

УДК 332.1:338.1(571)

Siberia and the Russian Far East in the 21st Century: Scenarios of the Future

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Received 07.09.2017, received in revised form 07.11.2017, accepted 14.11.2017

The article presents a study of variants of possible future for Siberia and Russian Far East up until 2050. The authors consider the global trends that are likely to determine the situation of Russia and the Siberian macro-region in the long term. It is shown that the demand for natural resources of Siberia and Russian Far East will be determined by the economic development of Asian countries, the processes of urbanization and the growth of urban “middle class”.

When determining possible scenarios, the authors use a method of conceptual scenario planning that was developed under the framework of foresight technology. Three groups of scenario factors became the basis for determining scenarios: external constant conditions, external variable factors, internal variable factors. Combinations of scenario factors set the field for the possible variants of the future of Siberia and Russian East. The article describes four key scenarios: “Broad international cooperation”, “Exclusive partnership”, “Optimization of the country”, “Retention of territory”. For each of them the authors provide “the image of the future” (including the main features of international cooperation, economic and social development), as well as the quantitative estimation of population and GDP dynamics:

- *“Broad international cooperation” – the population of Russia will increase by 15.7 % from 146.5 million in 2015 to 169.5 million in 2050; Russia’s GDP will grow by 3.4 times – from 3.8 trillion dollars (PPP) in 2015 to 12.8 trillion dollars in 2050.*
- *“Exclusive partnership” – the population of Russia will increase by 8.1 % from 146.5 million in 2015 to 158.4 million in 2050; Russia’s GDP will grow by 2.7 times from 3.8 trillion dollars (PPP) in 2015 to 10.1 trillion dollars in 2050.*
- *“Country optimization” – the population of Russia will decrease by 0.1 % from 146.5 million in 2015 to 146.4 million in 2050; Russia’s GDP will grow by 2.0 times from 3.8 trillion dollars (PPP) in 2015 to 7.4 trillion dollars in 2050.*
- *“Territory retention” – the population of Russia will decrease by 11.9 % from 146.5 million in 2015 to 129.1 million; Russia’s GDP will grow by 1.6 times from 3.8 trillion dollars (PPP) in 2015 to 6.0 trillion dollars in 2050.*

Keywords: Siberia, Russian Far East, economic development, scenarios, global trends.

The study was carried out with the financial support of the Russian Foundation for Basic Research, the Government of the Krasnoyarsk Territory, the Krasnoyarsk Territory Fund for the Support of Scientific and Technical Activities within the framework of the scientific project “Development of long-term scenarios and organizational and economic mechanisms for the development of the Arctic zone of the Krasnoyarsk Territory and assessment of their impact on the socio-economic state and dynamics of the Krasnoyarsk Territory” (project № 16-12-24007).

DOI: 10.17516/1997-1370-0165.

Research area: economics, sociology.

1. Introduction

At present, the future of Siberia and the Far East remains significantly uncertain due to the high level of political and economic turbulence that is characteristic of both the world (Global Trends 2030..., 2012) and Russia.

A range of options for the possible future of Siberia and the Far East in the 21st century is very wide and covers essentially different trajectories of social and economic dynamics of the macroregion. On one side there is “conservation” of the macroregion as a deep periphery of Russia, for the development of which there are not enough financial and human resources; on the other side – high dynamics of development, forced inclusion of the region in the international economic relations, attracting investments, technologies, labour resources.

Development resources are inevitably limited, and regions within the country compete for them – for investments by the state, business and human capital. Competitive advantages of the regions of the European part of Russia are the relatively large consumer markets, a higher “density” of the economy, infrastructures and the population. The European part of the country is home for most major cities – industrial, scientific and educational centres. The competitive advantages of the Siberian and Far Eastern regions are the natural resources: fuel-energy, mineral, water, forest, etc.

The prospects of the European part of the country are related to the possibility of deploying new sectors of the economy on the basis of the 5th and 6th waves of innovation (information and communication technologies, bio- and nanotechnologies, new materials, etc.) with the possibility to enter emerging global markets of new

products and services (Peskov, 2015). However, these markets are captured and held by leading foreign companies – “global players” (IT companies, pharmaceutical companies, manufacturers of electronics and equipment, aviation equipment, etc.). It is likely that a number of Russian companies will be able to occupy and maintain certain niche positions in such markets, but their activities are complicated by low quality of institutions, business environment and public administration in the country. Since the evolution of institutions and the state does not happen quickly, it can be argued that in the next 10-15 years the innovation sectors will not be able to become the main source of the economic growth in Russia.

The prospects of the Siberian and Far Eastern regions are associated with a high demand for raw materials, which in the coming decades will be maintained by “new industrial giants”, primarily the developing countries in Asia (Efimov et al., 2017). The growth of the scale and efficiency of the use of natural resources, the completion of building the “raw material” sector by processing enterprises, high-tech mechanic engineering and services (geological exploration, engineering, equipment maintenance, R&D, etc.) can become a driver for the development of Siberia and the Far East (Efimov, 2014). The resulting financial resources (business and federal budget revenues) can be “converted” into development of the innovation economy in different regions of the country in the medium and long term.

Thus, “reliance on Siberia” can become a principle of the Russia’s overall development strategy – the priority development of the high-tech raw materials economy of Siberia, including sectors of extraction, processing and transportation of natural resources; the creation of a sector of

high-tech mechanic engineering and services to solve the problems of developing Siberia. Further, it is important not only to accumulate a natural resource rent in various “reserve funds”, but also to build mechanisms for “converting” revenues into technological development and diversification of the country’s economy as a whole.

Features of natural potential, problems and prospects for the development of Siberia and the Far East in the situation of post-Soviet Russia have been analyzed in the works of M.K. Bandman and V.Iu. Malov (the results are summarized in the work (Bazarov et al., 2005), L.A. Bezrukov (Bezrukov, 2008), L.A. Bezrukov and Ts.B. Dashpilov (Bezrukov & Dashpilov, 2010), V.M. Zubov and V.L. Inozemtsev (Zubov & Inozemtsev, 2013), V.S. Efimov and A.V. Efimov (Efimov & Efimov, 2013, 2015), A.A. Kokoshin et al. (Kokoshin et al., 2011), I.A. Makarov et al. (Makarov et al., 2016) and others. Some questions of the branch development of Siberia and the Far East are presented in the works of V.A. Kriukov (Kriukov, 2016a; 2016b); V.A. Kriukov and A.N. Tokarev (Kriukov and Tokarev, 2003), V.A. Kriukov et al. (Kriukov et al., 2012, 2014), A.N. Tokarev (Tokarev, 2014, 2015), L.V. Edera et al. (Edera et al., 2015), etc. A series of reports of the Valdai club discuss the prospects for the development of Siberia and the Far East taking into account the changing political and economic situation in the world and in Russia (Karaganov et al., 2012, 2014, 2015, 2016).

The purpose of this article is to explore the possible future of Siberia and the Far East through building a spectrum of long-term conceptual scenarios up until 2050.

2. Methodology and research methods

The method of conceptual scenario planning is one of the main tools in the practice of foresight research (UNIDO Technology Foresight

Manual, 2005), which allows us to identify the key semantic units of the future (concepts). To identify different scenarios, we distinguish the key groups of scenario factors that determine the dynamics of changes in the object under study. Such factors are as follows:

- External constant conditions – global trends – large-scale and stable (with great inertia) global trends that persist in the studied period (growth of population of the Earth, urbanization of countries in Asia, Africa, Latin America, etc.); changes caused by global trends will occur with high probability.

- External variable factors – global changes that can significantly vary during a given period (acceleration or deceleration of the world economy, expansion or curtailment of globalization processes, increase or decrease in demand for natural resources, etc.).

- Internal variable factors – country changes determined by key factors in the country (features of the international and economic policy, increase or decrease in business and population activity, etc.).

Variable factors can take different, sometimes opposite, values; they can accelerate the processes of development of Siberia and the Far East or block them and launch degradation processes.

By a number of characteristics the studied scenarios are alternative, by others – interpenetrating or additional (can form “hybrid” scenarios). At the same time, we can see that certain scenarios (in the form of prerequisites and preparatory actions) are already being implemented; the beginning of the implementation of other scenarios may become possible in more remote periods – 2025-2035.

Each scenario of the future of Siberia and the Far East is described as follows. We give a generalized picture – the image of the future; indicate “drivers” – those factors, under the influence of which the socio-economic

dynamics of the macroregion will rush “into a course” of this scenario. Then we discuss the configuration of variable factors (development factors and degradation factors) that determines this scenario. Strategically valuable courses of development are outlined for the positive scenarios. The quantitative characteristics of scenarios are presented through the values of the main indicators of social and economic development: changes in the population and the volume of produced GRP.

3. Global trends – stable external factors important for the future of Siberia and the Far East

1. **Demographic growth.** The population of the Earth will increase to 9.7 billion people (by 32 %) by 2050 (World Population Prospects, 2015); as a consequence, the volume of consumed resources of all types (mineral resources, energy, food, water) will increase. With the existing technologies, this means that there is a need to develop new deposits, additional areas of forests and arable lands for the economic use. The areas and natural resources of poorly developed regions of the planet, including Siberia and the Russian Far East, will be in demand.

2. **Migration Challenges and Opportunities.** The population growth will occur against the background of contrasts between countries and regions: at one side there are countries with a relatively high standard of living, the population of which is “aging”; on the other side there are poor countries with young population that are with manpower-surplus, unsuccessful in different ways. The result will be an increase in migration flows (labour and settlement migration) – in 2015, the total number of international migrants¹ in the world amounted to 244 million people (in 2010, it was 222 million, in 2000 – 173 million) (United Nations..., 2016, 2017). Most migrants

will migrate from troubled countries and regions to more prosperous ones. In the latter, entire sectors of the economy (construction, communal services, agriculture, etc.) begin to be based on the labour of migrants.

3. **“New citizens” – the middle class.** Industrialization and urbanization of the countries of Asia, Latin America and Africa will lead to hundreds of millions of “new citizens” – an increase in the number of citizens in China from 560 million in 2005 to 950 million in 2025; in Africa, an increase in the number of urban residents by 24 million annually in the period from 2015 to 2045 (Urban World..., 2016); growth of the middle class in developing countries². The growing industrial sectors, the unprecedented construction of cities, the growing urban population of these countries will create a great demand for resources. The continuing development of cities and urban agglomerations will lead to the formation of large urbanized regions (with population of 10-50 million people each) that will become global centres for economic, technological and social development.

4. **Technological revolution.** Its components are industrial and digital revolutions. For Siberia, it is important that the new technological solutions will be found in such sectors as geological exploration, extraction, transportation, processing of natural resources, manufacturing of high technology and high margin products. Technological possibilities of economically expedient development of remote, hard-to-reach regions of the planet, including Siberia and the Arctic Region, will expand.

5. **“Green vector”** – a component of the technological revolution: the transition to technologies that reduce the energy and material intensity of production, as well as the labour costs. In the medium term, the transition to “clean” sources of energy will cause reduction in the consumption of coal and oil, while the

consumption of natural gas and hydropower will be increased. In the long term, we can expect a decrease in demand for minerals, energy, but this will happen primarily in developed countries. The “new industrial giants” of Asia will maintain a high level of demand for natural resources in global markets for decades (Efimov et al., 2017).

6. **Anthropological shift** – a significant increase in the quality of life, mass literacy in developing countries, the transition to mass higher education in developed countries, the growth of human mobility (territorial, professional, social, cultural). A person will not just be a “work force”, but his education and qualification, entrepreneurial and innovative activity, readiness and ability to actively build his own live, to transform the surrounding society will be of key value. Countries and regions will compete for the most developed human capital. In these conditions, Siberia’s macro-region can both rapidly lose human resources and quickly attract and accumulate them depending on the availability or absence of a strategy for attracting human capital.

4. Variable external factors important for the future of Siberia and the Far East

In order to describe external variable factors, a method of alternatives is used, where the extreme alternatives for each factor are indicated.

Dynamics of the global economy development (Global Trends 2030..., 2012)

- continued growth of the global economy; continuation of the processes of globalization – expansion of globally distributed production systems, markets for goods and services, capital and labour markets; involvement of new territories in the world processes of production and consumption;

- stagnation of the world economy; economic and political regionalization and fragmentation; protection of the country’s capital

and labour markets; “freezing” of the processes of development of new territories.

Dynamics of international relations

- rationality of international relations, dissemination of pragmatic orientations and approaches to building interactions between countries, between states and transnational companies (TNCs); expansion of the practice of mutually beneficial cooperation at different levels (governments, companies);

- decrease in rationality of international relations, ousting of pragmatic approaches, growth of confrontation both in certain regions and at the global level; crisis of institutions of global regulation and interaction. Weakening of the potential of international partnership of states and corporations; reduction of investments in joint projects.

The scale and quality of growth of the Russian economy (Rossiia XXI veka..., 2010)

- deep structural and technological modernization of the Russian economy, formation of a more complex and diversified economic structure (including extractive industries, deep processing, sectors of high-tech manufacturing, knowledge economy centres); inclusion in the world innovation process, active establishment of production facilities of the fifth and sixth waves of innovation; liquidation of infrastructure and institutional deficits; high growth rates;

- “seizure” of the Russian economy in the situation of the “raw material donor” for other countries; low growth rates (or the alternation of periods of growth and decline in GDP) when “freezing” the sectoral structure; transformation of infrastructure, institutional and budget deficits into chronic ones; degradation of the production, transport and social infrastructure, especially in the regions of Siberia and the Far East.

The quality of federalism and the system of state and public institutions in Russia

- development of federalism in the model of developed countries, expansion of the sphere of

competence and authority of the subjects of the Russian Federation; transition to a new model of inter-budgetary relations and redistribution of financial resources in favour of regional and municipal budgets; increasing transparency and accountability of the authorities at all levels, reducing corruption expenses; formation of civil society institutions, implementation of the subsidiarity policy and participation of citizens in the development processes;

- “curtailment” of federalism – transition from a federal state to a virtually unitary one: reducing scope of competence and authority of the constituent entities, strengthening powers of the federal authorities; concentration of the powers and resources in the federal centre, “manual management” of the regions; strengthening the state control and directivity at all levels of government.

Integration of Russia into the world economic space/economic, technological autarky of Russia

- the end of the “war of sanctions” and the confrontation of Russia with the developed countries; integration of Russia into the world economic space, continuation of economic cooperation with the countries – leaders of technological development and with separate leading companies; placement of production and service sites of foreign companies in the Russian regions with further localization of production; transfer of technology, production standards, management standards; formation of high-tech clusters, enclaves of the fourth industrial revolution;

- Continuation of Russia’s confrontation with developed countries, expansion of the “war of sanctions”, focus on the economic and technological autarky of the country. Focus of the industrial policy on the import substitution and technological development on the basis of the domestic reserves. Slowdown of technological modernization of production units as a result of narrowing access to modern equipment and

technologies. Critical delay in inclusion in the fourth industrial revolution.

The presence of a mobilizing image of the future/the absence of such an image of the future

- formation and promotion of a positive mobilizing image of the future – expansion of entrepreneurial and social activity of the population; growth of business investment in long-term projects; people’s large-scale “investment” of their own time and activity in the development of the economy and the creation of public goods, in the formation of their own capital of education, health, social ties; growth and improvement of the quality of the country’s human and social capital;

- absence or uncertainty of the image of the future – reduction of business investments in technological renewal and new production facilities; curtailment of people’s activity, “internal emigration” – concentration of activity in personal life, in virtual worlds (the Internet, social networks, computer games); drift of an increasing part of the population to the “gray zone” (informal, unstable employment); decrease in the level of personal investment in the creation of public goods; decrease in quality and general degradation of the country’s human and social capital.

5. The field of possible scenarios of the future of Siberia and the Far East

Based on the results of the analysis, the authors singled out scenarios that, on the one hand, outline a broad horizon of the future – determine the ultimate variants of the possible future; on the other hand, these are the realistic scenarios that have precedents-analogues in the development of other countries reflecting the ideas and models of development discussed in the scientific and expert environment.

Below are the basic statements setting the contours of the “inevitable future”:

1. The key competitive advantages of Siberia and the Far East are: the presence of weakly developed territories; the availability of a wide range of natural resources (hydrocarbons, ores and minerals, water resources, bio-resources, etc.) that are currently insufficiently explored; the possibility of creating transit corridors connecting the leading economic zones of the world – the EU countries and the APR countries.

2. The full-scale development of significant natural resources and the use of the transit potential of Siberia and the Far East will require significant investments (financial investments, technology, manpower, etc.) that can be obtained as a result of international cooperation, partnership between government and business.

3. The speed, scale and effects of the development of Siberia and the Far East will be determined by the activity of the Russian state – the main regulator of political, economic and social processes in the country.

Below are the factors that determine the possibility of implementing one of the alternative variants of the future.

- Very high or low demand for natural resources in the world and regional markets, in particular, the demand for natural resources of Siberia and the Far East.

- Rationalization or reduction of the rationality of international relations – increase or decrease in the potential of international partnership of states and corporations. Such partnership is important for attracting foreign investments, modern technologies, labour resources necessary for the development of Siberia and the Far East.

- The external and internal position of the Russian state: a) the state that is open to international cooperation (integration of the country’s economy into the world economy in strong positions) or a

“closed state”, autarky, the construction of a closed economy and society; b) a “smart state” with respect to management practices, with high quality institutions, low level of corruption, a strategic planning system, etc., or a “simple state” prone to simple decisions, manual management, application of historically outdated management and social organization models and etc.

Table 1 shows which combinations of scenario factors determine the implementation of the main scenarios of the future of Siberia and the Far East.

Figure 1 schematically shows the scenario field, stable (definite) and variable (indefinite) factors, as well as the four possible future scenarios.

Within the framework of the developed scenarios, the main directions of the social and economic development of Siberia and the Far East are as follows³:

- development of the fuel and energy sector that includes the operation of the existing oil, gas and coal fields and the development of the new ones; processing and obtaining highly profitable products of oil, gas and coal chemistry;

- development of the mineral resources sector, including geological exploration, development of deposits of metals, minerals demanded on world markets;

- formation of the territory’s transport frame ensuring its coherence and use of the transit potential of Russia, including: deep modernization of the Trans-Siberian Railway (construction of a high-speed elevated railroad); expansion for transpolar flights and the Northern Sea Route; creation of a system of seaports on the coast of the Far East; construction of a network of high-speed railways and highways that provide “compaction of the economic space” and creation of conditions for economic development, etc.;

- formation of the South Siberian urbanized region (Omsk, Novosibirsk, Kemerovo, Novokuznetsk, Barnaul, Tomsk, Krasnoyarsk, etc.) and the Far Eastern urbanized region

Table 1. Scenarios and scenario factors of the future of Siberia and the Far East

SCENARIOS	SCENARIO FACTORS		
	Demand for natural resources in the world and regional markets	Rationalization of international relations – expansion of international partnership of states and corporations	Position of the Russian state
Broad international cooperation	+ high demand for natural resources	+ developed, multilateral partnership	+ “open”, “smart state”
Exclusive partnership	+ high demand for natural resources	+ – limited partnership	+ – “simple state”
Country optimization	– low demand for natural resources	– weak activity in building partnerships	+ “limited state” in terms of its strategic capabilities
Territory retention	+ – high or low demand for natural resources	– weak activity in building partnerships	– “closed state”

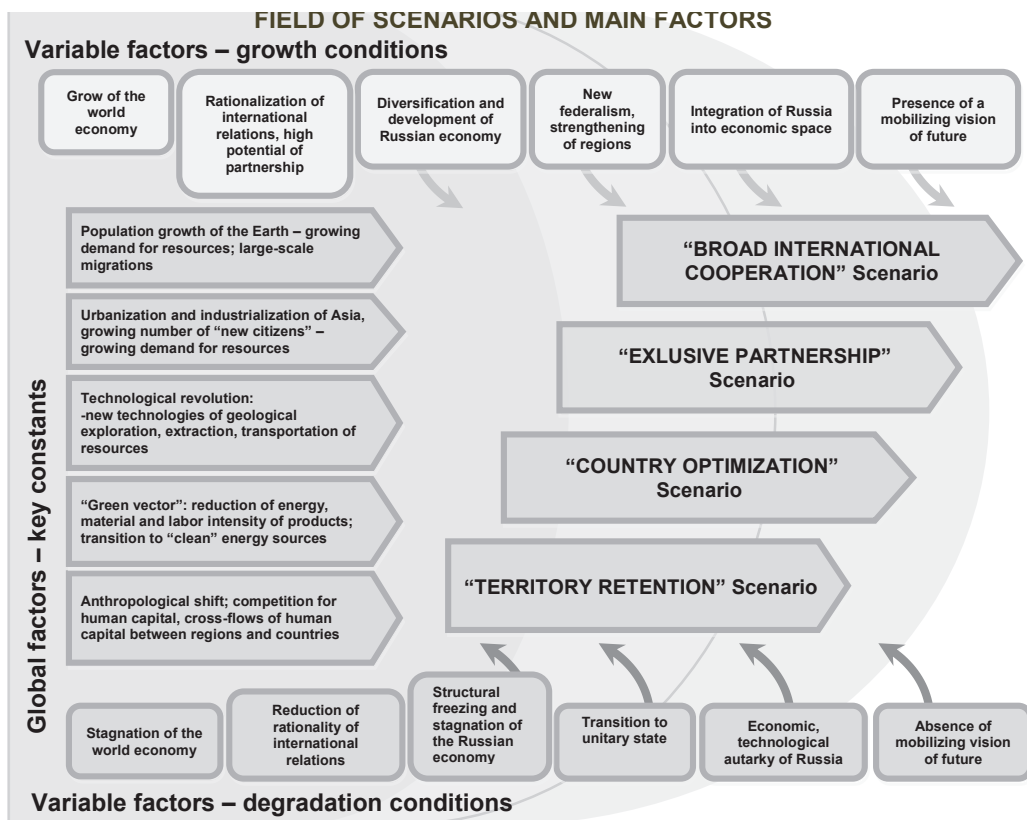


Fig. 1. Field of scenarios of the future of Siberia and the Far East until 2050

(Vladivostok, Khabarovsk, Komsomolsk-on-Amur, etc.) that will concentrate the human capital, industrial clusters, various sectors of the innovative economy, a scientific and educational sector, form a transport frame (high-speed railroad and highway transport), create a developed service sector, ensure high quality of life etc.; development of large cities and urban agglomerations (Irkutsk, Chita, Ulan-Ude, etc.);

- creation of highly productive agro-industrial clusters in the territory of South Siberia and the Far East that provide the population of the Russian Federation with agricultural products and foodstuffs and export to the Asia-Pacific countries;

- development of the Arctic Region and Northern territories, including development of shelf and continental fields of hydrocarbon and other natural resources, creation of a group of aqua-territorial complexes that ensure effective development of natural resources and organization of Russia's presence on the northern borders.

In order to carry out quantitative estimates of the population and the country's GDP growth rates for different scenarios, the authors used the projected values of Rosstat (Rossiiskii statisticheskii ezhegodnik, 2014) and the report

“Forecast of the development of the world's and Russia's energy in 2016” prepared by the Institute of Energy Studies of the Russian Academy of Sciences and the Analytical Centre under the Government of the Russian Federation (Prognoz razvitiia..., 2016).

The estimates show that in different scenarios the GDP growth rates in Russia in 2015-2040 will be as follows: in the “critical scenario” – 1.5 %; in the “probable scenario” – 2.1 %; in the “favourable scenario” – 3.0 %. At the same time, the economic growth rates in Russia will lag behind the world average in all the considered scenarios. In 2040, Russia's purchasing power parity GDP in various scenarios will be \$ 5.3 trillion, \$ 6.2 trillion, \$ 7.6 trillion, respectively.

Table 2 presents forecast estimates of the population and GDP values of Russia in 2030 and 2050 in accordance with the scenarios considered in the article^{4,5}.

6. “Broad international cooperation” scenario

Vision of the future. Siberia and the Far East are dynamically developing on the basis of a wide range of projects in the field of raw

Table 2. The main indicators of scenario variants of the future for the Russian Federation

Scenarios	Population, million people				Annual growth rates, %	
	2015	2030	2050	Growth 2050/2015	2015–2030	2030–2050
Broad international cooperation ⁶	146.5	156.4	169.5	1.157	0.434	0.538
Exclusive partnership		151.8	158.4	1.018	0.101	0.121
Country optimization		147.8	146.4	0.999	0.025	–0.078
Territory retention		142.6	129.1	0.881	–0.028	–0.283
Scenarios	GDP, trillion dollars (PPP)				Annual growth rates, %	
	2015	2030	2050	Growth 2050/2015	2015–2050	
Broad international cooperation ⁷	3.7	6.3	12.8	3.5	3.7	
Exclusive partnership		5.7	10.1	2.8	3.0	
Country optimization		4.9	7.4	2.0	2.1	
Territory retention		4.5	6.0	1.7	1.5	

materials (hydrocarbons, metals, wood) and their processing, energy, agro-industrial sector, construction of infrastructure facilities. Large-scale investments and new technologies are needed; they are available through attracting partners from a large number of foreign countries (“broad international cooperation”).

Many deposits that will be involved in a new wave of development are in difficult geological and climatic conditions and removed from the currently available roads (waterways, railways and roads). Financial and technological resources of the Russian state and Russian companies are not sufficient for development of deposits and construction of infrastructures in such conditions. This necessitates a broad international cooperation in the development of new fields by Russian and foreign companies. Its formats must meet a number of conditions: 1) profitability of projects for investors (Russian and foreign); 2) a large volume of revenues from the extraction of resources into the federal budget; 3) winnings for the Siberian and Far Eastern regions – revenue receipts to regional budgets, job creation, increased transport connectivity of territories, emergence of significant infrastructure facilities as a basis for the further development of regions.

Since the extraction and processing of raw materials demand equipment on a large scale, a number of mechanical engineering sectors are developing in the cities of Siberia and the Far East: production of drilling, mining, construction and transport machines and special equipment, machinery and equipment for forestry and agro-industrial sectors. It is possible due to the attraction of companies – the world leaders in the production of the respective equipment that locate their production and service facilities in the region.

As an add-on, “smart businesses” are deployed in the field of exploration and modelling of deposits, engineering, digital design, software

development for the organization of production and management of complex types of machinery and equipment.

Expansion of production in the basic sectors (raw materials extraction, processing, transportation, mechanical engineering) creates an influx of money into the urban economy (trade, services, construction, etc.). The incomes of the population are growing not only in the basic sectors, but also in the region as a whole.

New jobs with a competitive level of wages attract labour migrants from other regions of Russia and other countries – the population of the region is growing.

Target indicators of the “Broad international cooperation” scenario (2050):

- The population of Russia will increase by 15.7 % from 146.5 million people in 2015 to 169.5 million people in 2050, provided that 11.1 million people will be additionally attracted migrants from other countries;
- Russia’s GDP will grow by 3.4 times – from 3.8 trillion dollars (PPP) in 2015 to 12.8 trillion dollars (PPP) in 2050.

7. “Exclusive partnership” scenario

Vision of the future. In this scenario, in developing Siberia and the Far East, Russia stakes on cooperation with a narrow range of partner countries or even with the “exclusive partner” – China. It is the Chinese companies and the state that will be the sources of investments, technologies, labour resources; it is China that will become the main consumer of the extracted resources and products of their processing. China’s interests will also be realized in terms of food production on the lands of the Russian Far East, the use of the transport highways of the Far East to link north-eastern China with its other regions. It is possible that China will use the Siberian and Far Eastern regions to realize its intention to rid its territory of the dirtiest

industries – to move them to other countries. If this scenario is implemented, China will become Russia's exclusive partner, and other Asian countries (Japan, South Korea, India, etc.) will participate in the “new wave” of development of the Siberian macroregion to a much lesser degree.

As in the previous scenario, a wide range of projects in the field of extraction and processing of raw materials, energy, agro-industrial sector and construction of infrastructure facilities are likely to be implemented. At the same time, Chinese investors will rather initiate the deployment of the most energy- and water-intensive industries, as well as ecologically hazardous ones in the Siberian regions. Their interest in the deployment of machinery and equipment production needed for the extractive, forestry and agricultural sectors will be minimal (these production facilities will be located on the territory of China itself).

Still, the growth of production in the sectors of raw material extraction, its primary processing and transportation will “revive” the economy of the Siberian and Far Eastern regions and will become the basis for the growth of the urban economy (trade, services, construction, social sector). There will be new jobs, incomes of the population will grow and the migration inflow from other countries will increase.

This scenario assumes the development of the Siberian macroregion due to the inflow of external resources, but it will create a very narrow “corridor” of opportunities for further development in the long term. With a high degree of certainty, as a partner-monopolist, China will seek the most favourable terms for investment and trade. In the long term, the scenario will lead to degradation of the Siberian macroregion, which will be manifested: 1) in the form of assigning the status of the “raw material donor” to the territory and the deteriorating environmental situation; 2) in the formation of the situation of a “migratory pipe”, which is characterized by

a high level of outflow of the educated, active population (primarily young people) and its replacement by relatively poorly educated and low-skilled migrants from Central Asia, China and the poorest Southeast Asian countries. It is possible to maintain and even increase the total population of Siberia and the Far East, but it will be accompanied by a change in the identity and socio-cultural orientations of the population and the decline in the quality of human capital.

Targets for the “Exclusive partnership” scenario (2050):

- the population of Russia will increase by 8.1 % from 146.5 million people in 2015 to 158.4 million people in 2050;
- Russia's GDP will grow by 2.7 times – from 3.8 trillion dollars (PPP) in 2015 to 10.1 trillion dollars in 2050.

8. “Country optimization”

Vision of the future. There will be “optimization” of the distribution of economic activity, investment and population in Russia. The federal policy will encourage the concentration of economic activity and investments in the regions of the European part of the country with high density of the economy and the developed industrial and social infrastructure, where the benefit from investments and human capital is greatest in the short and medium term.

Gradually, the differences between the centre and the periphery, the developing regions and the depressive ones across the country in general and in the Siberian macroregion in particular will increase; the economic space will shrink.

The optimization policy will also be applied to the regions of Siberia and the Far East – to the territorial distribution of the economy and the population. A small number of large projects for the development of deposits, processing of raw materials, construction or reconstruction

of transport routes, power stations, seaports, etc. will receive federal support. Investments in production and infrastructure projects will be selective. We can expect some revival of the economy in the cities and towns closest to the location of these projects. In the rest of the macroregion space, there will be the decline in economic activity, the curtailment of social infrastructure and the cross-flow of human capital into more promising regions and cities in the European part of the country.

The opportunities for Russia's socio-economic development in the wake of the demand for natural resources from the new industrial economies of Asia will be used in a partial and unilateral way – in the form of investing funds received from the sale of Siberian natural resources in the most developed regions of the European part of the country. At the same time, localization of economic activity in separate sites (districts) will take place in the Trans-Uralian space, and all other territories will become a deep economic periphery.

The final indicators for the “Optimization of country” scenario (2050):

- the population of Russia will decrease by 0.1 % from 146.5 million people in 2015 to 146.4 million people in 2050;
- Russia's GDP will grow by 2.0 times – from 3.8 trillion dollars (PPP) in 2015 to 7.4 trillion dollars (PPP) in 2050.

9. “Territory retention” scenario

Vision of the future. The activity of the Russian state will be aimed at “retaining” a huge Trans-Uralian territory in the military-political, socio-economic and cultural terms. In the long term, the difference in the economic and demographic potential of the border territories of Siberia and the Russian Far East and the economic leaders of Asia (China, Japan, South Korea) will strengthen. This can lead to “mutual

diffusion” of the economies of these countries and the economies of the Siberian and Far Eastern regions. Demographic expansion, first of all from China, can also significantly increase.

To retain the eastern territories, the point and, as a rule, “borderline” projects will be implemented – industrial, infrastructure projects, including a military border infrastructure along the Siberian macroregion, on the Arctic and Far Eastern coasts. This will require considerable financial resources and, in fact, will make the eastern territories economically unprofitable.

The vision of the future Siberian macroregion will remain uncertain if there are no investment resources and a political will necessary for the development of its internal space, a willingness to change the rules of the economic game in the country so that the activities in the territory of Siberia and the Far East become attractive and beneficial for many Russian and foreign subjects.

Not only “strengthening the perimeter of the state”, but also the existing deficit of strategizing and activity aimed at diversification of the Siberian and Far Eastern regions of the country will remain. Large companies (mining, energy, metallurgical, transport) will remain significant players that are interested in continuing the exploitation of resources of the macroregion while minimizing costs, paying taxes, with minimal investments in technological modernization or reducing infrastructure deficits.

In the course of a decade or decades, the existing trends will persist: 1) backlog of the Siberian and Far Eastern regions in the economic, technological and innovative development from the regions of the European part of Russia and the Ural region, shifting the “centre of gravity” of investments to the western regions of the country; 2) depletion of exploited deposits, decrease in the volume of explored reserves of minerals, low level of activity of companies aimed at prospecting and exploring

new deposits; development of particularly large and relatively accessible deposits; in the long term – decreasing the absolute GRP of the Siberian macroregion as a result of reduction in the volume of economic activity, even in the extractive industry; 3) lowering the level of investments in the sectors of extraction and processing of raw materials, in the infrastructure sectors (energy, transport, social infrastructure); 4) reducing the volumes of regional budgets and their spending level; 5) decline in the quality of human capital due to the migration outflow of the population, especially the most educated and skilled part, its partial replacement by relatively low-skilled migrants, mainly from the countries of Central Asia.

The remaining population will be redistributed across the territory: the population of villages, settlements and small towns will be pulled into the largest urban centres. The acute shortage of labour resources will cause the curtailment of the agrarian and timber industry sectors. The population will perceive the region as a springboard left by Russia – retention of the territory does not mean keeping the population. The “outflow” of activity will create a positive feedback: the region that, from the point of view of residents and entrepreneurs, has no

perspective cannot retain even the current level of functioning for a long time; in the long run, there is a risk of transition to the trajectory of accelerated degradation.

A situation of several of the largest urban agglomerations in the south of Siberia and the cities of the Pacific coast will be relatively successful. Their economy is quite diversified (includes industry, transport and communications, construction, trade, services, social sector, etc.), has a margin of stability, and population loss is compensated by the influx of migrants from the villages and small towns of the region. The cities of the Pacific coast will develop mainly due to the “inflows” from the federal centre that will treat them as the “Pacific outpost” of the country. For many other territories, this scenario means a gradual decay of the economic activity and depopulation to the extent of the formation of large-scale “anthropo-deserts”.

The final indicators for the “Retention of territory” scenario (2050):

- the population of Russia will decrease by 11.9 % from 146.5 million people in 2015 to 129.1 million people;
- Russia’s GDP will grow by 1.6 times – from 3.8 trillion dollars (PPP) in 2015 to 6.0 trillion dollars (PPP).

¹ I.e. people living outside the country they were born in.

² The total number of representatives of the middle class in the world will exceed 5 billion people in 2030 (currently the number of the middle class is 2 billion). See: Global Strategic Trends (2014), 9.

³ These aspects of scenarios are discussed in more details in the report “Siberia and the Far East in the 21st Century” (Efimov et al., 2017).

⁴ When calculating the population projection, the Rosstat data were used according to three variants of population projections in the Russian Federation until 2050 (Rossiiskii statisticheskii ezhegodnik, 2014).

⁵ When calculating the GDP projection, the data was used for various scenarios presented in the report of the Analytical Center under the Government of the Russian Federation (Prognoz razvitiia energetiki..., 2016). The calculations in the report were carried out at the rate of PPP in 2014.

⁶ The forecast for this scenario is based on a “high” version of the forecast for the Russian Federation (Prognoz razvitiia energetiki..., 2016) extrapolated to the situation of subjects of the federation that will enter the urbanized regions, taking into account the growing share of the urban population. If this scenario is implemented, an additional migration inflow of population to Russia from other countries may reach 5.6 million people by 2030, 11.1 million people by 2050.

⁷ The GDP calculation for this forecast was made for an annual growth rate of 3.7 %, which is 0.3 percentage points higher than the world average growth rate in this period.

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Сибирь и Дальний Восток в XXI в.: сценарные варианты будущего

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В статье представлено исследование возможных вариантов будущего Сибири и Дальнего Востока в горизонте до 2050 г. Приведены глобальные тренды, которые с большой вероятностью будут определять ситуацию России и макрорегиона Сибирь в долгосрочной перспективе. Показано, что спрос на природные ресурсы Сибири и Дальнего Востока будет определяться экономическим ростом стран Азии, процессами урбанизации и формированием «среднего класса» городских жителей.

При определении возможных сценариев используется метод концептуального сценарирования, разработанный в рамках технологии форсайта. Основой определения сценариев послужили три группы сценарных факторов: внешние константные условия, внешние вариативные факторы, внутренние вариативные факторы. Различные сочетания сценарных факторов задают пространство возможных вариантов будущего Сибири и Дальнего Востока. Приведено описание четырех ключевых сценариев: «Широкое международное сотрудничество», «Эксклюзивное партнерство», «Оптимизация страны», «Удержание территории». Для каждого из них представлены: «образ будущего», (включая основные особенности международного сотрудничества, экономического и социального развития); количественные расчеты численности населения и динамики ВВП:

- «Широкое международное сотрудничество» – население России увеличится на 15,7 % с 146,5 млн чел. в 2015 г. до 169,5 млн чел. в 2050 г.; ВВП России вырастет в 3,4 раза – с 3,8 трлн долл. (ППС) в 2015 г. до 12,8 трлн долл. (ППС) в 2050 г.

- «Эксклюзивное партнерство» – население России увеличится на 8,1 % с 146,5 млн чел. в 2015 г. до 158,4 млн чел. в 2050 г.; ВВП России вырастет в 2,7 раза – с 3,8 трлн долл. (ППС) в 2015 г. до 10,1 трлн долл. в 2050 г.

- «Оптимизация страны» – население России сократится на 0,1 % с 146,5 млн чел. в 2015 г. до 146,4 млн чел. в 2050 г.; ВВП России вырастет в 2,0 раза – с 3,8 трлн долл. (ППС) в 2015 г. до 7,4 трлн долл. (ППС) в 2050 г.

- «Удержание территории» – население России сократится на 11,9 % с 146,5 млн чел. в 2015 г. до 129,1 млн чел.; ВВП России вырастет в 1,6 раза – с 3,8 трлн долл. (ППС) в 2015 г. до 6,0 трлн долл. (ППС).

Ключевые слова: Сибирь, Дальний Восток, экономическое развитие, сценарии, глобальные тренды.

Исследование выполнено при финансовой поддержке Российского фонда фундаментальных исследований, Правительства Красноярского края, Красноярского краевого фонда поддержки научной и научно-технической деятельности в рамках научного проекта «Разработка долго-

срочных сценариев и организационно-экономических механизмов развития Арктической зоны Красноярского края и оценка их влияния на социально-экономическое состояние и динамику Красноярского края» (проект № 16-12-24007).

Научная специальность: 08.00.00 – экономические науки, 22.00.00 – социологические науки.
