The natural-resource basis of development of "the river gates" of the Asian Russia

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Abstract. The article considers one of the largest territorial entities of the Russian Federation – the Amur Region which occupies border location at the south-east of the Asian part of the country. Lying in the geospace of the transport corridors, the region is so called "the river gates" for the Asian Russia and for all countries of the North-Eastern Asia. The territory under study belongs to the most economically developed regions of the Far East that is first of all, stipulated by the specific character of its economic-geographical location, the unique character of natural and climatic conditions, large areas of plain territories with dominating meadow-chernozemic land, very high agricultural development against the general background of agricultural structure of the land-utilization of the Far Eastern economic district. The relevance of the research is indicated by the growth of the regional investment prospects and also by the search of the first choice directions of the perspective use of the natural-resource potential of the Amur Region in the context of the geographical proximity to the most dynamically developing part of the world – countries of the Asian-Pacific region. The regional factor variety of the Amur Region development highlighted by the author – allows to consider it as a powerful and real reserve of the build-up of the food, fuel and energy, mineral-extractive basis of the development not only of the Russian Far East but countries of the Asian Pacific Region in whole.

1. Introduction

The current processes of the transformation of the international relations system and border (transboundary) cooperation are accompanied by the consolidation of the economic positions and accelerating development of the Far Eastern region targeting its development as a basis territory with ensuing consequences – the extraction and part time processing of resources that are in high demand in the countries of the Eastern and South-Eastern Asia [1]. The incentive for such interests are high rates of the Asian-Pacific Region (APR) development, and integration of the Far Eastern Federal District (FED) into the North-Eastern Asia is very perspective for Russia as "a transport-logistic corridor" of the Russian products promotion to the most perspective world markets, one of which is Asian Pacific [2]. The administrative-territorial entities of the Far East varying in the degree of the development in view of their geopolitical location and task-oriented regional policy of the Russian Federation are natural guides of Russia's joining APR [3]. For Far Eastern regions such border cooperation is very important in the context of the compensation of business ties weakening with the regions of European Russia, Ural, Western and Eastern Siberia because of the sharp increase of transport rates.

One of the largest territorial entities of the Russian Federation which occupies border position with the longest frontier along the Amur River (almost 1250 km) is the Amur Region [4]. The territory of

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the region has very important geopolitical location in the south-east of Asian part of the country, lying in the geospace of the transport corridors and is the region of so called “the river gates” for the Asian Russia and for all countries of the North-Eastern Asia. The backbone natural center piece of this cross border territory is the Amur River with its feeders [5]. The territory under study belongs to the most economically developed regions of the Far East that is first of all, stipulated by the specific character of its economic-geographical location, the unique character of natural and climatic conditions, [6] large areas of plain territories with dominating meadow-chernozemic land, very high agricultural development against the general background of agricultural structure of the land-utilization of the Far Eastern economic district. [7]

The relevance of the research is indicated by the growth of the regional investment prospects and also by the search of the first choice directions of the perspective use of the natural-resource potential of the Amur Region in the context of the geographical proximity to the most dynamically developing part of the world – countries of the Asian-Pacific region.

2. Models and Methods

The methodological procedures of the research are complex approach in conjunction with the monographic, structural-functional and organizational-economic analysis which supposes the use of the comparative-geographic factor and other general scientific methods. The case study was made on the basis of the analysis of the prevailing scientific-practical beliefs of different skilled specialists including the natural-resource potential assessment and the study of the territorial organization of agriculture.

3. Result and Discussion

Considering the Amur region as the contact zone with neighboring economies of the North-Eastern Asia we can distinguish some regional forming factors that are, in our opinion, one of the most important forces of organizing and reconstruction of cross border geo space. A spatial inequality which is revealed through the cooperation of background regional forming factors should be considered the objective condition of the cross border regional formation display.

3.1. Physio-geographical factor

The main factor transforming natural and natural-resource systems in the Russian and Chinese parts of the Amur River basin is *physio-geographical*. Hilly-flat structure of the Amur Region current terrain and sublatitudinal location of the main mountain groups determined by the factors of the geological and geomorphic structure create conditions for the natural diversity and unique climatic conditions [8]. The peculiarities of the physio-geographical location, vast length of the territory determine great spatiotemporal fluidity of climatic variables with the significant rapid change of season temperatures and reduced number of the annual precipitation cause inequality in settlement and land use [9].

The south and central parts of the region are settled more thickly, here the main business activity is concentrated, and they carry the main anthropogenic load in combination with industrial and agricultural use of land. On this territory fuel-energy, production, transport and ameliorative infrastructure, multiple purpose lands of agro ecological potential are concentrated. The north and northern-western parts of the region are areas of new development that are rich in mineral-extractive, forest and hunting resources in combination with mining and wood and paper use of land. A large part of this territory presents areas for traditional management of nature and resettlement of Indigenous Minorities of the Far East. At the same time weak sustainability of natural complexes to anthropogenic influence is observed here which is stipulated by topographic features and climate patterns in the north of the region. Due to the remoteness of the region from the European regions and industrial centers (7-8 thousand kilometers) there is a curb on resources development, the use of new low waste and minimum impact technologies which creates transport problems and high expenses on transport traffic that has a great influence on the competitiveness of the production and natural resources.

3.2. Demographic factor

As for labor force we can say that as a result of a high migration mobility the region has a tendency to their reduction and correspondingly to their deficit. The region ranks the fourth among regions of the FED and 67th in Russia in the number of inhabitants (805.7 thousand people as of January, 1, 2016), in the density of population (2.2 person per 1 km^2) – it ranks 4 th and 78 th correspondingly. According to the regional statistics the level of employment is 54.5% in the region against 60.3% in the Russian Federation and 60.9% in the Far Eastern district. The contemporary state of the number of inhabitants causes, on the one hand, concern from the position of the economic life of the region – the destruction of the mature labor potential and lack of labor resource, [3] on the other – from the position of geostrategic and geopolitical consequences [10].

3.3. The factor of natural resource use

Recently the Amur Region has been seen as the region of particular strategic and economic interests as the natural-economic state of the region is represented by a large variety of resources – energy, mineral, forest, land, water, biological, recreational and ecological.

Table 1. The data of natural-resource potential of the Amur Region.

Data	Volume
Mineral raw material stocks, bln. dollars	400
Land resources, mln. ha	3.5
including: the area of farm land	1.5
Stocks of iron-ore deposits, mln. tons	388
Stocks of titanium-magnesium ores, mln. tons	271
Stocks of agronomical ore and bioorganics, mln. tons	600
Stocks of coal, bln. tons	70
The total capacity of energy generating capacities, Mega Watts	3722
The total stock of standing timber, mln.cu.m	1900
The length of general purpose railroads, km.	3222

They create foundation premises of business activities and depending on the number of natural characteristics and peculiarities of operational factors (management, economy, technologies etc.) are suppliers of natural resources to Russian and even world markets. It is especially important from the perspective of cooperation between the government and business not only in projects of development but also effective use of mineral resources of the region. Their implementation allows the region to join more actively the common economic space of Russia, to broaden relations with APR countries and other border territories, to improve the efficiency of the use of the rich natural-resource potential. First of all, gold reserves, reserves of titanium raw materials necessary for the creation of own base of iron industry, energy generating capacities.

One of the most important peculiarities of the region is the unique agricultural potential. The leading industries of agriculture are soya cultivating, beef and dairy cattle breeding, chicken farming, beekeeping that form agrifood market, food supply and economic security, labor and settlement potential of rural area. The region accounts for 60% of crop land of the Russian Far East. The area of crop land is 38% of all land area in the region, 3.5 mln. ha are in the agricultural use as of 01.01.2016. There is 2.6 hectare of agricultural lands calculated per a person including 1.2 hectare of arable land [5]. In the structure of land under cultivation 76.4 % is accounted for soya, 16 % for grain crops, 5.5% for forage crops, the rest of the area is a cropland with gourds, potatoes and industrial crops.

It is necessary to note that in the FED the region accounts for approximately: 59% of grain production, 32 % of meat, 28% of milk, 25% of potato, 17% of eggs, and 16% of vegetables. So in 2016 the proportion of the Amur Region in the whole share of the FED agricultural production was 28.6% or 423.8 mln.rub (2008 – 20.9%; in 2009 – 19.6%).

Today the Amur Region remains an absolute leader among the regions of the Far East in the index of soya production, for example, the production of soya has increased by 1.3 times since 2012. The whole yield of grains in the region has had mostly positive trends over recent five years. The data of table 2 shows that compared to 2012 there has been a significant increase by 75% and by 35% compared to 2015.

We assumed the analysis of food security showed that 80% of intraregional market of food production is formed at the expense of its own resources. Moreover the region does not only meet domestic needs in grain and potato but can without any prejudice to itself supply them to the other regions of the country and export them to the countries of the APR, export of grains especially soya is growing annually (for example, export of soya has increased by 68% over five years). The majority of grown potato provides the needs of the regional population.

No doubt in this respect the region can be considered as a powerful and real reserve of increasing food base of the development of the Far East and APR countries. Given the opportunity the agricultural sector of the region can ensure food products not only to its population but also cater high quality and competitive production to other regions which are industrial and where agricultural sector cannot be developed due to climatic environment. [11, p.74] In the midterm of the agricultural sector development it is planned to build seed production companies to produce selected high producing seeds of soya and wheat, development of live stock breeding complexes and feedlots to increase the production of meat and milk.

Table 2. The output indices movement of main kinds of agricultural production in the households of all categories of the Amur Region.

Name of parameter	2012	2013	2014	2015	2016	Rate of increase 2016 г. % to 2012 г.	Rate of increase 2016 г. % to 2015 г.
Grains, th. tones	271.3	172.3	417.7	351.0	474.6	174	135
Soya, th. tones	682.4	649.7	766.3	884.9	893	130	100.9
Meat of live stock and birds for slaughter (light weight basis), th. tones	50.3	60.3	60.5	60.6	59.0	117	97.3
Milk, th. tones	161.8	165.1	143.6	148.6	147.7	91.3	99.4
Eggs, mln. pieces	231.0	239.4	240.1	203.1	199.6	86.4	98.3
Potato, th. tones	296.0	118.0	298.1	286.6	278.1	93.6	96.4
Vegetables, th. tones	69.3	35.0	67.8	69.7	67.2	96.4	97.0

The total hydroelectric potential of big and average rivers of the Amur Region is estimated at 76 bln.kWh. which amounts to 3.2% of all Russia and 7.5% of the FED. The technological capacity of the region is 51 bln.kWh. or 3% of the similar potential of Russia and 7.5% of the FED. At present the technological hydroelectric potential is used at 50%. The specific degree of territory saturation with hydro energy compared to the other regions is pretty high – 209 megawatt hour/km^2.

Another major component of the natural potential of the Amur Region is forest resources. The total area of forest reserves lands and lands of other categories that are occupied with forest is 31733 th.ha as of January 1, 2016 with the largest share of exploitable forest of 86%. The forest cover percent is 65.4% that according to the existing gradation of the forest cover percent factors refers the territory of the region to the richly wooded. However at the immense territory of the region the forest cover percent factors vary enormously in administrative districts from the north to the south and from the east to the west. According to the calculated index of the forested area per person the highest

availability is noted in the northern districts (Zeiski, Magdagachinski, Selemdzhinski, Skovorodinski, Tindinski, Shimanovski) from 56 ha/ per person to 436 ha./per person which occupy three fourth of the regional territory with the forest cover percent factor more than 60%. In nine districts of the region the forest cover percent factor is less than 60% and in the main cultivated areas located on the territory of the Zeisko-Bureinskaya plain it is less than 5% and correspondingly the availability of the forestland is low and very low (Tambovski – 0.04 ha/per person, Ivanovski – 0/08 ha/per person, Belogorski – 0.15 ha/per person, Konstantinovski – 0.12 ha/per person and Mikhailovski – 0.7 ha/per person).

3.4. The factor of the regional economy

The economy of the region is diversified economy. In the structure of the industrial production a specific place is held by energy-extractive trend and high proportion of the major fuel-and-energy companies, nonferrous metals industry and food industry. The region ranks first in the federal district in the power supply and ranks among leaders of the country in gold reserves and production output of gold. In the structure of GRP the greatest proportion is taken by transport and communication services (18%), construction (12%), extraction of mineral resources (13%), wholesaling and retailing (11%).
The foreign trade turnover of the Amur Region in 2016 was 505.3 mln. US dollars (in 2012 – 1206.2), including export – 340.2 mln. US dollars (398.6) and import – 165.4 mln. US dollars. (table 3).

Table 3. The foreign trade turnover of the Amur Region (2016).

Name of parameter	Export		Import	
	mln. dollars	%	mln. dollars	%
Food products and agri supplies	100.4	29	37.4	23
Mineral products	207	61	2	1.2
Fuel and energy products	175.5	52	1.9	1.2
Production of chemical industry	0.73	0.22	21.9	13
Hides, furs	0.08	0.02	0.3	0.16
Wood substance and pulp and paper production	25	8	1.8	1
Textiles, textile goods and footwear	0.2	0.06	10.4	6
Metals and articles made there from	5.3	2	12.9	8
Cars, machinery and transport	0.9	0.29	65.3	39
Other goods	0.08	0.003	13.2	8
TOTAL	**340.2**		**165.4**	

Among countries-counter parties the largest trading partner of the region traditionally has been China (91.7% of export and 80.9% of import), the region also has external economic links with more than 60 countries of the former Soviet union and non-CIS states. The main share of export in 2016 was accounted for by mineral products (61%), food products and agri supplies (29%), wood substance and pulp and paper production (8%) (in 2015 – 31.2%, 36.4% and 16.2% respectively). In the structure of import the top performers are cars, machinery and transport (39%), food products and agri supplies (23%), production of chemical industry (13%) (in 2015 – 45.4%, 23% and 12.9% respectively).

It should be pointed out that generally there is a stable model of the external turnover of commodities in the Amur Region: Russian party supplies raw materials, Chinese – consumer goods. The foreign trade turnover of border territories is characterized by the inequality of dynamics. The general trend to increase the turnover of commodities is seen. The comparative analysis of the contribution of border Far Eastern territories to the cumulative foreign trade turnover with China shows that the greatest proportion is taken by Primorski Krai – 79%, Sakhalin Region – 24%, Khabarovsk territory – 23%, the Amur Region – 8%. The foreign trade turnover of the Amur Region in the total volume of the FED is 2.1% and ranks the 7th among regions of the Far East. [12]

Recently the policy of changing the dynamic development model of the region has been pursued. The major components of this process under the guidelines of "The strategy of the social-economic development of the Far East and Baikal Region for the period to 2025" became priority development areas "Belogorsk", "Priamurskaya", and "Svobodni". The major economic projects of the federal importance – Zeiskaya hydro-electric power station (1300 MWt.), Bureiskaya hydro-electric power station (2010 MWt), Nizhne-Bureiskaya hydro-electric power station (302 MWt), the main gasline "Power of Siberia", cosmodrome "Vostochni", modernization of the Baikal-Amur Mainline and Trans-Siberian Railway – are the powerful resource and that way support the interest of the country in the Amur Region. So from 2000 to 2016 the volume of investments increased by 41.5 times from 0.4 to 16.6 bln.ru with the largest share taken by Fuel and Energy Complex (more than 50%).

In this regard it must be stressed that new perspectives of the international export infrastructure development on the territory of the region will be ensured, first of all, on the basis of the largest investment projects implementation that are integrated into the state-run program of the Russian Federation "The strategy of the social-economic development of the Far East and Baikal Region" through federal budget resources, which includes:

- the construction of the cross border bridge crossing the Amur river in the area of Blagoveshchensk – Heihe (China) with the total length of 1080.66 m;
- the development of the metallurgical cluster – opening of Garinski deposit and construction of Garinski mining and smelting enterprise with the capacity of 7.2 mln .tons of iron-ore concentrate, the Chinese party shows great interest to it;
- the construction of the gas chemical complex as the course of the investment project implementation on the construction of the Amur gas processing plant of advanced processing of natural gas in the area of Svobodni;
- the construction of the heavy-duty oil refinery with the capacity of 6 mln. tons of petroleum products with the export of the part of goods to China;
- the construction of the thermal electric power stations with the total capacity of 7920 MWt based on Erkovetski brown coal field in framework of project implementation on large scale export of power from Russia to China.

3.5. Tourist-recreational factor

It is important to note that recently tourism has become one of the most dynamically developing industries of the Amur Region. In 2017 the Amur Region hit top 10 on implementation of Federal Target Program "The development of domestic and inbound tourism of RF" and ranked third in Russia and second in the FED. Today the most popular tours are Blagoveshchensk, Ivanovka, Muravyevski park, Hinganski reserve, Bureiskaya and Zeiskaya hydro-electric power stations, Albazino and Zeiskoe Sea. In the short term of tourist-recreational complex development it is planned to create comfortable conditions for the tourist sector of the economy through the development of the tourist-recreational cluster "AMUR" including tourist-entertaining zone "Golden mile", and it is planned to have mass excursions as part of cosmic, ecological and rural destinations of tourism.

4. Conclusion

Summing up it must be stressed that the territory under study is a complex natural anthropogenic system and natural-industrial peculiarities of the Amur Region have striking area-based character. The regional factor variety of the Amur Region development (physio-geographical factor, the factor of natural resource use, demographic factor, the factor of the regional policy and economy etc.) – allows to consider it as a powerful and real reserve of the build-up of the food, fuel and energy, mineral-extractive basis of the development not only of the Russian Far East but countries of the Asian Pacific Region in whole.

References

[1] Baklanov P Y 2001 The Far Eastern Region of Russia: problems and prospects for the

sustainable development (Vladivostok: Dalnauka) p 143 (in Russian)
[2] Anderson J and O'Dowdl L 1999 Border regions and territoriality: contradictory meanings, changing significance *Regional studies* **33**(7) 593-604
[3] Vardomski L B 2000 The border belt of Russia: problems and trends of the development *Russia and the Modern World* 54-64 (in Russian)
[4] Rickenbach M and Reed A C 2002 Cross-boundary cooperation in a watershed context: the sentiments of private forest landowners *Envir. Manag*. **30**(4) 584-94
[5] Dontsov A V, Rodomanskaya S A and Shirokov V A 2010 *The Regional Aspects of the Erosion of Agricultural Lands and Land Use of the Amur Region* (Blagoveshchensk: Far Eastern State Agrarian University) p 273 (in Russian)
[6] Rodomanskaya S A 2018 Transboundariness as the vector of foreign economic development of the Amur Region *The Journal of Altaic Branch of Russian Geographical society* **48**(1) 67-76 (in Russian)
[7] Baklanov P Y and Ganzei S S 2004 Asymmetry and asynchrony of land use development within the boundaries of cross border geosystem of the Amur River basin *Materials of the Regional Scientific and Practical Conf.* (Vladivostok: FVGU) 28–34 (in Russian)
[8] Ganzei S S 2002 Geoecological research of the international transboundary territories in the South of the Russian Far East *The Newsletter of Far Eastern Division of the Russian Academy of Sciences* **6** 82-91 (in Russian)
[9] Ganzei S S and Mishina N V 2002 International transboundary territories in the South of the Russian Far East and their role in sustainable natural resource use in border regions. *J. Korean Geogr. Soc.* **4** 522–35
[10] Volinchuk A B 2010 The Russian Far East: challenges of transboundary cooperation. *Humanities Research in the Russian Far East.* **4** 29-34
[11] Pashina L L 2010 Food security of the region *The Far Eastern Agrarian Newsletter* **4** (16) 66-74 (in Russian)
[12] Pastushenko S B 2007 Regional specific features of shaping living standards of the population of the Amur Region *The Far Eastern Agrarian Newsletter* **2** 106-10 (in Russian)