

# INNOVATION DEVELOPMENT

UDC 332; 552.578

© Kurikov V.M.

© Bessonova T.N.

## Substantiation of the priorities of the regional oil-and-gas complex development

*The development of the oil and gas extracting regions is mainly determined by evolution of the development of the resources of hydro-carbonic raw material. Consideration of the prospects of the mentioned territorial formations allows maximizing social and economic benefits of the oil and gas extracting. In the article the features of functioning of the base sector of the northern raw region are analyzed. The criteria are offered and the prior directions of the development of the regional oil-and-gas complex are determined.*

*Oil and gas extracting region, regional oil-and-gas complex.*



**Vladimir M.  
KURIKOV**

Doctor of Economics, Professor of the Faculty of Economics,  
Yugorsk State University  
VMKurikov56@mail.ru



**Tatyana N.  
BESSONOVA**

Senior Lecturer at the Faculty of Management,  
Yugorsk State University  
T\_Bessonova@ugrasu.ru

The importance of the oil-and-gas complex in the economy of Russia is hardly can be overestimated. It is the guarantee of the country's power safety. More than half of the currency receipts are provided by the export of hydro-carbonic raw material. And in the long term perspective the importance of the oil-and-gas complex will be kept.

In the regions where the oil extraction is carried out, the regional oil-and-gas complex which consists of enterprises, processes, material resources connected to the search, exploration and oil and gas extraction is formed. The structure of its participants is always very mobile and depends on the dynamics of the extraction conditions, and also on the period

of the oil-and-gas territory’s development. The most important participants of the regional oil-and-gas complex if the federal centre and the subject of the Russian Federation representing the interests of its population, vertically it consists of integrated companies and subjects of the small-scale and medium-scale business in the oil-and-gas sector. Now the main part of oil extraction is carried out in Khanty-Mansiysk and Yamalo-Nenets Autonomous Okrugs. In 2009 the share of these regions was more than 62% of the oil extracted in the Russian Federation, including gas condensate (*tab. 1*).

The basic oil and gas extracting region of the country is Khanty-Mansiysk Autonomous Okrug. For the period of the oil-and-gas resources’ development in the region’s territory it was extracted more than 9.5 billion tons of oil.

In our opinion, Khanty-Mansiysk Autonomous Okrug has entered the initial phase of the falling extraction which is characterized by the reduction of the volumes of hydro-carbonic raw materials’ extraction and complication of the conditions of the deposits’ operation (*tab. 2*).

In the structure of the economy of the region the densities of sector “Minerals’ extraction” is very high and on the basic parameters there is the range from 66% to 93% (*tab. 3*). Such structure of the economy allows receiving more incomes, but complicates the service modernization. On the volume of investments into the fixed capital Khanty-Mansiysk Autonomous Okrug is one of the leaders in the Russian Federation. The region has a high integrated investment rating. However, the basic investment projects are mainly connected to the functioning of the fuel and energy complex.

Table 1. Oil extraction, including gas condensate in the oil-extracting regions

	Index, million tons			
	1980	1990	2000	2009
The Russian Federation	546.8	516.2	323.5	494
Yamal-Nenets Autonomous Okrug	0	1.2	4.5	18.7
Khanty-Mansiysk Autonomous Okrug	304.9	306	180.9	268
	%			
The Russian Federation	100	100	100	100
Yamal-Nenets Autonomous Okrug	0.5	11.5	9.9	8.2
Khanty-Mansiysk Autonomous Okrug	55.8	59.3	55.9	54.3
In total	56.3	70.8	65.8	62.5

Table 2. Parameters of the development of oil deposits of KMAR in 2007 – 2010

Parameters of the development	Units of measurement	2007	2008	2009	2010
Daily average oil extraction	thousand of tons per 24 hours	762.8	758.5	741.3	728.7
Putting into operation new chinks	units	3311	3488	3456	3762
Operating oil fund	thousand chinks	60.4	61.8	62.9	64.5
Non-operating oil fund	thousand chinks	10.6	10.2	10.3	10.1

Table 3. Densities of the sector “Minerals’ extraction” in the economy of the Khanty-Mansiysk Autonomous Okrug, % [1]

Parameters, year	2006	2007	2008	2009
In the structure GRP	72.0	69.6	66.4	-
In industrial production	93	90	87	87
In investments into the fixed capital	68	71	70	72

The investment situation in the region can hardly be considered safe. More than 70% of the investments go to only one sector of the regional economy – to the extraction of minerals; and the development of all other sectors occurs due to the investments from the budget. The tendencies of the region's development allow drawing a conclusion about the continuation of the "oil scenario" when the investment appeal of the alternative (non-raw) branches of the regional facilities is kept at the stably low level.

The budget of Khanty-Mansiysk Autonomous Okrug is characterized by the unstable condition. Besides the world markets of oil, the instability is annually ruled by the changes in distribution of the resource incomes among the center and the regions, by the changes of the nature of the resource taxes. As experts consider, sharp changes of the federal rules bring even more instability into the budget of the region, than fluctuation of the world prices for oil (*fig. 1*).

In 2010 in the total amount of the taxes collected in the territory of the Russian Federation, the share of the Khanty-Mansiysk Autonomous Okrug made 13.7%.

The basic volume of taxes' receipts and other payments is provided with the tax for minerals' extraction (71.9% from the total amount of receipts).

In the structure of the budget of the Khanty-Mansiysk Autonomous Okrug the tax receipts occupy almost 90%. In 2010 the first place in the structure of the tax incomes the tax to the organizations' profit occupied 36.5%. The increase in the price for oil from 60.74 dollars for barrel in 2009 to 78.05 dollars for barrel in 2010 caused the increase in the consolidated budget of the Khanty-Mansiysky Autonomous Okrug for 9241.7 million rubles. The resulted data testify to the steady dependence of the economy Khanty-Mansiysky Autonomous Okrug on the situation in the oil-and-gas sector.

Strengths of the regional oil-and-gas complex is the presence of the globally competitive business-structures – the oil-and-gas companies having high investment potential, powerful and ramified oil-and-gas transporting system. In 2010 the basic volume of the oil recovery in the territory of Khanty-Mansiysky Autonomous Okrug provided 10 vertically integrated oil companies, which extracted 99.5% from the general oil extraction in the region (*fig. 2*).

Figure 1. The dynamics of the oil extraction and incomes of the consolidated budget of the Khanty-Mansiysk Autonomous Okrug for the period 2000 – 2010 [2]

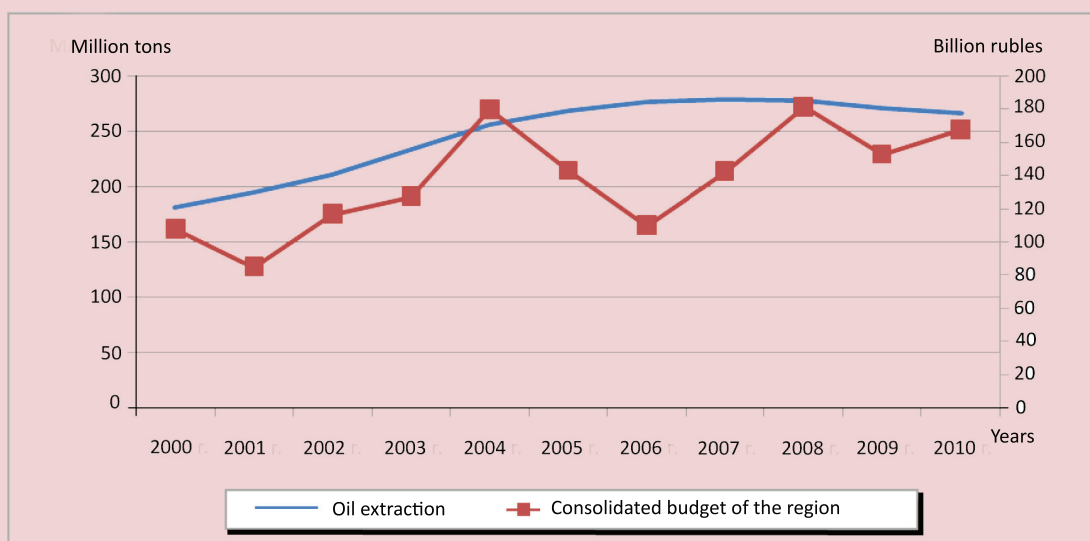
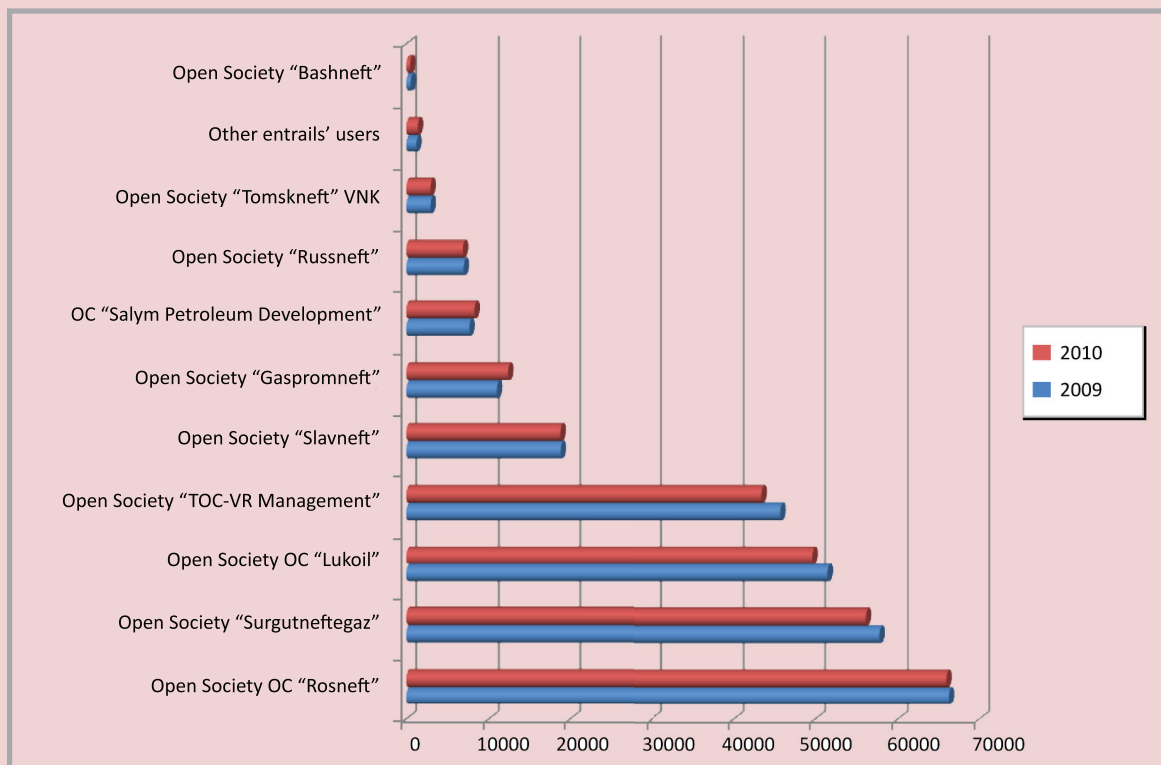


Figure 2. Oil extraction in the cut of the oil companies in the territory of Khanty-Mansiysk Autonomous Okrug, thousand tons [2]



However, only two of them showed positive dynamics in oil extraction: Open Society "Gazprom oil" (+ 1357.4 thousand tons) and oil complex "Salym Petroleum Development" (+ 619.6 thousand tons).

The weak points are connected to the essential deterioration of properties and structures of oil actives, slow rates of modernization of the resource companies and all institutional structures of the oil-and-gas complex. The majority of large and huge oil deposits of the region are at the stage of falling extraction, 70% of the current stocks of oil concern to the category of the hard-extracted ones. Water cut of the working chinks reached 80% [4]. The rates of introduction of innovational technologies in prospecting and extracting works are the slowest.

One of the important parameters of the oil-and-gas complex is the condition of the mineral raw-material base. The maximal volumes of explorative drilling in Khanty-Mansiysk auto-

nomous region of approximately 1500 thousand m were achieved in 1987 – 1988. By 1994 there was their sharp reduction to 350 thousand m. Introduction of the tax to reproduction of the mineral raw-material base allowed to restore geological prospecting of the region and to achieve direct completion of the extraction by stocks. In 2001 the volume of explorative drilling made approximately 1 million m. After cancellation of the given tax and transfer of management over the prospecting works to the level of federal bodies there was a sharp reduction of drilling to 300 – 320 thousand m a year. For providing annual oil recovery at the level of 280 million tons escalating of the volumes of the prospecting works is necessary. According to the Scientific Analytical Center of the rational entrails' exploration named after V.I. Shpilmana, for the achievement of the strategic parameters of raw material's extraction it is necessary to carry out 1.4 million meter drilling.

Scientists of the Center estimate the period of restoration of geological prospecting in 12 years with finishing the amounts of works to 1.5 million m by 2020 [5]. In 2010 at oil extracting 266 million tons the volume of explorative drilling for hydro-carbonic raw material made 300.1 thousand m. It almost 2 times less than the necessary rate for the achievement of the strategic reference points.

The economy of oil and gas extraction region is super-nature-using one [6]. Khanty-Mansiysk Autonomous Okrug takes the second place (after Krasnoyarsk region) on the emissions of the polluting substances into the atmosphere, basically due to burning oil gas. The interest of its recycling in 2010 made 86.4 %. The gas of oil deposits of Khanty-Mansiysk Autonomous Okrug differs by the high contents of heavy hydro-carbons and represents the most valuable raw material for gas chemical production.

The criteria of the priorities' choice of the regional oil-and-gas sector of Khanty-Mansiysk Autonomous Okrug are caused by the urgent problems and tasks of providing oil extraction and gas at the level of 280 million tons.

Following this orientation, to the criteria of the priorities' choice it is necessary to refer the academic basic researches in the sphere of oil extracting. Despite of the increase in volumes of the research works concerning the technologies of the deposits' development, spent by the oil companies; it is not enough fundamental scientific researches. The creation of innovational technologies without studying thin rock structures (from micrometers to nanometers), definitions of hydro-dynamical and power structure of the initial current stocks of oil, studying of interaction of rocks with layers' fluids, modeling of processes of filtration with the use of laws of the molecular-kinetic theory, the use of opportunities of various physical fields for the increase of efficiency of development now is impossible. Modern innovational tech-

nologies assume gas, water- and thermo-gas influence on productive layers, development in the mode of a foamy filtration of fluids, thermal, biological, acoustic, wave methods, surface-active substances, polymers, etc. [7].

The specificity of the mineral raw material base of Khanty-Mansiysk Autonomous Okrug is also determined by the presence of oil fields. The features of these layers are the high saturation of the high-quality oil. Now there is no 100 % effective technique of extraction of hydro-carbons from the given sort of deposits [8]. The development of new technologies of the oil extraction is necessary.

Similar ideas are capital-demanding; however, it is the major directions of stabilization of the oil extraction in the conditions of deterioration of the raw-material base, increase water use layers, reduction of chinks. Accordingly, the priority should become the use of the technologies, allowing to raising the factor of extraction of oil from various kinds of deposits.

Recently the growth of the stocks does not provide steady functioning of the oil complex. It is necessary to raise and to increase the quality of prospecting works. In the Soviet Union the geology was competitive branch not only in the country, but also in the world. The begun backlog before the system crisis of the country in 1990<sup>th</sup> has been aggravated with the further inattention to branch at the state level. In the result, at the further inactivity in geological prospecting the level of the oil recovery will be reduced. Therefore to the prior directions it is necessary to refer innovational development in the sphere of geological prospecting.

The modern mineral raw-material base of hydro-carbonic raw material is submitted by mainly fine and smallest deposits with taken stocks less than 10 million tons and complex conditions of development [9]. Great financial investments and innovational approaches are necessary for the development of such deposits. The small companies are most susceptible to

innovational decisions.

At the same time, working legal certificates, the legislation on taxes, not to the full take into account the specificity of the activity and the features of the small-scale and medium-scale companies of the oil-and-gas complex.

The institutional factors interfering the reduction of costs in the oil or gas extraction are basically connected to imperfection of the taxation and organizational structure of oil-and-gas sector, with insufficient development of the market relations.

Among these factors are:

- ◆ inadequacy of the system of taxation to the modern conditions of functioning of oil-and-gas sector in the region;
- ◆ low level of competition in the oil-and-gas sector that does not create permanent internal stimulus for the costs' reduction;
- ◆ insufficient space for the activity of independent small-scale and medium-scale companies characterized by a high degree of mobility, including in the sphere of innovations;
- ◆ backwardness of the market of the industrial technological services, therefore there are no objective criteria for estimation of the efficiency of the performance of many kinds of works in the oil-and-gas sector (drilling, repair of chinks and equipment, arrangement of deposits and so forth) [10].

Now institutional factors actually render constraining influence on the development of the oil-and-gas sector in such region, as Kyanty-Mansiysk Autonomous Okrug. The prospects of providing favorable dynamics of the oil extraction in the region in many respects are connected to the opportunities of the reduction of all complex of costs in the oil-and-gas sector, the development of new deposits with a rather low qualitative characteristics of stocks, prolongation of life of the old strongly exhausted deposits and deposits, which operation was interrupted by the forced development of the last years. The solution of the mentioned problems demands the creation in the oil-and-gas sector certain institutional environment based

on competition, stimulating role of the state and partner relations between the state (on behalf of the federal center and region) and oil-and-gas business [11].

In view of the stage of the development of hydro-carbonic resources and the quality of the mineral raw-material base of Khanty-Mansiysk Autonomous Okrug we offer the following priorities of the development of the regional oil-and-gas complex within two key directions.

The first direction is connected to the solution of technological problems of the development of small, complex in the geological attitude, deposits.

To the priority of the directions of the development of the regional oil-and-gas sector it is necessary to state:

- the transition to the high industrial technologies of the oil extracting, allowing to commission both new, and nowadays idle chinks in the used deposits at the substantial growth of the oil extraction degree;
- the development of technologies of the oil extraction from the deposits with the subsequent full-scale operation of the mentioned deposits.
- application of methods of the increase in petrol-feedback of layers (layer-smoothing technologies, drilling of horizontal chinks, etc.);
- the use of the maximum ecological technologies at all stages of the deposits' development.

The second direction is connected to the necessity of reforming of organizational structure of the branch for the benefit of the greater share of independent small-scale and medium-scale companies. As the prior we consider the following directions:

- ✓ formation and development of the competitive environment, creation of normal conditions for the activity of independent small-scale and medium-scale companies;
- ✓ development of the "premium segment" (geophysics, inclined drilling);
- ✓ use of the local manpower at the deve-

lopment of the deposits in the region.

The oil-and-gas sector in mono-raw regions is the basic source of the income of the regional budget; it provides employment of the population, carries additional social loadings. The achievement of the regional strategic purposes and maintenance of the social obligations in many respects depends on the efficiency of

functioning of the regional oil-and-gas complex.

Following to offer prior directions of the development of the oil-and-gas sector in Khanty-Mansiysk Autonomous Okrug will allow to stabilize the oil and gas extraction that will positively affect the formation of the regional budget and will promote the improvement of the quality of life of the

population.

### References

1. The Russian statistical year-book – 2010. Moscow: RosStat, 2010.
2. The results of the socio-economic development of Khanty-Mansiysk Autonomous Okrug – Yugra, 2009. Khanty-Mansiysk. 2010.
3. Space, people, economy of Yugra. In: Social and economic transformation of Khanty-Mansiysk Autonomous Okrug. Ed. by S.S. Artobolevsky, O.B. Glezer. Moscow, 2007.
4. Entrails' exploration in Khanty-Mansiysk Autonomous Okrug – Yugra in 2007. Scientific Analytical Center of the rational entrails' exploration named after V.I. Shpilman. Ekaterinburg, 2008.
5. Shpilman A.V. Power strategy in Khanty-Mansiysk Autonomous Okrug – Yugra till 2020. Substantiation of the target parameters of the oil branch. Ways of realization of the oil-and-gas and ore potential of Khanty-Mansiysk Autonomous Okrug – Yugra. Ed. by Karasev V.I., Shpilman A.V., Volkov V.A. Khanty-Mansiysk, 2009. P. 7-21.
6. Bessonov T.N. Ecological and economic estimation of the influence of the oil-and-gas complex in the territory of Khanty-Mansiysk Autonomous Okrug – Yugra. Economy of the region. 2008. No. 3 (15). P. 221-226.
7. Baskaev K. To put a cross on Western Siberia? Oil of Russia. 2011. No. 2. P. 41-43.
8. Shpilman A.V. For 100 years we shall extract more than 20 billion tons of oil. News of Yugra. 2011. No. 181 (18411), November 24. P. 8.
9. Entrails' usage in Khanty-Mansiysk Autonomous Okrug – Yugra in 2007. Scientific Analytical Center of the rational entrails' exploration named after V.I. Shpilman. Yekaterinburg, 2008.
10. Shmat V.V., Sevastyanov A.E. New strategy of the oil-and-gas territories: economy, information, society. Novosibirsk: The Siberian Branch of the Russian Academy of Science, 2006.
11. Yugra: the sight to the future. The review of the social and economic development of Khanty-Mansiysk Autonomous Okrug. Yekaterinburg, 2006.