

PROSPECTS FOR CREATING AN AEROSPACE CLUSTER IN THE EAST OF RUSSIA

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The article considers the issue of creating a new Russian aerospace centre in Zabaykalsky region with the participation of the state corporations Roscosmos and Rostec and involving Zabaykalsky region military-industrial complex plants in this process.

It is stated in the article that the worsening of the socio-economic situation in Zabaykalsky region is caused by liquidating Zabaykalsky military command region which has resulted in the state defense order being reduced and has counted against machine-building plants of the military-industrial complex. All of this has also resulted in many highly qualified specialists and their families leaving Zabaykalsky region.

A proposal to create a new aerospace industry centre in Zabaykalsky region has been made. Creating such a centre will do well to socio-economic development of Zabaykalsky region, because of the centre's becoming part of the aerospace cluster, forming around Vostochny cosmodrome, as well as because of using the advantages of placing aerospace machine plants and aerospace equipment plants in Zabaykalsky region instead of using those ones located in the European part of Russia. This will allow the creation of one territory industrial complex of Siberian Region and the Far East Region by organising production aimed at meeting the requirements of Vostochny cosmodrome, as well as Eastern Siberia and the Far East aircraft plants, and exporting goods which are in demand in the countries of the Asia-Pacific region.

A conclusion is drawn that creating a new aerospace industry centre aimed at producing high-technology products which are in high demand in Russia and the countries of the Asia-Pacific region, will contribute to economic, industrial and intellectual development of Zabaykalsky region, and will also improve the economy of Siberian Federal District and the Far Eastern Federal District.

Keywords: Siberian Federal District, Far Eastern Federal District, Zabaykalsky region, aerospace industry, machine engineering, Vostochny cosmodrome.

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ПЕРСПЕКТИВЫ ФОРМИРОВАНИЯ АЭРОКОСМИЧЕСКОГО КЛАСТЕРА НА ВОСТОКЕ РОССИИ

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Рассматривается вопрос создания нового центра аэрокосмической промышленности России в Забайкальском крае при участии государственных корпораций Роскосмос и Ростех, а также вовлечения существующих в Забайкальском крае предприятий оборонно-промышленного комплекса России.

Отмечается, что ухудшение социально-экономического положения Забайкальского края вызвано в том числе и ликвидацией Забайкальского военного округа, которая повлекла за собой сокращение оборонного заказа, размещаемого в Забайкальском крае, и негативно отразилась на существующих машиностроительных предприятиях оборонно-промышленного комплекса Забайкальского края, а также послужила причиной оттока из края высококвалифицированных специалистов и членов их семей.

Сделано предложение о необходимости создания нового центра аэрокосмической промышленности в Забайкальском крае. Создание такого центра окажет положительное влияние на социально-экономическое развитие Забайкальского края за счет вхождения его (центра) составной частью в аэрокосмический кластер, формирующийся вокруг космодрома «Восточный», и использования преимуществ от размещения предприятий аэрокосмического машиностроения и приборостроения в Забайкальском крае по сравнению с аэрокосмическими

центрами в европейской части России. Это позволит связать регионы Сибири и Дальнего Востока в единый территориально-производственный комплекс за счет организации производства, направленного на обеспечение потребностей космодрома «Восточный», существующих в Восточной Сибири и на Дальнем Востоке предприятий авиационной промышленности, а также организации производства экспортной продукции, востребованной в странах Азиатско-Тихоокеанского региона.

Сделан вывод о том, что создание центра аэрокосмической промышленности, ориентированного на выпуск высокотехнологичной продукции, позволит задействовать инженерно-научный потенциал России и стран СНГ, будет способствовать экономическому, производственному и интеллектуальному развитию Забайкальского края, а также окажет положительное влияние на экономику регионов Сибирского и Дальневосточного федеральных округов.

Ключевые слова: СФО, ДФО, Забайкальский край, Красноярский край, аэрокосмическая промышленность, машиностроение, космодром «Восточный».

Introduction. Currently the socio-economic situation in the Zabaykalsky region is difficult. In the last three decades there have been many reasons for the worsening of the socio-economic situation here, among them being a reason, to which little attention has been paid so far. In 1998 the Zabaykalsky military command region as well as its management located in Chita ceased to exist [1]. This deprived the Zabaykalsky region of federal funding by the Russian Federation Ministry of Defense. Some activities of the Zabaykalsky military command region are still being performed in Chita, but the Ministry of Defense no longer funds these activities as it did before.

Therefore, the region lost its main funding and prospects for further development. After the Zabaykalsky military command region had been liquidated dozens of thousands highly qualified officers and technicians, who were graduates from universities and vocational schools, left the region. Their wives, who were the education, culture and medical care base of the Zabaykalsky region, as well as their children, who were the future of the region, also left.

We should not forget the sad experience of the Ukraine, when the western part of the country infused with the Soviet Union's investment got separated. There are concerns that the eastern part of Russia, which has received a lot of funding recently and which has such economically developed countries as China, the USA and Japan nearby is under a similar threat now. To prevent such a situation it is necessary to connect the Far East with Siberia and all of Russia, and, first of all, with the Zabaykalsky region [2].

Historically, the Zabaykalsky region is a raw material economy region specialising in mining and agriculture. The industrial potential of the Zabaykalsky region's manufacturing is mainly shaped by machine-building plants, the food industry and the building materials industry. However, the technical condition of machinery assets of these industries' plants (under 50 % effective) profoundly reduces their competitiveness and requires substantial investment to update. There is no high-quality manufacturing in the Zabaykalsky region nowadays.

Machine building played an important role in the regional economy as it was mainly formed by plants of the defense industry complex. Nowadays, machine building forms 37.5 % of all manufacturing, employing 6.000 people [3].

Currently, the system of the defense industry complex of the Zabaykalsky region includes plants providing full

repair service and reconstruction of armored machinery ("the 103th armored machinery repair plant" (a stock company)), aviation equipment (the stock company ("the 810th aviation equipment repair plant" (a stock company)) and automotive vehicles ("the 88th Central automotive vehicles repair plant" (an open stock company)), as well as plants specialising in building medium range vessels and low-displacement boats and motor boats (the limited liability company "Sretensk shipbuilding yard") [4–6]. Despite these plants' having a narrow specialisation, they play a noticeable role in the region's economy employing over 10.000 people. At the same time it should be noted that the current situation at these plants is still challenging. The reason for this is the decreasing amount of government contracts in defense industry awarded in the region. A decrease in the number of repairs performed at these plants is caused by liquidating the Zabaykalsky military command region and a lot of military hardware being relocated from the Zabaykalsky region.

What can compensate for this loss for the Zabaykalsky region, which remains a militarily strategically important region of Russia?

Prospects for creating an aerospace centre in the Zabaykalsky region. Creating an aerospace industry centre can become one of the prospective trends of socio-economic development of the Zabaykalsky region, as the aerospace industry is one of the most technically developed branches of machine building, which is characterised by a high degree of cooperation and concentration of production, also this industry plays the most significant role in ensuring the national security of Russia [7].

The project of creating an aerospace industry centre in the Zabaykalsky region is included in "The integrated plan for socio-economic development of the Zabaykalsky region until the year 2030", which is currently being developed in collaboration with the Russian federal agencies of executive authority interested in this project (according to President Vladimir V. Putin's instruction of 31 October 2016 № Pr-3082 [8].

The government of the Zabaykalsky region supports the idea of creating a new aerospace industry centre in the region, as locating new machine building plants here, as well as those ones of military-industrial complex, will contribute to the socio-economic development of the Zabaykalsky region and increasing Russia's defence capacity in the Far East.

The Far East will become strongly linked to the Zabaykalsky region due to the region's becoming part of

the aerospace cluster forming around Vostochny cosmodrome located in the Amur region. Aerospace machine building plants and aerospace equipment plants to be built for Vostochny cosmodrome's development can be placed in the Zabaikalsky region as they would have several advantages over such centres located in the European part of Russia, for example, in the Samara region:

First, an aerospace centre located in the Zabaikalsky region will be much closer to Vostochny cosmodrome.

Second, this aerospace centre will be "duplicating" the aerospace industry centre in Samara, which is very important for ensuring national security. The aerospace cluster in the Samara region is very compact, in terms of the territory it occupies, which despite its economic advantages makes it vulnerable in case of war and terrorist attacks.

Third, the aerospace centre in the Zabaikalsky region will become a high-technology link between the Far Eastern territories and the Baikal region (including the Irkutsk region and Buryatia and their aircraft plants), as well as the Krasnoyarsk region, where rocket technology is produced and aerospace industry personnel are trained.

At the same time creating an aerospace industry centre in the Zabaikalsky region does not imply "destroying a rival" to the aerospace industry centre in Samara, since creating a new plants' complex will allow the enlarging of Russia's share in the international aerospace market, which is nowadays only 2–3 % [9]. The new advanced aerospace industry centre in the Zabaikalsky region will give an impulse to updating all of the aerospace production, and along with Samara, Voronezh and other aerospace industry centres the Zabaikalsky centre will strengthen Russia's position in the international aerospace market.

The machine building complex of the Krasnoyarsk region can be extended to the Zabaikalsky region, thus creating several subsidiary plants producing satellite antennae, cables for rockets and aeroplanes, navigational equipment, etc. Expert help for solving issues related to building a new aerospace centre in the Zabaikalsky region can be provided by the Krasnoyarsk regional division of the Russian Engineering Union and scientists from Reshentev Siberian State Aerospace University.

It is very important to make such state corporations as Roscosmos and Rostec interested in building an aerospace complex in the Zabaikalsky region [10]. This especially concerns Rostec which includes such corporations as "Almaz-Antey" and "Radio-Electronic Technologies" which can become active investors in the Zabaikalsky region. For example, "Almaz-Antey" built machine building plants in a very short period of time in Kirov and Nizhny Novgorod, i. e. the Kirov machine building plant (a stock company) and the Nizhny Novgorod 70th Anniversary of Victory Plant (a stock company), which are responsible for mass production of new complexes of aerospace defence and the rockets they contain. The cost to build these plants totalled over 54 billion rubles, i. e. 20 billion rubles for building the Kirov plant and 34 billion rubles for building the Nizhny Novgorod plant [11]. With these plants starting to work at their full capacity there is a plan to have up to 5.500 new jobs, i. e. 3.500 new jobs in Kirov and 2.000 new jobs in Nizhny Novgorod.

Building a plant, similar to the Kirov machine building plant (a stock company), in the Zabaikalsky region, with an investment of 20 billion rubles, will allow the creation of up to 1.800 new jobs in the region thus ensuring tax returns of up to 540 million rubles to all levels' treasuries.

Manufacturing high-technology products including those in-demand in the framework of some targeted federal programmes (for example, the military-industrial complex development programme and the federal aerospace programme), in the framework of orders by the state corporations Rostec and Roscosmos, as well as while providing for Vostochny cosmodrome's needs and the Baikal region and the Far East aircraft plants' needs (those in Irkutsk, Ulan-Ude and Komsomolsk-on-Amur) will allow activation of engineering and scientific resources of Siberia and the Far East. All of this will also contribute to economic, industrial and intellectual development of the Zabaikalsky region, and will also open up new opportunities for developing agriculture, the food industry, and the service sector together with the resort complex.

Creating an aerospace industry centre aimed among other things at producing goods for export will contribute to Russia's economic and technological cooperation with China, India, Malaysia and other countries in the Asia-Pacific Region [12; 13], this will also provide the new SW: aerospace industry centre with long-term orders.

For detailed addressing of the issues related to creating a new aerospace industry centre in the Zabaikalsky region, i. e. making a list of aerospace products to be manufactured, employing personnel, choosing a site where the centre will be built, etc. it is necessary to collaborate at the Russian Federation government level with representatives of the Ministry of Industry and Trade of the Russian Federation, the Ministry of Economic Development of the Russian Federation, the state corporations Rostec and Roscosmos, Vostochny cosmodrome, Irkutsk, Ulan-Ude and Komsomolsk-on-Amur aircraft plants, the Krasnoyarsk division of the Russian Engineering Union, Reshentev Siberian State Aerospace University and the government of the Zabaikalsky region.

The personnel for the new aerospace cluster can be provided by Siberian universities, training future specialists for high-technology industries. These universities are Reshentev Siberian State Aerospace University and Tomsk State University of Control Systems and Radioelectronics [14]. In addition, for building an aerospace centre it is necessary to hire not only engineers, but also security guards, cleaning personnel, drivers, etc. People of all professions are in demand here, states Egor Shcherbakov, the author of the article "Eastern Way to Cosmos" [15].

There is hope that aerospace specialists from the Ukraine will be able to come to the Zabaikalsky region. This is ready to work human capital, to attract them it is necessary to build a modern comfortable satellite-town not far from Chita, this will improve the demographical situation in the Zabaikalsky region.

Conclusion. In such a way, creating an aerospace industry centre in the Zabaikalsky region will do the following:

- stabilise the situation at the defence-industrial complex's plants in the Zabaikalsky region and keep the specialists in machine engineering in the region;

- the new aerospace centre will become a logical final link in the chain of aerospace and aircraft plants in the East of Russia;
- create a chain of accompanying plants in the Zabaikalsky region as well as in the neighbouring regions in the Siberian Federal District and the Far Eastern Federal District;
- increase the share of high-technology products in the overall industrial production in the East of Russia;
- guarantee economic and technological cooperation between Russia and China and other countries of the Asia-Pacific Region;
- allow use of the engineering and scientific potential of fellow Russians currently living in the Ukraine and other countries of the Commonwealth of Independent States;
- provide with an opportunity for fast economic, industrial and intellectual growth of the Zabaikalsky region.

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