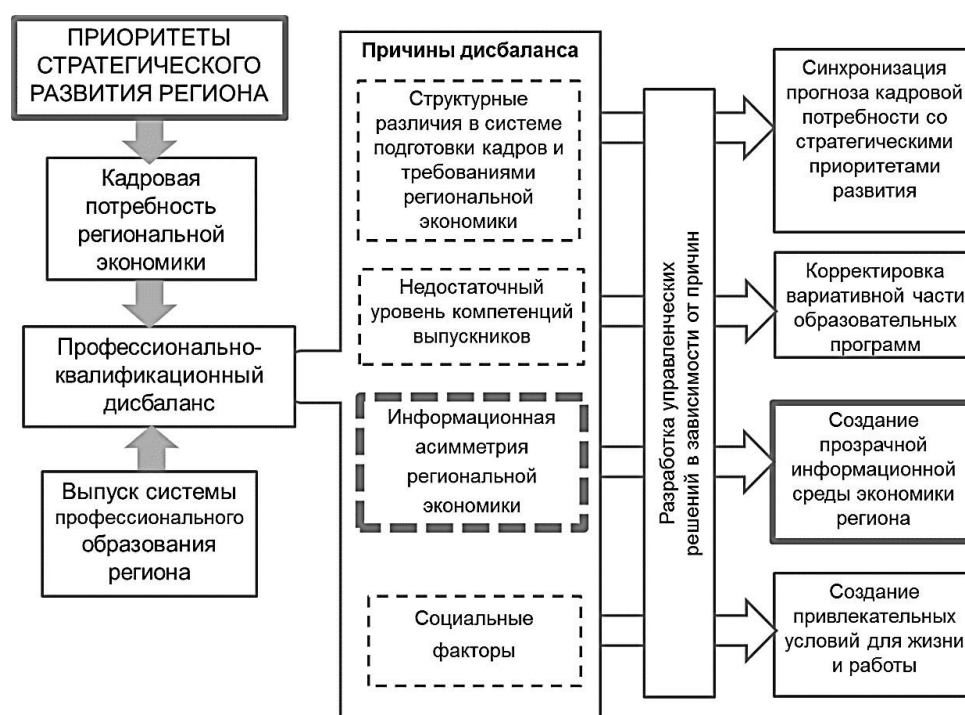


Figure 6. Scheme for overcoming the problems of sustainable development of regions in the context of staffing

The actions of regional executive authorities should be aimed at identifying the main causes of existing structural imbalances. Depending on the identified cause, the governing entities represented by regional executive authorities should take adequate measures to weaken their influence or eliminate them. For example, if the volumes and profiles of personnel training do not correspond to the requirements of the regional economy, it is necessary to synchronize the target figures for admission to educational organizations of vocational education in terms of specialties/areas of training/professions for each level of vocational education with detailed forecasts of personnel needs formed taking into account regional and industry priorities for the development of the Arctic Zone of the Russian Federation, the requirements of leading employers, as well as structural shifts occurring in the economy of the regions. The executive authorities implementing the state function of personnel forecasting in the regions of the Arctic zone of Russia need to develop a culture of participation in sociological surveys on the topic of employment forecasting among leading employers of the Arctic by explaining mutual benefits and prospects.

There are frequent cases when the cause of professional and qualification imbalance in the labor market is the discrepancy between the quality of professional education and the requirements of employers and regional specifics. The Arctic zone of Russia is a territory that needs extraordinary industrial

and production solutions, and this requires unconventional approaches to training specialists. The low level of training of specialists, due to the technological and substantive lag of educational organizations from the requirements of employers, entails a discrepancy between the competencies formed in graduates and the professional skills, knowledge and abilities required in the workplace. As a result, the solution to this problem was the transfer of specialist training to corporate training centers. In such a situation, it is necessary to take appropriate measures to adjust educational programs in the system of professional education taking into account the requirements of employers. It is necessary to form a flexible system of professional education that meets the demands of investors and the needs of the innovative economy, both in the content of the educational programs themselves and in the material and technical base of educational organizations. An equally important problem of personnel provision for the economy of the Arctic regions is, of course, the large-scale outflow of population due to unfavorable conditions for life and professional activity of a person. The difficulties that workers in the regions of the Arctic zone of Russia face are listed in the results of a sociological study by the regional public organization "Revival of Russian Culture" on the topic "The state and prospects of socio-economic development of the Arctic regions of Russia in the views of residents of the European North", namely:

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- residents of the Arctic regions of almost all age categories and different educational levels consider their living conditions to be rather unfavourable, both from a professional-labour and from a recreational-medical point of view; among those who gave such an assessment, the majority of citizens of active working age (aged 25 to 49 years) are included;

- the population's migration sentiments are strong - more than half of respondents aged 18 to 49 would like to move to another region if possible, due to unfavourable climate and environmental conditions, as well as various social reasons (economic, psychological, infrastructural);

- Many residents of the Arctic regions are ready to put up with natural and climatic factors for a higher quality of life, but on the condition that the "northern" benefits will sufficiently compensate for the costs of living in difficult climatic conditions.

The main ambitious task that will help overcome this problem and which should be addressed by state policy measures is not just "attracting" and "securing" people in the Arctic, but also creating visible life prospects for them. Arctic regions with developed settlement systems and relatively high population density should pursue a policy of retaining, attracting and securing the population (especially young professionals) for permanent residence using economic and social incentives depending on the characteristics and capabilities of each region. Particular attention should also be paid to infrastructure, the development of which is very important for residents of the regions of the Arctic zone of the Russian Federation and its further development. To secure young professionals, clear educational, professional and life trajectories, modern jobs and a vibrant socio-cultural environment are needed. With regard to the underdeveloped territories of the Arctic Zone of the Russian Federation, the shift method of organizing labor is more rational.

It is important to note that attracting personnel to the Arctic regions must be strictly coordinated with the implementation of specific investment projects in the "support" zones of Arctic development. Indeed, the issue of organizing people's lives in the Arctic can only be resolved through economic development, so attracting the population, including retaining it, to the Arctic regions should be based on large-scale, cost-effective investment projects that will provide the population with jobs. Due to the harsh conditions, people cannot exist in the Arctic "just like that", according to the principle of "first we'll settle down, then we'll decide what we'll do." According to the authors, one of the problems of staffing the economy of the Arctic zone of Russia, which has not received due attention from the executive authorities to date, is the lack of substantiated and systematic information to the population about the state and prospects for the strategic development of the regions of the Arctic

zone of Russia in a clear and accessible form. This problem is confirmed by the results of various studies. According to a sociological study, in the regions of the Arctic zone of Russia there is a lack of information concerning the Arctic prospects of the regions, poor awareness and inadequate ideas about Arctic investment projects, especially among young people, and the superficial nature of the population's awareness of Arctic investment projects and federal program documents regarding its strategic development.

In 2023, the Arctic Center for Strategic Studies of the Northern (Arctic) Federal University named after M. V. Lomonosov conducted a study of the migration attitudes of university students located in the territory of the Arctic zone of Russia. The survey revealed a low level of awareness among respondents: only a third of them responded that they knew about the creation of the Arctic Zone of the Russian Federation and its development as a priority geostrategic territory of Russia. In addition, a pleasant pattern was discovered: the more a student knows about the Arctic zone of the Russian Federation and the more positively he/she treats the prospects for its strategic development, the less pronounced his/her migration attitudes are.

In connection with the above, it should be noted that the specificity of the regions of the Arctic zone of Russia, expressed primarily in harsh living and working conditions, requires: popularization of knowledge and dissemination of information about the Arctic; propaganda of work in the Arctic and for the Arctic, a special flavor of life in the North, primarily among the younger generation; formation of internal motivation to acquire Arctic professions, including through heroism, patriotism, importance for the country. In ensuring the development of the Arctic regions, the emphasis is placed on young people as the most mobile, creative, ambitious social group, ready to overcome difficulties and master new things and focused on promising career growth. Taking into account the medical and biological problems of human adaptation in the North, which do not allow for rapid adaptation to harsh natural and climatic conditions, the main and unique value of the Arctic regions is the local youth, who must be motivated and purposefully prepared for life and work in the Arctic.

Considering the incredibly increased role of information in literally all spheres of human activity, the role of this factor cannot be underestimated. At the same time, in the conditions of the development of the information society, characterized by the creation of a global information space, the question of the uneven distribution of various types of data between users increasingly arises. It is obvious that the consequences of decisions made in conditions of incomplete information, and sometimes uncertainty, will, as a rule, be negative.

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The situation that arises when it is impossible to provide all interested participants with complete and timely information is characterized as uneven distribution (or asymmetry) of information in the market. Information asymmetry is a feature that is inherent in various markets and, due to their specificity, has special characteristics, forms of manifestation, and directions of influence on market agents. It prevents economic entities from making optimal decisions and effectively distributing resources, leads to adverse selection, the emergence of moral damage, and increases transaction costs. Taking into account the effect of information asymmetry, as well as special attention to information flows between elements of the economic system, is a characteristic feature of the information approach developed within the framework of the theory of economic mechanisms.

The manifestation of information asymmetry in the context of personnel provision of the economy, expressed in the deficit of objective information or, on the contrary, in the existence of an array of redundant and unstructured information, the complexity of its analysis and perception, becomes a serious obstacle for the population in choosing a career path aimed at obtaining a promising and in-demand profession in the region. The impossibility of competent professional self-determination has a negative impact on the formation of life attitudes and orientations of the population, limits the chances of self-realization of the individual, thereby hindering the social protection of the population. This negatively affects the achievement of the main goal of sustainable balanced development of the region - improving the quality of life of the population. Overcoming information asymmetry in the regions of the Arctic zone of Russia through a balanced information policy and timely provision of high-quality information on the state and prospects of strategic development of the Arctic, on popular professions attractive to the population, especially the youth, on the opportunities for life and work in the Arctic plays an important role in shaping a positive image of the Arctic territories. In conditions of such awareness, the population will be able to make a rational choice of professional path, which will allow timely implementation of strategic priorities by personnel of the required qualifications. From the point of view of the authors, this information should be carried out not only in the regions of the Arctic Zone of the Russian Federation, but also in all subjects of the Federation to attract labor resources to the Arctic regions.

Thus, due to the great influence of communications on the activities of various social entities, overcoming information asymmetry in the regions of the Arctic zone of Russia can bring good operational and tactical results, since the transmitted information agenda determines the nature of the socio-economic ideas, life plans and orientations of the population.

An analysis of foreign experience has shown that all developed countries have recognized the need for government intervention in overcoming the information asymmetry of the labor market, which hinders effective staffing, by disseminating information as widely as possible. To solve this problem, "early warning systems" are being created in foreign countries, implementing the collection, processing, analysis and provision of information on the past, current and future state of the economy and the labor market in a form that is most adapted to the end user. Such early warning systems contain accessible tools for simple and clear information dissemination to the population. A study of open sources of information on the territories of the Arctic zone of Russia has shown that there are currently no effective mechanisms for informing the population about the state of staffing, and the existing ones do not work at full capacity and are not structured to meet the interests of specific users.

In addition, the growing informatization and digitalization of society, which has led to changes in people's lifestyles, an increase in the number of consumers of electronic services, and an increase in the number of users of mobile devices and applications, imposes new requirements for the provision of services. More and more citizens, especially young people, strive to conveniently receive information in the most simple, accessible and understandable form.

Taking into account the above, in order to overcome the information asymmetry of the regional economy in the subjects of the Arctic zone of the Russian Federation, which seriously complicates the effective use of human resources in the context of the strategic development of this territory, it is proposed to develop a concept and tools for a transparent information environment of the labor market.

The main objective of the creation and operation of a transparent information environment of the AZRF labor market is to ensure effective informing of all interested entities about the current and future state of the economy and labor market to create conditions of "certainty" that allows making informed decisions on sustainable balanced development of the regional economy, the system of professional education and building a personal professional career. The operation of a transparent information environment will allow all categories of users to receive answers to questions related to the current and future state of the personnel provision system depending on existing interests and goal setting (Table 5.). Due to its multifunctionality, a transparent information environment is implemented through an information system with Internet access, ensuring optimal interaction of its users and participants. This format of implementation of a transparent information environment makes it accessible to users from other regions of Russia. The toolkit for implementing a transparent information

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	ISI (Dubai, UAE)	= 1.582	ПИИЦ (Russia)	= 0.191	PIF (India)	= 1.940
	GIF (Australia)	= 0.564	ESJI (KZ)	= 8.100	IBI (India)	= 4.260
	JIF	= 1.500	SJIF (Morocco)	= 7.184	OAJI (USA)	= 0.350

environment involves the creation of modern information products dedicated to industries, professions, and enterprises of the regions participating in the development of the Arctic, which allow information on the personnel provision of the Arctic zone of Russia to be disseminated in an accessible, visual and understandable form. An example of an interactive toolkit for implementing a transparent information environment can be, namely:

- passports of the Arctic regions, which provide information on the main indicators of socio-economic development, on the resource and raw material, production, personnel and educational potential of the region, on the priorities of strategic development, promising investment projects and leading employers;
- "employment barometers" that visualize information about the deficit, balance and surplus of

professions in the labor market of the regions of the Arctic Zone of the Russian Federation;

- job descriptions, which describe the essence of the profession and indicate the content of professional work, requirements for employee training, taking into account the "arctic" nature of the professions - professionally important qualities for work in the Arctic, indicators of demand and the level of average wages.

The use of the proposed information resources will contribute to the structuring of knowledge, the dissemination of information about the Arctic and large-scale investment projects for its development, the popularization of work in the Arctic and for the Arctic, especially among the younger generation, as well as the formation of internal motivation for the acquisition of Arctic professions and competencies.

Table 5.

WHAT?	ABOUT WHAT?	TO WHOM?
Collection, analysis, processing, provision of information	Past, current, future state of the regional economy	- individuals - business - authorities - vocational education system

The current task today is to form a new culture of using objective data on the economy and the labor market in the population when making informed decisions on building a personal professional career in the territory of the Arctic zone of Russia. This will improve the correspondence between the demand and supply of labor resources, which, in turn, will have a positive effect on the sustainable development of priority geostrategic territories of the Arctic zone of the Russian Federation.

The effect of using the proposed approach not only has a positive impact on the sustainable development of the Arctic regions, but is also characterized by individual benefits for each participant. Having up-to-date information on the state and prospects for the development of the Arctic regions, priorities of investment activities will allow to form and adjust life strategies of the population, including young people, towards obtaining a popular education, interesting work, and the opportunity to develop strategically important regions of the country. Employers who are engaged in the implementation of large-scale investment projects will be provided with qualified specialists motivated to work in the Arctic, capable of achieving the most effective implementation of investment projects and ensuring growth in labor productivity, profit growth, and reaching a higher technological level. At the level of the Arctic territories, this approach will bring a positive synergistic effect, which is achieved through the full implementation of the combined human

resources potential of the regions that are part of the Arctic zone of Russia, and opens up broad opportunities for socio-economic development, increasing the pace and quality of economic growth in the Arctic Zone of the Russian Federation.

Conclusion

Most of the above projects are industrial, production and infrastructure investment projects, the purpose of which is to create demand for personnel and technology. Without solving the fundamental problem of developing the North and the Arctic (as well as a significant part of Russia as a whole) - overcoming the "oppression of distances" - there is no point in talking about the success of the efforts undertaken. In this context, the main goal of implementing industrial, production and infrastructure investment projects is to overcome the focal nature (isolation). The complex process, the beginning of which is the resource and transport development of the Arctic territories in the form of local clusters, makes it possible to launch the process of innovative development, the transition from an export-raw materials to a resource-innovative economic model. This is only the first step towards the rational and comprehensive development of natural resources.

The solution to the problems of socio-economic development of the North and the Arctic has little in common with the "vulgar market" approach - only an orientation towards minimizing current costs. In the

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case of both northern and arctic projects, it is necessary to talk about socio-economic returns in the context of new values and guidelines that are being formed in modern civilization. It is impossible to find an acceptable and very flexible balance of risks and opportunities for the socio-economic development of the North without scientific support and innovative support. The priority tasks in this area are: the development of fundamental and applied research aimed at obtaining new knowledge based on interdisciplinarity in various fields of science (economic and socio-demographic, energy and economic, environmental and economic, transport and economic, chemistry (materials science), physics); systematic development; taking into account territorial competitive advantages and spatial factors in development; solving problems of leveling the consequences of emerging risks. In particular, when

considering the level of socio-economic development of the regions of the Arctic zone of Russia, it is necessary to understand that they are extremely heterogeneous. In resource-extracting regions, despite their apparent prosperity, there are many problems, the severity of which is due to: firstly, the instability of the international market situation for extracted raw materials; secondly, the ability of vertically integrated companies to apply various taxation "optimization" schemes; thirdly, the inevitable depletion of the best resources and the departure of large companies from areas of their traditional activity, which can lead to the transition of the territory into the category of depressed; fourthly, the strengthening of the single-industry nature of the economy, based on the forced exploitation of mineral resources and disregard for the peculiarities of the period of decline in production (up to the closure and complete reclamation of land plots).

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