Public-private partnership as a mechanism of the Russian Arctic zone’s sustainable development

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Abstract. The paper deals with the problem of sustainable development of the Russian Arctic – that is, the development of the region in the context of economic, social and environmental challenges. According to the existing strategic and programming documents, Russia will primarily develop projects in the field of infrastructure, transport and extraction of raw materials, as well as focus on national security issues. This is completely contrary to the concept of sustainable development, which seeks a balance between economic growth, the need to improve the environment and the solution of social problems. The authors identify the most promising industries that can contribute to the sustainable development of the region (in particular, economic growth without aggravation of the environmental and social problems) and analyze the possibilities of stimulating such industries through proven mechanisms of state support, which are widely used in traditional sectors of the economy. According to the authors, public-private partnership will play a crucial role for the sustainable development of the Arctic regions. Special attention is paid to the unique characteristics of the Russian Arctic region, which entail both opportunities (for example, rich natural resources) and restrictions (severe climatic conditions, huge accumulated environmental damage, undeveloped infrastructure, etc.).

1. Introduction

There are many different definitions of sustainable development in the world economic literature. The most popular is the definition proposed in the 1987 report of the International Commission on Environment and Development "Our common future". According to it, sustainable development is a development that allows to meet the needs of today's generation without limiting the future generations’ ability to meet their needs [1]. Currently, sustainable development is primarily understood as a systematic approach to development, which includes economic development, solving social problems, as well as environmental protection [2]. In addition to these three areas, additional areas are also often allocated recently such as culture and governance, which also have a strong impact on the economy and quality of life. Environmental protection is often opposed to economic development. However, this traditional view is not fair. Activities related to environmental protection and solving social problems allow creating new business models, environmental and social start-ups, new jobs, as well as contributes to the development of science and innovation. In 2015, 193 UN member states adopted the Agenda for sustainable development till year 2030 [3]. This document contains 17 goals in the field of economic, social and environmental development, which correspond to 169 targets and more than 230 indicators. Countries are not obliged to achieve these goals, but it is assumed that each country will develop its own plan for their implementation, based on its level of development, challenges, opportunities (including financial ones) and priorities. The same is expected from individual regions and cities. The transition to
sustainable development is particularly necessary for the Arctic regions. The nature of the Arctic is harsh, but fragile. In particular, warming in this region is about twice as fast as in the rest of the world [4]. Arctic ice is melting rapidly, and this poses a powerful threat to the ecosystems of the region. A separate big problem is the lack of social security and Northern indigenous minorities’ involvement in the economy.

2. Main body
The Arctic makes a significant contribution to the Russian economy. At the end of 2016, the population of the Russian Arctic amounted to 2.4 million people, or only 1.6% of the country's population. At the same time, according to Rosstat statistics, 5.1% of Russian GDP is created in the Arctic [5]. It is estimated that the direct contribution of the region to the country's GDP is up to 15%.

However, the Arctic zone of Russia faces a number of social challenges. First of all, in these regions there is a long outflow of the population, especially highly skilled workers, to the regions of Russia more prosperous in terms of climate and socio-economic development, as well as to other countries, the obsolescence of infrastructure, the backwardness of social services (education, health, entertainment and educational services). Life expectancy in some regions of the Arctic is 6-7 years less than in the whole of Russia – for example, in 2015 in Chukotka Autonomous Okrug life expectancy was 64 years, while in Russia as a whole – 71 years [6]. At the same time, there is less income differentiation in the Arctic regions of Russia – if on average the country's income ratio is 10 percent of the richest and 10 percent of the least affluent population is 16, then in the Arctic it is 8.9.

The environmental damage accumulated in the Arctic is enormous. In the USSR, the industrial development of the Arctic was one of the priorities. As a result, large industrial centers, often with raw materials or military orientation, were formed in the region. After the collapse of the Soviet Union, many Northern factories and mines were stopped, and a significant part of the population left the region. As a result, according to available estimates, about 4 million tons of industrial and construction waste, as well as up to 12 million barrels of petroleum products remained in the coastal zone of the Arctic Ocean [7]. There are also chemical and radioactive waste disposal sites. In the Arctic, these and other wastes are also dangerous because they can get into water and soil with increasing temperature.

Taking into account all the above, in the Russian Arctic it is most advisable to develop economic activities that do not have a strong impact on the environment, do not leave behind waste and contribute to improving the quality of life of the population, as well as their involvement in the economic and cultural life of the region.

The Arctic region has a high potential for the development of renewable energy, in particular, solar energy, wind farms, geothermal and tidal power plants, small hydropower plants. Although this potential is often limited by local harsh climatic conditions. The USA is a pioneer in the development of renewable energy in the Arctic. Other countries, especially Canada, are also seeking to reduce diesel consumption and switch to renewable energy. Russian Arctic regions also have some experience in this area.

Thus, in the Arkhangelsk region there are more than 400 wood-fired boilers. Such boilers are also built in other regions of the Arctic zone. Wind power plants are available in Mudyug village of Arkhangelsk region, in the villages of Kola and Novaya Titovka of Murmansk region, in the village of Anderma of Nenets Autonomous Okrug, in the village of Labytnangi of Yamal-Nenets Autonomous Okrug, in the village of Tiksi of Sakha Republic (Yakutia), near Anadyr in Chukotka Autonomous Okrug, as well as in the villages of Nikolskoye and Ust-Kamchatsk of the Kamchatka territory. There are more than 16 solar power plants in the Republic of Sakha (Yakutia). Small HPPs are available in Murmansk region, geothermal power plants are in the Kamchatka territory: Pauzhetskaya and Mutnovskaya.

The transition from diesel power generation to hybrid solar and wind-diesel generation in remote Arctic settlements will reduce environmental damage and energy security risks, as well as costs [8].

Sustainable fisheries management is another promising direction for the development of the Arctic. Ocean acidification, water pollution, irresponsible fishing and fish farming can cause enormous damage
to the Arctic territories. At the same time, fishing and fish processing can be settlement-forming industries. First of all, there is a need for quality control of environmental risks, as well as an effective system for monitoring and detecting illegal fishing. The modernization of production and fishing vessels’ fleet renewal is also an acute problem.

The Arctic has a high potential for the development of ecological and industrial tourism with the involvement of the local population and indigenous peoples in this business. Studies show that Arctic tourists have a very positive attitude to sustainable practices [9]. Therefore, it is necessary to develop the appropriate infrastructure – roads, air links, hotels, cafes and restaurants, museums and other objects of display, hiking and cycling routes – in compliance with strict environmental standards. Industrial tourism can "revive" abandoned factories and create new jobs both directly in the objects of the show, and in related industries. Moreover, it is possible to create large tourist clusters that combine objects of both ecological and industrial tourism.

Another promising direction for the development of the Arctic zone is the processing of accumulated industrial and construction waste, as well as the establishment of organic and solid waste processing generated as a result of the population life. Since the vast majority of residents of the Russian Arctic live in cities (89%), the problem of solid waste formation and disposal is particularly relevant.

In August 2017, the Russian government adopted a new version of the state program "Socio-economic development of the Arctic zone of the Russian Federation". The program includes [10]:

- Formation of reference zones of development (RZD) and ensuring their functioning, creation of conditions for accelerated socio-economic development of the Arctic zone of the Russian Federation
- Development of the Northern sea route and provision of navigation in the Arctic. Creation of equipment and technologies for oil, gas and industrial engineering for the mineral resources’ development in the Arctic.

It is expected that the creation of RZD will create favorable conditions for the implementation of major infrastructure projects in the Arctic, to intensify navigation along the Northern sea route, to carry out a systematic modernization of transport and other infrastructure, to create facilities for security and communication in ports, and, in the end, to have a positive impact on the socio-economic development of the Russian Arctic regions. Thus, in the coming years, the protection of the environment and the elimination of accumulated environmental damage are not priorities in the Arctic development; social aspects are also mentioned only formally.

There is no legislative definition of RZD today, and it should be given by the new Federal law "On the development of the Arctic zone of the Russian Federation", without which the execution of the state program of the Russian Arctic is impossible. Currently, RZD are the projects for planning and ensuring the comprehensive development of the Arctic territories in order to achieve the strategic interests of the Russian Federation in the Arctic with the use of a full range of existing tools and mechanisms of state support. The project "reference zone" will be based on the projects of creation and development of mineral resource centers (MRC) [11]. The state program of the Russian Arctic determined eight RZDs.

Each support zone has its own specialization.

To implement such large-scale projects, it is necessary to attract serious financial resources. Given the situation with the budgets of Russia and Russian regions [12], this requires some public support measures, such as public-private partnerships and concessions [13], government guarantees, special investment contracts, capital grants and direct subsidies, tax incentives and return tax financing.

The basic or anchor projects in the RZD will be MRC projects, defined as a set of fields developed and planned for development and promising areas connected by a common existing and planned infrastructure and having a single point of extracted raw materials or products of its enrichment’s shipment to the federal or regional transport system (railway, pipeline and sea transport) for delivery to consumers. Therefore, it is important that spatial infrastructure solutions for the Arctic and the RZD lead to the technological and public infrastructure development necessary for the MRC establishment and development.

The implementation of infrastructure projects in the RZD, as well as the creation of technological and public infrastructure, the development of the MRC main business, will lead to the growth of related
businesses related to the maintenance of both the main industries and the population of the RZD and MRC territories. The growth of business on the RZD and MRC territories will lead to an increase in tax revenues of budgets (federal, regional and local) at all levels. The growth of taxes in a certain limited area will allow to use such a common in some countries PPP mechanism as financing through tax increase (Tax Increase Financing, TIF) for the implementation of RZD and MRC projects. Within the framework of this mechanism, regional or municipal authorities return to investors the funds invested in the implementation of infrastructure projects at the expense of budget revenues received from the growth of taxes in the region. This increase in tax revenues is due to the tax base growth resulting from the implementation of financed projects.

Currently, there are limited opportunities to finance major infrastructure projects. This is due to the freezing of new infrastructure projects’ financing at the expense of the national welfare fund, the weak implementation of the Central Bank project financing program and the termination of project financing in Russia at the expense of the European Bank for Reconstruction and Development. The government began to search for new ways to implement infrastructure projects. One of these ways can be an infrastructure mortgage [14].

In the economy, mortgage is understood as collateral lending, in which the right to dispose of the collateral remains with the debtor (the borrower). Therefore, in case of the “infrastructure mortgage” project implementation, the private investor will be able to credit the project for the construction of a road, a bridge or another infrastructure project, receiving a guaranteed annual income.

Return on private investors’ investment into projects is proposed to be carried out at the expense of regular payments, which will come from the main beneficiaries of infrastructure facilities. This "infrastructure mortgage" will allow to implement large projects involving payments from users and private investors. Thus, the infrastructure object is actually bought on credit received from private investors, while the object user is gradually repaying this credit.

However, this scheme differs from the classical concession under the law FZ-115, and the launch of the "infrastructure mortgage" instrument will require amendments to the law on concessions. Still the "infrastructure mortgage" scheme is close to "concession fee by the concessionaire" scheme. For example, there may be innovations such as the presence of several concedents, as well as users who need this object.

The mechanism of state guarantees will be used to ensure payments under the "infrastructure mortgage". The involvement of state guarantees is possible in cases where the project is of particular interest to the state economy: city-forming enterprises, innovative projects, resource and infrastructure projects. The liquidity of state guarantees is now virtually unquestionable and is steadily increasing. In turn, the involvement of this type of guarantee will reduce the cost of resources attracted for the project and increase its attractiveness.

The availability of state guarantees will make it possible to actively use syndicated lending in ‘infrastructure mortgage’ projects. A syndicated loan is a public form of debt financing involving two or more credit institutions (a syndicate of creditors) involved in a given transaction in certain shares, under a single loan agreement. Currently, the syndication of loans in the Russian Federation is not regulated by law and is made by a separate agreement of the Russian Bank and the company, or under English law, if the transaction involves foreign banks.

Thus, as follows from all the above, in the coming years, the Russian Arctic will see a large-scale development of infrastructure and mining, accompanied by the involvement of state support. Sustainable development and its dimensions, such as social development and, in particular, environmental issues, are not priorities and, clearly, will not be so in the future. Or, as it is noted in the conclusions of one of the recent studies on sustainable development in the Russian Arctic, "the political and economic context has a strong impact on the sustainability development" both in the Russian Arctic and in Russia as a whole [15].

At the same time, it would be advisable to pay more attention to environmental and social aspects, in particular, to extend the mechanisms of public-private partnership to the following areas:
Provision of clean energy to industrial complexes and settlements (distributed energy projects, microgrids, renewable energy sources) [16];

Creation and development of ecotechnoparks system in the Russian Arctic, in order to reform the waste management system and reduce the accumulated environmental damage;

Development of ecological tourism in the Arctic zone, development of tourist destinations (clusters):
- Russian Arctic, which is expected to include most regions of the Russian Arctic (Arkhangelsk and Murmansk regions, Yamal-Nenets Autonomous Oblast, Krasnoyarsk territory, Republic of Sakha (Yakutia));
- Silver necklace, which will include all regions of the Russian Arctic that are part of the northwestern federal district (Arkhangelsk, Murmansk, Republic of Karelia, Komi and Nenets Autonomous Okrug);

4) Reduction of food dependence (development of organic agricultural production in the territory of the Russian Arctic).

As a result of PPP mechanisms and new financing mechanisms used in the implementation of projects for the creation and development of RZD and MRC in the Russian Arctic, the problem of lack of financial resources for their creation and development will be solved. And the involvement of private enterprise through PPP in solving this problem will entail the development of competition and, accordingly, the reduction of costs for the RZD and MRC projects implementation. It is important that to implement such projects, it is also possible to attract funds from non-state pension funds, using such financial instruments as infrastructure bonds.

The development program of the Russian Arctic lacks social and environmental orientation, which does not allow to recognize this development as sustainable. Judging by the available strategic documents, Russia's activities in the Arctic are focused exclusively on ensuring the security and implementation of Russia's national interests in the Arctic, as well as on the development and extraction of minerals. All other areas of development – the involvement of local indigenous peoples in economic and other activities, the elimination of accumulated environmental damage, the reduction of negative environmental impact, the solution of social problems – will be implemented on a residual basis.

3. Conclusion
In order to at least partially implement the principles of sustainable development in the Arctic zone of the Russian Federation, it is recommended to use public-private partnership mechanisms for social and environmental projects’ implementation. These include primarily concessions, infrastructure mortgages, etc. Currently, such mechanisms are common in the implementation of traditional projects.

The most promising areas of sustainable development in the Russian Arctic are renewable and distributed energy, microgrids, environmental and industrial tourism, tourism clusters, organic agricultural production, sustainable fisheries, projects aimed at reforming the waste management system and reducing accumulated environmental damage. Such projects have the potential to create new businesses and new jobs, including new businesses and jobs in remote settlements, which are particularly depressing.

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