Functioning and development of the military-industrial complex as a factor in ensuring sustainable socio-economic development of the Ural macroregion

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Abstract. The theoretical and methodological foundation for studying the problems of sustainable development today is insufficiently formed. The issues of knowledge in the field of sustainable development at the state and regional levels remain open. The object of the study is the Ural macroregion, which includes seven constituent entities of the Russian Federation (Sverdlovsk, Chelyabinsk, Kurgan, Orenburg regions, Perm Territory, the Republic of Udmurtia and the Republic of Bashkortostan). The set of industries (types of economic activity) that are part of the military-industrial complex is important in ensuring the sustainability for the socio-economic development of the Urals. The findings and conclusions of scientists on the problems of ensuring sustainable development, as well as the functioning of the military-industrial complex, were adopted as the methodological basis for the study. The research methodology is based on formalization and systematization approaches, bibliometric and content analysis of scientific literature devoted to the theoretical and methodological knowledge of sustainable development, as well as the development of territories where the military-industrial complex dominates in the economic space. The main results of the study are: putting forward and proving a scientific hypothesis confirming the influence of the functioning and development of the military-industrial complex on ensuring sustainable socio-economic development in the Ural macroregion. The results obtained during the presented research can be used in the development of strategic documents aimed at forming sustainable socio-economic development of territories at various levels.

1 Introduction

The relevance of the research presented in this article is determined by a number of circumstances; we will highlight the most significant.

Firstly, in modern conditions of a high degree of turbulence caused by global political instability, unprecedented sanctions pressure from Western countries on the Russian economy, as well as climate change processes, an increase in the number of environmental...
disasters, the problem of finding factors to ensure and maintain the socio-economic sustainability of systems of various hierarchical level come first in scientific research. Secondly, the military-industrial complex, which is currently rapidly gaining momentum, is becoming one of the leading sectors of the regional economy for a number of territories in the Russian Federation, therefore, this area requires deeper theoretical and methodological study for the purpose of further practical application.

Thirdly, turning to the problems of studying the sustainable socio-economic development of the Ural macroregion shows that the regional economy withdraws from stagnation, proves its further modernization, which entailed the emergence of new and very unexpected problems – a shortage of qualified workers necessary for the production of defense-significant products.

Fourthly, the high level of political and economic instability in the global space has aggravated problems directly within the regions of Russia. In particular, this happened because a significant part of the processing industry depends on the import of components, raw materials, as well as an established market for finished products. It is the military-industrial complex that is able to cope with this problem through phased import substitution. It will raise the standard of living by creating new jobs and increasing income levels, which ultimately ensures sustainable socio-economic development.

The object of the study in this article is the Ural macroregion, where one of the most developed defense-industrial complexes in the country has been created and operates. The purpose of the study is to prove the relationship between the efficiency of the military-industrial complex and ensuring sustainable socio-economic development of the Ural macroregion.

2 Materials and methods

The methods used by the authors of the article are based on formalization and systematization approaches, bibliometric and content analysis of scientific literature devoted to the theory and methodology of sustainable development, as well as the development of territories in the economic space where the military-industrial complex dominates.

Scientific principles and postulates developed within the framework of scientific research on sustainable development [1-7, etc.], as well as the works of scientists working on the theoretical foundation of regional economics, studying the development problems of territories whose economic structure is dominated by enterprises of the military-industrial complex [8-12, etc.], allow us to draw conclusions that are important from the standpoint of substantiating the sustainable socio-economic development of territories.

1. The increasing importance of the military-industrial complex in the modern economic space of the Russian Federation, which is a completely unique phenomenon. In particular, it has no equal in the concentration of industrial and cultural metropolises in one place, which at the same time form an industrial conglomerate, united by common traditions and history.

2. The military-industrial complex is one of the most important sectors of the economy, providing a social resource for the development of the region, since it causes the growth of people’s welfare associated with the creation of new jobs, increasing income levels, and, consequently, the influx of qualified labor necessary for the implementation of state and regional programs.

The authors of the article consider the military-industrial complex as a set of economic entities localized in the region based on the predominant use of its raw materials, scientific, technological, industrial, and labor resources. The result of their functioning is the development and creation of military and other products necessary to meet the needs of the state, both during military operations and to ensure defense capability.
An important feature of the military-industrial complex is its high degree of complexity and interconnectedness of its constituent elements. For example, the composition of the military-industrial complex is formed by high-tech industrial enterprises, research institutes, laboratories, scientific complexes, design departments, etc., which will give a positive result and achieve their goals only if their functioning is coordinated.

3 Results and discussion

The object of our research is the Ural macroregion which is one of the leaders in the sector of the military-industrial complex (MIC) of Russia, therefore its further modernization will be the factor on which the socio-economic development and stability of the region is based. Since 2022, defense industry enterprises in the researched territories have entered a process of gradual transition to operating principles dictated by the conditions of the mobilization economy, which led to the shortage of qualified workers in the face of increasing demand from the state for their products. One of the reasons for this situation was the demographic decline observed in the 90s of the 20th century, as a result of which the birth rate sharply decreased due to negative processes occurring in the state and society. During the same period, many secondary vocational educational institutions that trained skilled workers for the manufacturing and extractive sectors of the Russian economy ceased to function. A number of enterprises found themselves on the verge of ceasing operations due to a lack of orders and support from the state.

Foreign policy factors 2022-2023 (growth of government orders volume, partial call-up of reservists, migration processes, etc.) created the conditions for a new stage in the development of the military-industrial complex of the Ural macroregion, conditioned by increased demand for enterprise products. The consequence was an increase in the shortage of qualified personnel, which amounted to 15% in 2023 [13]. Thanks to the measures taken, by the beginning of 2024 this problem began to be gradually resolved. A process called the “wage race” was noted in the region, which defense industry enterprises, in order to attract specialists to their enterprises, began back in 2022. Initially, the growth occurred by 4%. By 2023 it was already 30-50%. According to the authors, the Ural macroregion is on the way out of stagnation in the defense industry sector and is currently capable of fully satisfying the needs for its products and technologies.

The largest enterprises in the military-industrial sector are located in the economic space of the Ural macroregion. In particular, the Sverdlovsk region concentrates on its territory such industrial giants as NPK Uralvagonzavod, RUSAL Ural, NLMK-Ural, Sinarsky Pipe Plant, Machine-Building Plant named after M.I. Kalinin, Ural Electrochemical Plant, Ural Heavy Engineering Plant, PAO Uralmash and others. The Chelyabinsk region specializes in mechanical engineering and ferrous metallurgy, as well as the development and production of radio electronics, which is directly related to the extraction of rare earth metals used in the products mentioned above. The region hosts enterprises of the Roskomos Corporation, as well as laboratories and research institutes involved in the enrichment and production of radioactive metals used in the nuclear industry. Let us note such enterprises as the Ural Automobile Plant, Radio Plant (Kyshtym), the group of companies “Magnezit”, the Chelyabinsk Zinc Plant and others.

Speaking about the potential of the military-industrial complex in the Ural macro-region, we should especially pay attention to the world-famous arms giant Concern Kalashnikov (Republic of Udmurtia), which is today's largest developer and manufacturer of firearms, ammunition, weapons and military equipment. Due to the current need, the company mastered the production of unmanned aerial vehicles. Unmanned aircraft and helicopter systems are produced in its hangars. These models are used for aerial...
surveillance under unfavorable external conditions at any time of the day. Drones transmit video images in real time and can support video communication at a distance of 15 to 150 km (depending on the model). The Republic of Bashkortostan, the Perm Territory and the Orenburg Region, which are part of the Ural macroregion, have concentrated chemical and petrochemical industry enterprises on their territories, which are an integral part of the military-industrial complex. These include Bashneft, Lukoil-Perm, Gazprom Neftekhim Salavat, Group "Uralkali", Ufa Engine Production Association, which is a part of the Oboronprom military industrial complex, Orenburgneft, Beloretsk Metallurgical Plant, etc. Finally, the last subject that is part of the Ural defense industry is the Kurgan region. On its territory enterprises of the electric power industry and the production of metal structures are localized. Such enterprises as Kurganstalmost and Kurganmashzavod became part of one of the largest Russian concerns – Tractor Plants.

To summarize the above, we should note the fact that the military-industrial complex is a key factor in the sustainable socio-economic development of the Ural macroregion. It determines the directions and pace of economic dynamics, and forms the core of the regional economy. The Ural macroregion has another advantage – the concentration of the largest multifunctional megacities in one place, which are also the leading economic centers not only of the region, but also of the Russian Federation as a whole: Ekaterinburg, Chelyabinsk, Perm, Ufa. This factor makes it possible to form several centers of economic growth and the formation of engineering schools in the region.

4 Conclusion

The conducted research testifies that the unique center of concentration of the largest military-industrial complex has developed in the space of the Ural macroregion. Its base and pace of development were an important element in creating regional stability and a particular guarantor of stability in the territories included in the region. Significant investment income and provision of government orders in 2022-2023 created the necessary conditions for economic growth and positive socio-economic dynamics of our research object. Speaking about the trends in the growing importance of the military-industrial sector in the region, it is necessary to list its main components. Firstly, the decline in investment activity in the Urals has been overcome; this is evidenced by the existence of numerous projects that have already been implemented, tested and successfully applied in practice. In particular, the Ural macroregion is today one of the largest suppliers of unmanned aerial vehicles. Secondly, budget funding for the military-industrial sector has been increased. For example, the Sverdlovsk region is among the regions where, by 2026, research and production centers for unmanned aerial systems will be created based on the introduction of technical developments by local scientists and financial support from the federal budget. Thirdly, there was a redistribution of investment resources between civilian and military products in favor of the military-industrial sector. Thus, on the basis of Laboratory of the Future (Ekaterinburg), in May 2023, serial production of drones was launched to teach schoolchildren how to control unmanned systems. The company is engaged in research and development in the field of robotics and automation production, including the creation of technologies for servicing overhead power lines. Fourthly, private investment was activated as a transformation result of the state unitary enterprises from the military-industrial sector into joint-stock companies. In particular, these transformations affected the Avangard enterprise in the Republic of Bashkortostan.
which produces ammunition and special chemical products, as well as the Perm Powder Plant enterprise.

Thus, the Ural macroregion today is able to offer the federal government new strategic projects for import substitution and the creation of new industries based on Ural enterprises. All these prospects should attract investors to the region, whose investments will contribute to the growth of the social well-being of the population, increasing income levels, creating new jobs, and, consequently, ensuring and maintaining the sustainability of the territorial socio-economic development.

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