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Socio-economic Problems of the Yamal-Nenets Autonomous Okrug Development

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Abstract

Empirical data on Yamal-Nenets Autonomous Okrug development is reviewed. The focus is made on critical socio-economic factors contributing to a slowdown of economic growth rates. In particular, these factors include a single-industry nature of the economy, a lack of qualified personnel, an environmental degradation, an inequality of income distribution, a poor transport infrastructure and a significant amount of old and dilapidated housing. All problems are strongly interconnected, so the success in each specific sphere depends on the solutions made for the whole spectrum of questions. We propose to solve these problems by using program-target method of budget planning for management of complex development of the Yamal-Nenets Autonomous Okrug, including the development of social sphere, infrastructure, fuel and energy resources etc.

Keywords: socio-economic development; arctic zone; program-target method; Yamal-Nenets Autonomous Okrug

1. Introduction

The Yamal-Nenets Autonomous Okrug (Yamal) is one of the largest Russian districts. Its area numbers 769.3 thousand sq. km., which is about 4.5% of the Russian Federation surface (see Fig. 1). The entire territory of the Okrug belongs to the Arctic zone (more than half of the territory is above the Polar Circle). Climatic conditions of the Far North significantly impact on people’s vital functions, therefore development of the industrial and social infrastructure complex is essentially important.

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Among the specific Yamal characteristics we may emphasize the following ones:

- an isolation from the major markets and absolutely extreme environmental conditions, i.e. harmful for a permanent residence of a non-native population. Such conditions determine high-valued expenditures for economic activity organizing and the futility of the settlements construction aimed to the permanent residence in the new areas of development in comparison with the mid-latitude regions;
- an extremely high environmental sensitivity regarding any anthropogenic intervention, inflicting, devastating and irreparable damage to the biosphere;
- wide-scale mineral resources located on the mainland and continental-shelf zone;
- a discontinuous development concentrated in the large industrial centers, single-sectoral economic structure, low rates of population density;
- a lack of transport and energy infrastructure required for a further development;
- a high economic activity dependence on fuel, food and essential commodities interregional import.

Yamal-Nenets Autonomous Okrug is a unique district with a high oil and gas industry concentration and a globally significant hydrocarbon resource potential. We can single out some complex problems that have to be solved in the nearest future. All of these problems are strongly interconnected, so the success in each specific sphere depends on the solutions made for the whole spectrum of questions (see Fig. 2). It means that strong dependence between human and physical assets determines efficiency of many socio-economic transformations. For instance, improving an access to energy, transportation, markets of capital or other public goods can expand an access to education and increase its productivity that can warn against further problems. Regardless costliness of early stages of environmental sustainability measures, they will certainly pay off in the long run – nowadays strong ecological policy is a highly efficient method of people health improvement and life expectancy increasing, as well as natural
resources maintenance that can be used for the purposes of economic growth. Problems mentioned are refined below.

Fig. 2. The Yamal-Nenets Autonomous Okrug development problems

2. Economic problems

Unique hydrocarbon entrails historically consolidated the role of Yamal as the largest hydrocarbon supplier both for the domestic, and export markets of Eastern and Western Europe. Annually it’s extracted more than 80% of Russian gas, or a fifth of world production here. Yamal’s share of oil and gas condensate extracting is about 8.0% of the nationwide one. The Autonomous Okrug ranks the second position on the industrial production per capita within Ural Federal District and the third position within the Russian Federation. The base of Yamal’s industry is hydrocarbons production – oil, gas and gas condensate. Mineral extraction accounts for more than 88% of Yamal’s industrial business. Despite the fact that the Yamal has a large farm (the largest herd of reindeer in Russia, half of Russia's whitefish species catch) and tourism potential (northern tundra landscapes, the Polar Urals, the northern exotic, historical and ethnographic heritage of Indigenous peoples of the North), the main attention is focused on the industrial capacity implementation. According to Kobilkin (2011) tourism development is constrained by poor infrastructure, high costs of air travel and hotel accommodation, a lack of qualified personnel, private investment, information and advertising system, which is required for the North tourism promotion.

Herewith, natural resources extraction dominates within Gross Regional Product (GRP). However, its share reduced for the last 7 years from 61,4% in 2005 up to 51,92 in 2012. That’s the opposite to the construction share (see. Table 1), that may be easily explained by some projects realized on the Yamal Peninsula. In particular, some of the transportation projects have the special importance for the Russian Arctic. They are mainline gas pipeline Bovanenkovo-Ukhta-Torzhok, sea port Sabetta, oil pipeline system Zapolarye-Purpe-Samotlor and Surgut-Salekhard highway, especially at Nadym-Salekhard sector. Didenko and Skripnuk (2014) argue that fuel and energy complex is an essential structural component of the economy and is one of the key factors for the support of high quality of life.

However, an enforcement in natural resources extraction sector has been observed since 2012. Primarily it may be explained with the launch of the giant Bovanenkovo gas condensate field: its reserves are estimated at almost 5 trln.m³. As for the other large-scale project, Samburgskoye field was launched in 2012.

Table 1. The structure of Yamal GRP by sector, % of total value added

<table>
<thead>
<tr>
<th>Sector</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural resources extraction</td>
<td>11,4</td>
<td>53,7</td>
<td>47,8</td>
<td>48,3</td>
<td>48,3</td>
<td>51,9</td>
</tr>
<tr>
<td>Trade</td>
<td>1,8</td>
<td>7,4</td>
<td>11,1</td>
<td>9,8</td>
<td>13,8</td>
<td>11,9</td>
</tr>
<tr>
<td>Transportation and connection</td>
<td>1,7</td>
<td>7,3</td>
<td>6,9</td>
<td>7,7</td>
<td>8,8</td>
<td>9,5</td>
</tr>
<tr>
<td>Construction</td>
<td>1,5</td>
<td>15,3</td>
<td>13,5</td>
<td>14,8</td>
<td>11,5</td>
<td>8,5</td>
</tr>
</tbody>
</table>
Yamal’s industrial orientation is not going to change in the nearest future. Thus, according to “Scenery conditions of the Yamal-Nenets Autonomous Okrug economy for 2014-2016” the industry is going to remain the leading sector. Prospectivity of industrial intensification is confirmed by the increased emphasis on oil and gas entrails commissioning. Some of them are Dorogovskoe field, Tychelskoe field, Edeyskoe field (commissioned in 2013), Kharasaveiskoye field and Kruzenshternskoye field.

The problem of monosectoral orientation is stipulated by the fact that Yamal’s economic sustainability is directly dependent on some core enterprises, mostly state-owned. If energy prices fall down, it will inevitably lead to a decline in the economy and difficulties in social policy (as it has already happened). But according to Yanin (2012) there is no any evident interconnection between world prices fluctuations for Russian oil and financial results of Tyumen region organization (Yamal included). This fact may be explained by two factors. At first, the majority of additional revenues of oil companies in case of world prices increase are confiscated by the federal state as mineral taxes and export duties. Secondly, companies, located on the Yamal Peninsula, sell their products at relatively stable internal corporate prices. Transfer pricing leads to an “injustice” tax base narrowing and, therefore, to a slow budget expenditures growth. As the result, we may observe a "withdrawal" of rental costs outside the industrial areas in favor of the other objects of the national interests – major financial centers and regions importing oil and gas products.

Against the background of the entrails poorness in the Nadym-Pur-Taz interfluves, the problem of fuel and energy complex has become more actual. It includes a low infrastructural preparation of new oil and gas areas and a weak progress in geological exploration; an inefficient use of associated petroleum and natural “fat” gas within the extraction of gas condensate; a lack of technologies for commercializing low-pressure gas. Potential of oil and gas production growth is almost exhausted on the currently operating fields. Herewith, in spite of the new condensate and oil fields commissioning, it is not available to eliminate the dependence between world market oil and gas climate and deceleration of the economic growth.

Figure 3 shows fluctuations of Yamal GRP growth rates for the period of 2000-2012. Periods of slowdown are clearly visible. It is necessary to point that the only reason of GRP fall was unfavorable commodity prices dynamics, not a restraint in oil and gas extraction rates. At the same time, they are the oil prices that are highly important: the process of pricing in a number of long-term gas contracts is based on oil and fuel prices.

According to downtrend line, it is expected to be a further decline in GRP growth, indicating Yamal’s economic slowdown in 2014. This forecast does not correspond to both the target (GRP growth in 2012-2014 at the level of 3.5-4.0%) and base (2.8%) variants of the Autonomous Okrug economic development.

The main problem facing Yamal at the current period is unpredictable changes taking place in the global economy, a sharp drop in oil prices in the second half of 2014 and subsequent steps of vertically integrated
companies to cut jobs and wages. In this context, the strategic sustainable development of the Yamal-Nenets Autonomous Okrug needs:

1. An intensive involvement of new oil and gas fields that can compensate the production decline of unique fields in the next five years;
2. A preservation of urban specialization;
3. A territorial organization of production.

By reason of discontinuous development the terrestrial traffic system is disunited. There are two main transportation zones – East and West ones. The base of the West zone is the Ob river and a branch of the Northern Railway that attaches it in Labytnangi. The heart of the entire traffic system is the industrial and transportation hub of Salekhard and Labytnangi joined together. It determines with the handlings of large cargo volumes from water to railway transport and vice versa.

The major transport problem is the absence of railways and highways between two zones. Mainly, this problem impacts on the socio-economic development of the capital Salekhard, which is cut by the river system off the “mainland”.

However, defective Yamal transport infrastructure also constrains an industrial development: huge transportation breaks increases costs and small ways capacity impairs development of minerals extracting industry. Moreover, the Okrug is facing serious challenges in gas, oil and gas condensate transportation system. They include either trunk pipeline shortage or its wear-and-tear and obsolescence.

3. Social problems

An industrial progress of the last decades has contributed to the rapid growth of Yamal’s population. Massive labor migration was the base that made the economic growth available. Herewith it has not been prevented by any of aggressive environmental conditions or weak facilities in new settlements. Natural population growth in the region is formed mainly due to the predominance of a younger age population. Despite the fact that the North conditions are severe for an elderly population, the proportion of retirement age people increased from 4.4% in 2000 to 8.7% in 2013. At the same time, share of “under the working age” population decreased from 26% in 2000 to 22.7% in 2013. Among 36 thousand people, who are the indigenous, almost 40% keep their traditional nomadic lifestyle and all the rest are living in rural areas and experiencing employment problems. Over the past five years, the nomadic population increased by 10%. Yamal-Nenets Autonomous Okrug is one of the top Russian regions, leading by fertility rate in rural areas, and the main natural population growth is provided by high birth rates among the indigenous.

Yamal is one of the regions, where the provision of housing and social services (health, education, care for the elderly, etc.) is below the national average. By reason of discontinuous social infrastructure in municipalities, its quality and capacity are heterogeneous. Residents of oil and gas producing areas are better socially provided, so we may observe a large gap in social services provision between urban and rural areas. Within the lack of qualified personnel, almost all the rural areas are defined with a weak material and technical base of social service infrastructure. Due to the distances rural and tundra settlements population suffer from the lack of medical care and medicines shortage. Many of educational institutions of rural areas are in poor condition. For instance, about one third of schools and kindergarten are located in old buildings, many of them do not even have water and sanitation. Sharp differentiation of qualitative and quantitative social development parameters between urban and rural areas is proved with a significant gap in infant mortality rates: it is about 6 times higher in rural areas (33.53 before the year-children died per 1,000 births), than in urban areas (6.55 before the year-children died per 1,000 births). According to Rudenko (2014) poverty indicators based on housing conditions greatly exceeds income based poverty.

The problem of social security is actual for the non-working population. That is determined by a sharp incomes differentiation (see Table 2). Gini-index is one of the highest in Russia (the first position takes Moscow). Such a high differentiation restricts domestic consumer demand, negatively effecting the production increase and preventing the social sphere development.

There is a multiple gap in the incomes level between oil and gas industry workers and other sectors employees. For example, an average wage of resource-extracting industry workers (109088 rubles) is approximately 5 times higher than the income of the education employees (27690 rubles.). Differences in incomes levels of employed and
unemployed population is equally significant. In addition, there is a strong incomes differentiation between workers of each industry inside. As for the pensioners position, it is worse compared to the other regions. Thus, the purchasing power of pensions appointed in 2011 was about 1.5 times, which was below than the average Russian index equal to 1.57. It has to be noted that Yamal faces an increasing poverty problem (see. Table 2), which is firstly caused by real disposable incomes fall and secondly by the minimum subsistence level rising and problems of inequality conservation.

Table 2. Indicators of socio-economic inequality

<table>
<thead>
<tr>
<th>Incomes shares, %</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Including 20-percents population groups:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st (the least incomes)</td>
<td>4.8</td>
<td>4.6</td>
<td>4.8</td>
<td>4.9</td>
<td>4.8</td>
</tr>
<tr>
<td>2nd</td>
<td>9.4</td>
<td>9.2</td>
<td>9.4</td>
<td>9.5</td>
<td>9.4</td>
</tr>
<tr>
<td>3rd</td>
<td>14.4</td>
<td>14.2</td>
<td>14.5</td>
<td>14.5</td>
<td>14.4</td>
</tr>
<tr>
<td>4th</td>
<td>22.3</td>
<td>22.2</td>
<td>22.4</td>
<td>22.4</td>
<td>22.3</td>
</tr>
<tr>
<td>5th (the highest incomes)</td>
<td>49.1</td>
<td>49.8</td>
<td>48.9</td>
<td>48.7</td>
<td>49.1</td>
</tr>
<tr>
<td>Gini-index</td>
<td>0.437</td>
<td>0.445</td>
<td>0.434</td>
<td>0.432</td>
<td>0.437</td>
</tr>
<tr>
<td>Poverty headcount index, %</td>
<td>6.8</td>
<td>6.2</td>
<td>7.4</td>
<td>7.4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

The problem of personnel shortages is also one of the most intractable social problems for the Okrug. Allocation of the population is characterized by high rates of urbanization. Supply and demand on the labor market in urban and rural areas have structural unbalances. Cities are characterized with a paradigm “many vacancies – lack of labor”, rural areas are defined with an opposite one. An additional feature of the regional labor market is the fact that more than 15% of employees are on a rotation type of work, i.e. they live outside the Yamal Peninsula. An average need in labor claimed by the employers to the placement services twice exceeds the number of unemployed people. Along with the lack of general labor sources, Yamal is experiencing a shortage of qualified professionals.

Workforce aging, as one of the most urgent problems, is observed in the education and health sectors. The Autonomous Okrug is defined with quite high average wages comparably to the other regions. However, the detailed study of the issue may reveal a high sectoral and territorial differentiation. So, an average monthly wage in a public sector amounted 43.4 thousand rubles or only 70% of the regional mean value in 2011. Herewith, an average wage in agriculture reached 50% or only 29.8 thousand rubles.

However, the problem of unemployment has a dual color. On the one hand, Yamal is definitely overcrowded that may be explained as a result of the rapid oil and gas resources development in the Soviet period, that caused a high rate of migration. On the other hand, unemployment among the indigenous population is a specific problem, which requires special approaches. At the same time Yamal is characterized with high nominal indicators of living standards (i.e. income per capita).

The problem of dilapidated housing is of much importance for Yamal residents. The share of such housing amounts to 9.9% or 1005.7 thousand sq.km of the total area. Despite of the administrative efforts, housing becomes obsolete faster than new buildings appear. That is essentially actual for the rural areas and villages, whose ages are often over than the cities’ ones. Most of the buildings in these settlements are wooden-made, so some of the constructions are more than 40 years old. Old and dilapidated housing share in some rural areas exceeds 50%.

Almost all of the Area localities have a poor quality of drinking water. Obsolete sanitation equipment, placement of water intake in unsuitable places, the idle water system are concrete problems negatively affecting health and life expectancy of the population. Problem of wastewater treatment remains also unsettled. Sewer systems in some localities have strong physical and moral deteriorations.

4. Environmental problems

Yamal ecological conditions are characterized as rather tense. With the influence of active industrial development the regional environment has significantly changed under a strong anthropogenic impact. Negative influence was growing to the extent of new fields development, whereby all the environmental parameters were the evidence of a worsening situation.
High water, soil, vegetation pollution and a significant amount of disturbed lands are typical for the territories with high rates of hydrocarbon resources development. A large number of natural habitats and migration routes of animals are already destroyed, the area of reindeer pastures and the number of animals and valuable fish species greatly reduced for the last decades. Yamal annually produces about 800.0 thousand tons of solid waste with a share of a third as a domestic one. Currently, no waste are overworked and sorted. Progressive rates of environmental pollution reinforce destructive impact on Yamal’s ecosystem. Herewith, the current system of the state environmental control division is ineffective.

4. Conclusion

The Strategy of socio-economic development of the Yamal-Nenets Autonomous Okrug until 2020 is the main document defining perspectives and target values of the region for a long-term run. The key method of solving problems defined above is program-target method. It is expected to include specific target indicators among sectors, territories and activities. In turn, the process of the Strategy implementation must consist of long-term departmental target programs, concluding a list of specific actions aimed at achieving on development of industries and socio-economic indicators on a planned value. Methodical approach to an assessment of strategy of the Russia Arctic zone development, based on system of regulation of innovative transformations is developed in Komkov (2014).

The authors believe that Yamal tree of purposes has at least four levels of hierarchy. Each level has its own structure of tasks, which are the sub-goals regarding to the key objectives of the strategy. As a result of decomposition of the key goal it is obtained the tree of objectives, consisting of several levels. On the first level we may see the main object – “Sustaining and improving the quality of life based on the formation and development of a competitive economy in compliance with the relevant environmental requirements”. The objectives of the second level are the tasks decomposing the key goal of the first level, and so on. All of these goals, in conjunction with the key one, are forming the tree of purposes. Any target of the state regulation can be set and achieved only in conjunction with all the other objectives. Within the goals of the second and the third levels it is necessary to create a specific set of activities. The result is a hierarchical structure of the objectives necessary for successful socio-economic development of the Yamal-Nenets Autonomous Okrug. It is essential to realize that the objectives of the lower level of the hierarchy are the subject for top-level goals, and objectives of the upper levels can not be achieved until the objectives of the lower level are not executed.

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References


