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The Problems of Social and Information Support of the Population of the Arctic Zone of Russia in the Cut of the Industrialization of the Development of the Region

Los problemas del apoyo social y de información a la población de la zona ártica de Rusia en la reducción de la industrialización del desarrollo de la región

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ABSTRACT

Interest in the Arctic zone was determined mainly due to the political and economic situation, the use of its rich resource potential, national security, and increased international political influence. But, in the studied region there are social problems that were investigated by the authors. It has been established that the strength side of the Arctic region is its qualitative composition of the population. The weak side is poor development of the social environment. But in the region there are opportunities for its development, which consist in the creation of new jobs. The author suggests that more attention should be paid to medicine, education, environmental aspects.

Keywords: A quality of life; neo-industrial development; population outflow; social processes.

RESUMEN

El interés en la zona Ártica se ha determinado principalmente por la situación política y económica, el uso de su rica capacidad de recursos, la seguridad nacional, el fortalecimiento de la influencia política internacional. Pero, en la región investigada también hay problemas sociales que han sido investigados por los autores. Se ha determinado que la composición cualitativa de la población es el punto fuerte de la región del Ártico. Desarrollo social débil. Pero en la región hay oportunidades para su desarrollo, que son la creación de nuevos puestos de trabajo. Los autores sugieren que se debe prestar más atención a la medicina, la educación y los aspectos ambientales.

Palabras Clave: Procesos sociales; desarrollo no industrial; salida de la población; calidad de vida.

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INTRODUCTION

At the end of the 20th and the beginning of the 21st centuries, the Arctic and everything connected with it became an extremely popular theme in the world community. The reasons for the increased attention to this region are lying mainly in the economic field: high world prices for energy carriers led many to look at the Arctic, where, according to expert estimates, considerable oil and gas reserves are hidden. Vigorous activity here, in turn, gives new impulses to projects in the field of security, transport, logistics and the environment that are unfolding in the region (Agranat, 2014; Gorshkov and Sheregi, 2012). As a result, along with the development of natural resources and their further processing, such problems as the development of transport corridors infrastructure, safety aspects and sustainable development of the region have become a particular importance. Considering the fact that in the Arctic, the economic and political interests of both Russia and other Arctic states – the USA, Canada, Denmark, Norway, as well as a number of countries of the European Union and the Pacific – are closely intertwined, their resolution will be largely determined by further dynamics international cooperation (Belonozhko and Krysin, 2002).

The Arctic is one of the most resource-rich regions of the planet. Arctic subsoils stores up to a third of the world's hydrocarbon reserves (Saxinger, 2014). The presence of large reserves of mineral raw materials on the Arctic shelf is confirmed by almost all, without exception, expert estimates. The profitability of their mastering is quite achievable – even when using existing technologies. All this helps to attract more qualified specialists.

The development of the Arctic region actualizes the need to solve a large number of complex economic, social, engineering and other problems that require serious scientific support. A significant place among them should be taken by sociological studies, which allow, on the one hand, to evaluate all the interrelations and consequences of already identified and still latent problems, on the other – possible alternative ways and technologies for solving them, their systematic evaluation within the confines of different regional development scenarios (Buscherm, 2009; Dregalo, 2012).

Statistics cannot provide reliable information on most of the required parameters. Their measurements should be carried out using sociological tools (Kibenko, 2014; Kolesnikov, 2015). Wherein it should be considered that oil and gas companies, to a greater extent than the state that determines the development strategy of the Arctic region, are not only not oriented in the social-humanistic sector of development of this territory, but also limit here the manifestation of their social responsibility.

METHODOLOGY

To determine the effectiveness of the socio-economic development of the Arctic region, it is necessary to identify a set of problems faced by the participants in mastering, to evaluate them, to identify interrelations, alternative solutions and possible consequences. Having a certain graph of problems, it becomes possible to conduct detailed interdisciplinary studies of its elements.

The study was conducted in two stages. First, settlements were selected, and then respondents. Analysis of the survey results was recorded according to such social groups of northerners: old-timers, of which the representatives of aboriginal ethnos separately; settlers (who lived in the north for less than 5 years); look-out workers. The survey took place at workplaces – drilling rigs and installations, training combines, at the look-out personnel gathering points and at the helipads, as well as in the national villages. The collection of information was based on the self-completion of the questionnaires by the respondents.

Faintly-structured problems have specifics of solutions: there is a wide range of alternatives, solutions depend on technological solutions, there are elements of risk when making decisions, a large investments of resources are required, cost and time to solve a problem are not determined, the solution of the problem requires combining various resources. In order to solve such problems on a computer, the machine control

systems with such creative intellectual functions as distributed computing, multi-level decision making, etc. will be required. This can be avoided by using pattern recognition technology, heuristic methods in the theory of knowledge.

The upcoming neo-industrial development of the Arctic, associated with the implementation of large investment mega-projects, actualizes the need to diagnose the socio-economic situation in this territory and to develop innovative mechanisms and technologies for regulating social processes.

Realization of this goal will require both an analysis of the experience of the organization of life activity of northerners in foreign Arctic states, and conducting field and expeditionary research in the regions of the Russian Arctic and, above all, in the West Siberian North (Yamal-Nenets Autonomous Region) and East Siberian (Chukotka Autonomous Region). Comparative sociological research in the listed areas will allow to figure out the factors that determine the level of human (quality of life, educational opportunities and health) and social potential (consolidation of regional and local communities, trust in power structures and social environment, the level of civil society and ethnic conflict). Will be proposed and justified innovative approaches to the spatial organization and transformation of the territory of circumpolar regions in the process of neo-industrial development, new effective trajectories of socio-economic development, low suitable for permanent residence of the incoming population of the Arctic territories, which are the basis of the traditional economic activity of aboriginal ethnos groups (Karpov, 2015). The scientific novelty of the proposed project will be determined by diagnosing and forecasting the social situation in the Arctic, the role and technologies of regulation of social processes in the upcoming development of this territory are identified, management mechanisms have been developed that will significantly improve the quality of life of the people living here.

The technology of pattern recognition in solving the problems of the surrounding world makes it possible to implement the setting of management tasks at the created economic and sociological test landfills each time when solving management tasks. The bases of such landfills are databases and knowledge, with the help of which the identification, justification and solution of surrounding problems are carried out.

The process of organizing an information-sociological landfill takes place in several stages. Problems are identified by analyzing information from statistical and scientific sources, and the results of sociological research conducted, including copyright ones. Further, the goals within the framework of solving the identified problems are determined; the tasks that need to be solved in order to achieve the goals are concretized (Kuramin, 2011). The necessary initial information in the existing data bank and the collection of additional information, its formalization and input into the data bank are determined. Then an information-sociological training landfill is created, at which carried out the placing of management task. Using the mathematical apparatus of pattern recognition technology (Belonozhko et al., 2016), the computer creates the options of solutions to the tasks and, depending on the surrounding conditions of the functioning process, selects the most effective way to achieve the goals. The acceptance of management decision is automated; it performed by choosing an effective option of solution to the problem.

There may be a situation where none of the options from the database satisfies the accuracy of the goal. Then the expert enters into the process of solving problems, the goals are more concretizing, non-standard ways of solving problems are finding and are entered into the base of alternative options. The expert constantly monitors the creation of a base of alternative solutions for solving managerial tasks, defines goals for solving the identified problems.

RESULTS AND DISCUSSION

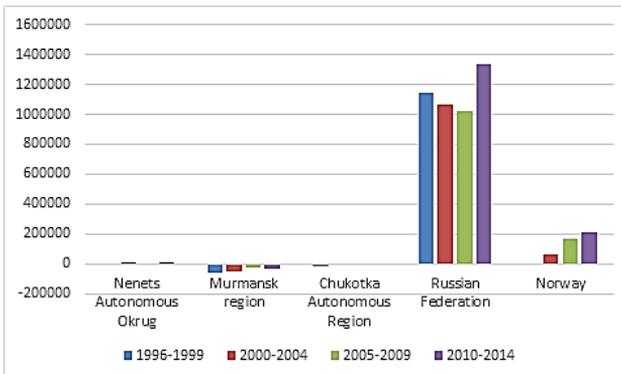
Judging by the human development index calculated annually by the United Nations Development Program, the Yamal-Nenets Autonomous Region has been fairly prosperous over the past two decades (Silin and Tkacheva, 2015; Silin, 2015).

Here, the country's highest GDP and per capita income indicators. Structure of GDP by the kinds of economic activity (% , 2016): mineral extraction 50.2, construction 14.8, wholesale and retail trade, various household services 10.5, transport and communications 8.7, immovable property operations, rent and services 6.4, production and distribution of electricity, gas and water 2.1, public administration and military security, compulsory social security 2.1, other types of activity 5.2. The ratio of enterprises by the kinds of ownership (by the number of organizations, %, 2015): private 79.7, municipal 8.6, public and religious organizations (associations) 5.0, state 3.9, pr. forms of ownership 2.8 (Levashov, 2001; Report about anthropic development... , 2013).

The authors measured also the relative poverty: the inability to maintain a standard of living and to satisfy the needs which are typical for others. We have defined this indicator as the share of the population with average per capita cash incomes below 60% of the median income (Bobkov and Chulyugina, 2012). For the Yamal-Nenets Autonomous Region, it was 25.8 in 2016, i.e. every fourth resident of this rich region is poor.

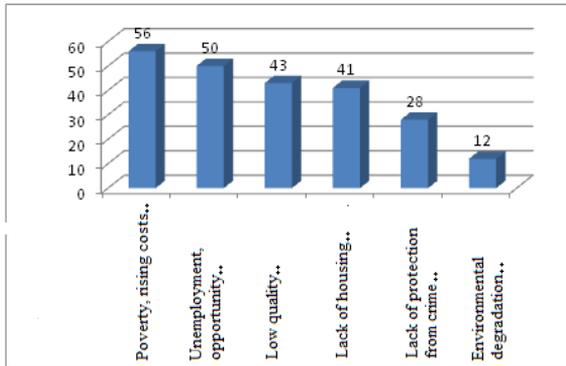
The authors investigated the issues of migration in the Arctic zones of the Russian Federation. It was established that only in the Nenets Autonomous Region the number of inhabitants increases (Novoselov and Silin, 2015). If to compare with other Arctic countries, the largest increase in population due to migration is observed in the Swedish Iain Norbotten: over the past 15 years – more than 15 thousand people. In general, positive migration of the population is also characteristic of Iceland, with the exception of the period 2009-2012, when there was a significant outflow of population from the country. Figure 1 shows the migration in the arctic regions as a whole in Russia in comparison with Norway over a five-year period.

Figure 1: Migration in the arctic regions and countries over five years, people



According to the results of the mass polls we conducted, this problem seems to be the most significant to the northerners. Given that, according to state statistics, the standard of living in the Yamal-Nenets Autonomous Region is much higher, their residents, as it turned out, are concerned about the same problems as other Russians (Figure 2). Wherein, there is also a peculiarity of the Arctic region, which distinguishes it from others: northerners earn money here and spend all, mostly in the south: in recreation areas, in cities where their children study.

Figure 2: The percentage ratio of social problems of the population of Yamal, %



During a mass survey of residents, conducted by us in 2015, self-assessment of the standard of living of northerners was revealed. At the same time, 16.3% of respondents answered that “they have enough for everyday expenses, but buying of a new clothes is already difficult”, 12.1% – “almost the entire salary goes for everyday expenses”, 7% – “there is not enough money for everyday costs”.

So, the reasons for the deterioration of the health of the people who came to the North are the geographical and climatic, socio-psychological, environmental. The combination of disturbances in the geomagnetic field and gravitational anomalies increases the number of exacerbations of cardiovascular diseases (Dorshakova and Karapetyan, 2004).

The northern natural conditions affecting the health of people who came from other regions are quite diverse and have not yet been completely studied. These are not only low temperatures, as well as the absence of a normal daylight hours, leading to seasonal depressions, swings in atmospheric pressure, particular qualities of water, etc.

Global warming is a serious potential threat to natural systems and human security in the Arctic, which is almost 10 times more pronounced in the Polar Regions than on average on the planet. Thawing of frozen rocks can lead to an increase in the number of man-made emergencies due to the collapse of structures and damage to communications (Storey, 2010; Tkacheva, 2010). Sources of emergency situations in the Arctic due to radiation contamination are underwater potentially dangerous objects. Hazards can arise from the flooding, which were happens in the 1950s and 1960s in the Barents and Kara Seas with the radioactive waste, nuclear weapons testing in Novaya Zemlya, the operation of the Kola and Bilibino NPPs, as well as a large number of emergency radioisotope thermoelectric generators used to power the coastal autonomous navigation systems.

During the polls of northerners, we found out the level of their satisfaction with medical services in general, and for individual elements. These figures turned out to be worse than the all-Russian ones identified by sociological centers of the Russian Academy of Sciences.

Table 1 shows the answers to the questionnaire: “What does not suit you in the medical care system in your settlement?” in dynamics. At the same time, there are no obvious trends of changing in the situation over the years.

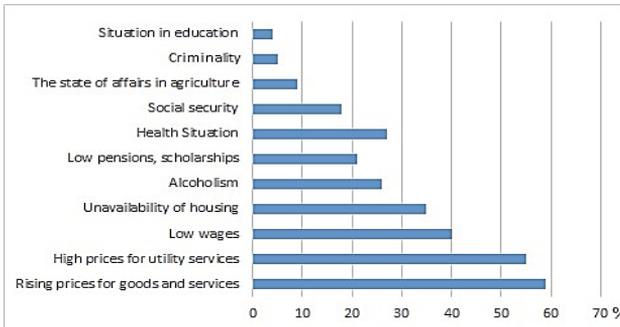
Table 1: Deficiencies in the health care system in settlements of the Yamal-Nenets Autonomous Region, % of respondents (several reasons of dissatisfaction were allowed)

| A problem | Years of the survey holding | | |
|--|-----------------------------|------|------|
| | 2005 | 2010 | 2015 |
| Long queues to the doctor | 57 | 50 | 68 |
| I do not see the effect from the proposed treatment | 27 | 26 | 24 |
| Prescribed medications are not available at the pharmacy or are very expensive | 25 | 24 | 33 |
| The ambulance arrives too late | 6 | 7 | 9 |
| I am satisfied with medical services | 27 | 23 | 23 |
| I don't know | 10 | 12 | 8 |

As our studies have shown, social problems that worry the northerners are closely interrelated (Volosnikova, 2010). This also applies to the last in the list of social problems – the deterioration of the environmental situation in the Arctic territories.

It is known that in the circumpolar region special methods of preserving the natural environment are needed. Wherein, it is necessary to take into account the interaction of the oil and gas cluster with the environment, changes in the hydrosphere as a result of pollution by oil products and drains; lithospheres associated with soil pollution; atmospheres due to emissions of toxic substances, gas combustion products in flares, etc. (Kupershtokh, 2012).

Figure 3: Social and economic problems in the Arctic region



At the same time, the ecological situation, in addition to the impact on the health of the people living here and the quality of their vital activity, largely determines the conditions of the traditional management of aborigines. Our surveys show that more than a third of respondents believe that the predatory attitude of visitors to the nature of the North is the main cause of tension between the northern ethnic groups and the newcomer populations.

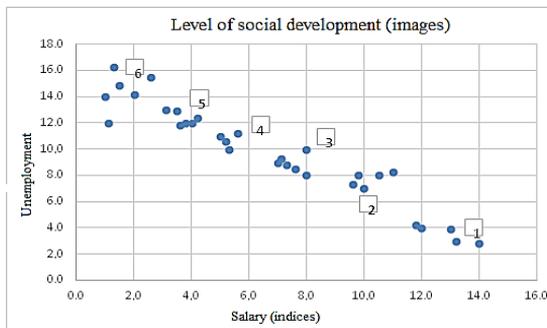
The results obtained in the form of arrays of different criteria and indicators served as the basis for creating information and sociological test sites and modeling the processes of social life in the Arctic in order to increase the efficiency of the development of oil and gas resources in the Arctic zone, which is possible if social well-being of its people is achieved.

There are indicators that characterize the level of social development of the object. We will call such indicators indirect properties. They are selected by experts at the stage of setting the management task in the formation of a training ground. For this purpose, interviews with experts were conducted: theoretical

specialists and practitioners in economics and sociology in order to determine the indicators characterizing the object of research that is sufficiently optimal to reflect the various sides of the object and to gain additional knowledge about the object, which will help formulate the hypothesis of the research. About 30 specialists on these issues were involved in the interview. Respondents could choose a maximum of 4 indicators that most important to them (Figure 3).

Figure 4 shows the dependence of indicators on each other, how in the subspaces of indirect properties, images are formed on a direct property.

Figure 4: Graph of formation of images (of direct property) on a set of (two-dimensional) indirect properties



The first image is characterized by a low meaning of indirect property – of unemployment and a high – of the wages, the sixth – on the contrary: a high meaning of unemployment and a low – wages. It is clear that the first image is the image of a higher level of social development of the Arctic territories than the second, third, etc.

Naturally, in the subspace of two indicators it is very difficult to distinguish objects according to a direct property. Thus, for example, points in the two-dimensional space of the fifth and sixth images of the level of social development practically merge into one image. It would be much easier to do this in the space of three and so on (in our case, six) indirect properties. But it was in a multidimensional space that six images were revealed – the levels of social development of the Arctic territories (Veselin and Levinova, 2012).

Thus, after analyzing the demographic and social situation in the Arctic territory of the Russian Federation, the following key characteristics can be distinguished:

1. *Strengths:*

- Preservation of the cultural population and of the traditional lifestyle of indigenous people
- Large, in comparison with other practical countries, the number of population of the AZ RF, its qualitative composition

2. *Weaknesses:*

- Small number and density of the population of the AZ RF
- Weak development of the social environment, low level and quality of life of the population

3. *Opportunities*

- Solving social problems, improving the quality of life of the population
- Creating new jobs, creating conditions for self-realization of the population

4. *Threats:*

- Population outflow
- Poverty, unemployment, social diseases

We believe that attention should be paid to the physiological, biomedical and environmental aspects of preserving the health of people who came to the Arctic from other regions. This research block should include and the justification of acceptable work and rest (AWR) regimes for look-out personnel.

Despite the existing problems in the Arctic region, the level of material well-being is higher than the average for Russia. If we compare with other Arctic regions of the world, then the highest coefficient of disposable income in 2012 is in the Northwestern territories of Canada (2.7) and in the Nenets Autonomous Region of the Russian Federation (2.68); the smallest is in Greenland (0.88) and Lapland (0.91). Increased risks to the health of the population living in the Arctic zone should at least be compensated by the increased level of material well-being of the population of the northern territories.

Another equally important subject of interdisciplinary scientific study is the social situation. But so far are known only some ethnological studies (Tsymbalistenko and Parshukov, 2015).

The obtained indicators, aggregated into the indices, will form the basis for the formation of information and sociological testing grounds, where in the virtual space it is possible the increasing the level of social development of the Arctic zones, where producing the mastered of oil and gas resources.

CONCLUSION

The increased attention to the Arctic zone was historically determined mainly by the political and economic interests of using its rich resource potential, ensuring national security, and enhancing international political influence. Over the past twenty years, on the background of development of mining and navigation technologies, the accents have only slightly changed: the main focus of attention on the Arctic has changed to the mastering of hydrocarbon reserves and opportunities to increase transportation along the Northern Sea Route. The consequences of "global warming" make the ecologically vulnerable Arctic even more "advantageous" in terms of increasing the availability of resources.

There is a special socio-ethnic lifestyle of the northern peoples. The industrialization of the northern territories had a huge impact on the lives of the indigenous peoples of the North, whose well-being directly depends on the ecological situation in the region, the fishing potential of the territory, as well as the impact on their social lifestyle, customs and traditions. Today, scientists face the institutional problems related to the legal support and regulation of the social and humanitarian aspects of the integrated development of the Arctic in the medium and long term, which concern the small indigenous peoples of the North.

The increased environmental risks of the Arctic zone cause special attention to it by international environmental organizations and the public, however, the priorities of sustainable socio-economic development of the Arctic region in practice are often implemented formally. So far, no clear position has been defined regarding the development strategy of the Arctic; an important question remains open of the social value of the natural resources of the Arctic and their rational use.

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