Problems and Prospects of Sustainable Development of Mining Regions

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Abstract. At times of global financial crisis starting from 2008, nearly all single-industry towns had a different set of problems the main of which was a sharp decline in investment activity, the temporary suspension of investment projects, and from time to time the refusal to implement them. Russia's economy is represented at a significant level by city-forming organizations in single-industry cities. Core enterprises of single-industry cities provide a large part of the raw materials industries, particularly fuel and steel industry. Regional economic development strategy as a system of measures aimed at the realization of long-term objectives of social and economic development of the state, taking into account the contribution of sustainable regions in addressing these challenges is determined by the actual prerequisites and restrictions on their development. Anti-recessionary measures aimed to improve the situation will have to reduce spending on social programs and personnel, to discharge employees, so they caused drastic consequences.

1 Introduction

The objective to develop the social and economic potential of the regions is to develop the leading economy sectors in advance. Particularized employment evolution determines the location of the region in the structure of the world economy and contributes to the maximum realization of regional competitive advantages. In this regard, the leading role is played by regional and branch development that takes into accounts the specifics and peculiarities of each specific federal entity.

The recent years are characterized by the increasing coal significance in the world and in Russia. Confirming we refer to the World Coal Institute experts' views that for the next 25 years coal is sure to be the driving force of the world economy. The demand for carbon will increase at least for 50% [1].

Total probable coal reserves in Russia are around 4 billion tons, i.e. 10% of the world, general balance reserves are estimated at 200 billion tons. The raw material base of the coal industry is considered to be proven reserves in categories A + B + C1 operating, under construction coal mines as well as thoroughly explored land reserve for the new coal-

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mining enterprises construction. According to these standards the coal industry raw material resource accounts 106 billion tons coal reserves [2].

Basic volume (80%) of balance reserves falls on Western and Eastern Siberia areas. Predicted coal production volumes in the country, as well as other energy resources, will vary depending on one or another alternative of socio-economic Russian development, but all embodiments guarantee high rate coal consumption growth compared with other fossil fuel types. In favorable conditions (optimistic and favorable development options) coal production in Russia may increase to 410-445 million tons by 2020. In a smaller extent favorable or in unfavorable external and internal circumstances and environment sequence (moderate and precarious development options) coal production in the country will be less than 310-375 million tons in 2020 [3].

Till 2020, to provide production growth according to a moderate development option, 130 million tons fresh capacities, of which in the Kuznetsk Basin 55 million tons, in the Kansk-Achinsk 40 million tons will be required. In optimistic case the need in new capacities introduction will be 200 million tons, of which in the Kuznetsk Basin – 75 million tons, in the Kansk-Achinsk – 70 million tons, in Far East deposits – up to20 million tons. Prediction entry capacity in the Far East will depend on the hard coking coal Elga deposit absorptive capacity in the Republic of Sakha (Yakutia), as well as the new gas finds development pace in this area.

Future coal-mining development in Russia is defined by the Russian Energy Policy for the period until 2030 [1], which preserves constant purpose and main principles of the state's energy strategy. The Policy implementation provides three phases: 1st – till 2013-2015, the second up to 2020-2022 and of the third – to 2030. In this case 1st stage is connected with the crisis phenomena in economy and energy overcoming, the 2nd – with a general increase in the economy and energy effectiveness, and the third one – with a highly efficient traditional energy resources use [4].

2 Materials and Methods

Speaking about the strategic development indicators in the coal industry [5], it is necessary to allocate the cost-effectiveness of coal mining. It should be mentioned that high targets achievements to increase the production per person employed in the sector and the pace of growth per face output provided by the Policy [6] were possible on the passed in the last decade the coal industry development stage, over which in accessible mining regions with developed infrastructure a number of deposits with favorable mining and geological conditions were put into operations which, with the growth of coal prices on the world market significantly increase the investment attractiveness of the coal. However considering the high proportion (variously estimated 50-70%) of low-tech reserves, i.e. unfavorable conditions for the development stocks, also if we take into account the fact that most attractive explored deposits supplied by transport and infrastructure are currently exploited, one can predict that maintaining high growth rate of these specified parameters will require in the future significant long-term investments directed to develop new districts of Kuzbass, Eastern Siberia and the Kansk-Achinsk basin, it is not possible only with the attracting their own financial reserves of coal companies. Besides the economic feasibility of such investments will be largely determined by price for the coal which, in turn, depends significantly on the other power resources cost [7].

The necessary conditions for the Russian coal industry development are favorable coal market conditions, providing the required level of investment attractiveness in terms of increased costs related both to the reserves development in difficult geological conditions and to significant cost for transportation the share of which in some cases is notably higher than coal production costs. It should be noted that the low investment attractiveness of the

coal industry projects during the crisis causes the owners to give up most development programs production and reduce the cost of production due to the suspension of work on the preparation new areas and horizons inventory, this fact will be the main after crisis limiting factor in the coal mining development [8].

Also in connection with the investment attractiveness decline in coal production, in a number of cities and regions social problems related to the suspension of work and closure of mines and quarries become aggravated. The most acute this problem is for the mining towns and settlements, where the majority of enterprises are engaged in the coal extraction, processing and coal mining industries serving.

In the current market situation, to compete successfully at the international trade of coal mining products, to save (increase) the level of coal export, as well as the viability of some Russian coal mining companies it is to improve the technique and technology of coal production, to reduce production costs and finally increase the technical and economic performance, while ensuring a high level of safety, which in turn depends on the investment attractiveness of the coal mining projects. In this regard, priorities for the coal industry development are: to ensure involvement in testing of high-tech stocks and large-scale modernization of production, which will significantly improve the efficiency of coal mining and bring Russian coal industry to the level of the leading coal-producing countries.

At present, the following main problems in the coal industry can be identified:

- the loss-making coal industry;
- the high level of injuries;
- ecological problems.

In spite of all existing problems, the coal industry in the world today has kept the role of one of the most important basic industries. The value of coal as one of the main types of energy at the turn of the third millennium is caused by the action of the following leading market factors:

- power engineering remains the priority sector of the economy;
- stable and extensive resource base;
- the possibility for coal exporters operate on different markets;
- low cost of coal compared to the cost direct substitutes, coal price stability. Stability and predictability of coal prices provides consumers the convenience of planning costs.

Looking forward to 2020, international experts do not expect a significant reduction in the role of coal as an essential energy.

Moreover, due to the very likely reduce in oil and petrochemicals consumption and reconsideration to the nuclear energy use development of in many countries there may be a slight increase in its share in the energy consumption mix.

At the current level of coal consumption proven reserves will be enough for about 200 years, compared with about 50 years for gas and 30 years for oil [9].

3 Results and Discussion

In recent years, the independence of the regions is increasing; they are becoming responsible for economic development results of the region. Socio-economic status of regions is defined as the objective (macroeconomic conditions, the position of the region in the social division of labor, geographical location), as well as subjective factors, and first of all - the methods of regional management.

Planning for social and economic development of Russian regions is a complex and ongoing process that defines the guidelines for the adoption of any, including tactical, current solutions. The presence of long-term economic development plan allows you to make decisions on the basis of sound and elaborated [10].

Russia's economy is represented at a significant level by city-forming organizations in single-industry cities. The contribution of single-industry towns to the country's GDP is estimated at 20-40%. City-forming organizations provide in physical term 64% oil, 83% gas, 53% coal, 50% of steel products, including 66% of the steel and coke production, 65% of iron which is an important part of the nonferrous metallurgy production. As well as 90% of nickel and 100% alumina, 71% of passenger cars, 84% of the potash fertilizers production and so on. This is truly a unique Russian geographical and economic phenomenon. And unique in turn causes of this phenomenon are natural – the large size of the country.

Core enterprises of single-industry cities provide a large part of the raw materials industries, particularly fuel and steel industry. The products of these industries are dominated in Russia's exports in recent decades, indicating a solid economy problem and the fact that this problem is to be fixed. It is possible to implement by developing innovations, high-tech processing of raw materials, carrying out modernization and diversification. So single-industry cities should be focused on. The possibility of raw materials deep processing as well as production modernization depends precisely on their resources (investment, personnel and infrastructure) and of course local authorities and management of core enterprises motivation plays an important role. The situation on the job market of single-industry cities has also an impact on the socio-political stability in the country. Due to the market tightness core enterprises crisis cause large-scale and long-term local unemployment. Unemployment in single-industry towns has effects not only on these settlements (reduction of the taxable base, subsidized budget, the increase in crime, lumpenization proportion of the population, and others.), but also threatens the social and political stability in the whole country. In crisis periods single-industry towns become extremely dangerous centers of protest storms, of dissatisfaction with local and federal authorities, of the fall in confidence to the social and political institutions of the country. These attitudes have all chances to be caught up, warmed and applied by radical political forces to exacerbate social conflicts [11].

Single-industry towns with high scientific and technical capacity and the city main research and production complexes have a significant impact on the academic and practical science development in Russia and on the innovation system formation in the state. Research and Production Complexes of Science Towns manufacture goods competitive on world markets. It is not accidental that the highest position of Russia on the high-technology world market appears in the areas Science Towns skills – aerospace manufacturing, bioengineering, chemistry, energy production, the nuclear complex, armament. [12] The share of high technology products in the total volume of production in Science Towns is, as a rule, 50%. While the share of innovative goods and services in Russia on average are less than 10%. In Russia there are 75 areas with the highest concentration of intellectual, scientific and technological capabilities, of which 13 settlements are closed cities and the official status of Science Towns have 12 settlements.

At present the most effective management tools of the socio-economic development for the region is the strategic planning and forecasting. Strategic planning can be successfully applied not only in the development of comprehensive programs of social and economic development of the regions, but also in the implementation of anti-crisis measures in the regions and cities in the management of large-scale infrastructure projects and other areas of development in the regions. Creating a favorable environment for economic partners is today one of the major factors of socio-economic development of the region as a whole.

For Russia, the development of single-industry towns is particularly important [13]. Single-industry cities account 14% of all cities in the country and are the home to about 35 million people, i.e. a quarter of the Russian population. It should be noted that a large proportion of single-industry settlements do not have the characteristics of the deflationary,

and the problem of their upgrading (repurposing and diversification) is directly related with a direct link to innovation economics. However, in the recessionary single-industry towns there is a high level of social problems exacerbation. Thus, the development and modernization of single-industry towns are closely coordinated with the optimization of the settlement system and the distribution of the productive power of the country, socio-economic districts and regions development [14].

4 Conclusions

Regional economic development strategy as a system of measures aimed at the realization of long-term objectives of social and economic development of the state, taking into account the contribution of sustainable regions in addressing these challenges is determined by the actual prerequisites and restrictions on their development.

Industrial organizations in the majority of single-industry towns have two significant features. Firstly, they are city-forming, and the city has not only been created at the enterprise, but for a long time was developed by enterprises and funded by enterprises. Secondly, almost all the town-forming enterprises are worn to the extreme and do not have any upgraded technology. During the long period of the single-industry towns, with periodically increased internal and external problems of their functioning, effective ways of work done by the authorities to the imbalance monospecialized settlements, adequate to their complexity and severity have not been established. At times of global financial crisis starting from 2008, nearly all single-industry towns had a different set of problems the main of which was a sharp decline in investment activity, the temporary suspension of investment projects, and from time to time the refusal to implement them. Anti-recessionary measures aimed to improve the situation were to reduce spending on social programs and personnel, to discharge employees, so they caused drastic consequences for the people [15].

However, there is range of negative factors. There is a population decline in single-industry towns with a population since 2010 (by 661 thousand people, or 4.4%), while the number of economically active population dropped by 392 thousand people (or 6.4%). The lag of revenues growth from the average figure is characterized by the fact that as of 01.01.2015 in the whole country the average salary increased by 13.2% (from 18.6 to 21 thousand rubles) and in single-industry towns only 9.3% (from 16.1 to 17.6 thousand rubles) [16]. The decline in business activity in the 2015-2016 is expressed in the number of small and medium business employees fell from 1 million 381 thousand to 1 million 080 thousand people (which amounts 21.8%). Disinvestment in fixed assets reached 31% (from 715 billion rubles in 2009 to 493 billion rubles in 2015). The Ministry of Regional Development of the Russian Federation offers several options for the identification problems in single-industry towns, the common for them is the dominant methodological principle «from the company to the city», providing the following alternatives [17]:

- there are no problems in single-industry towns (or they are insignificant), if the city-forming enterprise operates successfully;
- single-industry towns' problems arise in relation with the occurrence of problems in the city-forming enterprise;
- to solve the problems of single-industry towns, you need to solve the problems of city-forming enterprise.

In accordance with the approach the Russia Ministry of Regional Development, carrying out state policy in the sphere of socio-economic development of the regions of the Russian and municipal formations, has developed several options for strategic decision making in single-industry towns. First, the solution of a problem with the owners of core enterprises to implement their perfect set of social functions on the content of single-

industry towns (decision single-industry towns problem is exacerbated due to the fact that businesses bear the heavy burden of social responsibility to ensure vital functions criterion in the towns, the need to maintain cost-inexpedient levels employment, does not meet the conditions of production and marketing). Secondly, the assistance in the expansion of markets for the city-forming enterprise (implicitly supposed that the more successful in the market is the city-forming enterprise, the better it will be to solve social problems a single-industry town, without incurring problems). Third, the enterprise re-forming (the transition to a competitive product on the assumption that the city-forming enterprise to qualitatively different work profile will remove a single-industry town caused problems). Fourth, the elimination of the main enterprise and relocation of the population of a single-industry town [18].

It is obvious that unresolved problems of urban governance specifics of single-industry type tows remain in the development and negotiation and the proposed policy options remains, as single-industry town management strategy is at the most sophisticated level of socio-economic system and does not coincide with the control strategy of the main enterprise as the subject of market municipal system that brings profit.

So, planning for social and economic development of Russian regions is a complex and ongoing process that defines the guidelines for the adoption of any, including tactical, current solutions. The presence of long-term economic development plan allows you to make decisions on the basis of sound and elaborated.

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