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The Role of Green Economy in Strategic Socio-Economic Development of the Arctic Zone

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Abstract. This article reflects the basic principles of the "green" economy. It is noted that the environmental factor has a huge impact on the development of the Arctic region. It is shown that the search for new ways and resources is necessary for the economic development of the Arctic. The influence of politics, socio-economic development of the Northern region and the "green" economy on the rational development of the Arctic is estimated. Environmental risks are considered. It shows the need for state funding and the possibility of obtaining additional "green" funding for the development of the Arctic territory. It will not only make a profit by investing in the real sector of the economy, but also solve important environmental, social and climate problems. Financing the "green" economy will not only reduce the risks to the environment and its degradation, but also preserve ecosystems, provide support for new development strategies, programs and projects in the energy sector of the Arctic region.

1. Introduction

The adoption of the special resolution "Economic development and nature protection" of 18 December 1962 at the 17th session of the General Assembly of the United Nations organization (UN) is the starting point of development of the ideology of Environmental Economics. Then it emphasized that nature protection is the responsibility of all UN members; the concept of an organic combination of the interests of nature protection and economic development was adopted for the first time, which was reflected in the following documents:

- the United Nations Environment Programme (UNEP) was adopted in 1972; it coordinates not only environmental activities, but also contributes to sustainable development by solving environmental problems [1];
- the "World Charter for Nature" was approved at the UN General Assembly in 1982 and entrusted the responsibility for protecting the environment of our planet and preserving its natural resources on the UN members [2].

Currently, green initiatives are actively developing both nationally and internationally. Each country is developing its own national environmental initiatives. The development of national initiatives promotes the adoption and pooling of environmental efforts at the international level. The adoption of the Paris Agreement (on climate change) or the practice of green finance and the concept of greening the financial system within the framework of the G20 can be cited as an example. Then national initiatives were taken to the global level, in particular, the G20 Green Finance Study Group was established to study green financing [3].



Decree of the President of the Russian Federation of 5 January 2016 No 7 "On Holding the Year of Ecology in the Russian Federation" is an example of a national initiative in the Russian Federation (RF) [4].

President of the Russia Vladimir Putin stated that the area of specially protected natural territories is 322 thousand square meters, which is about 6% of the entire territory of the Russian Arctic; Russia will continue to expand the area of specially protected natural northern territories. He called on the neighboring states in the Arctic zone to join the solution of environmental problems of the unique Arctic region (the III International Arctic Forum "The Arctic is the Territory of Dialogue" of 24-25 September 2013 in Salekhard, Russia) [5].

"The State Program of socio-economic development of the Russian Arctic for the period until 2020" was approved by the Government of the Russian Federation, where special regimes of nature management of the northern territories were established [6]. In addition, the importance of a green economy for the development of Russia was noted in the report "Strategy 2020: A New Growth Model is a New Social Policy" [7].

From the foregoing, it can be concluded that the development of national initiatives can help increase the sovereignty and competitiveness of the Russian economy through the development of internal environmental standards.

2. Research Method

The analysis of literature data on the problems of the Arctic development was carried out using methods of comparative data analysis.

3. Results and Discussion

Scientific research on environmental topics and economics related to the growth of environmental pollution and the use of limited and non-renewable natural resources has been carried out for a long time. The terms "green" economy and "green" financing began to be applied relatively recently (90s of the 20th century); they contain the ideas of sustainable development and economic growth. These processes became possible after creating the necessary conditions for combining interdisciplinary approaches and research in environmental protection and economics.

The concept of a green economy was first introduced in 1989 by a group of economists from the United Kingdom government [8]. There is no generally accepted definition of a green economy and green finance.

UNEP believes that the "green" economy is an economic activity that enhances people's well-being, ensures social justice and reduces environmental risks and contributes to resource saving [9]. A group of non-governmental organizations united in the "Coalition of the Green Economy" considers that the green economy is "the economy that provides a high quality of life under the environmental constraints of the planet" [10].

Also, the "green economy" is an economic activity that modernizing and increasing production efficiency along with improving the quality of life and living environment [11].

In addition, a "green economy" means a development model based on sustainable development, internalization of environmental externalities; an integrated approach is applied to the decision-making process with the introduction of resource-saving and resource-efficient innovations that improve the quality of life [12].

Summarizing, we can say that the "green" economy includes economic activities that can reduce environmental pollution by constantly monitoring and predicting climate change, introducing and developing modern energy-efficient and resource-saving technologies (for example, in the field of renewable energy) and leads to an increase production efficiency and quality of life.

The aim of the green economy and green financing is to develop production while preserving the environment, which will solve the natural-climatic and environmental problems with the use of modern financial market instruments, social policies and improve the state and regional finances and the environment through green financing.

Each state develops its development programs depending on the set goals and available free financial and natural resources in accordance with the level of their economic development; so developed countries focus on competition, while developing countries focus on increasing jobs, reducing poverty, sustainable development and efficient use of resources.

Natural resource, climate, environmental challenges that can be solved, for example, through the introduction of modern innovative technologies, are combined in the following sections [13], [14], [15], [16], [17], [18]:

- conservation and protection of ecological systems;
- creation of a new useful quality of consumption, realized in the form of goods and services that do not have an adverse effect on the environment: "green" products, biodegradable materials, eco-construction and eco-transport, etc.;
- increasing the efficiency of the use of energy sources (renewable and non-renewable);
- reduction of the negative impact of human activities and production on the environment;
- control and reduction of hydrocarbon emissions, the introduction of new technologies;
- processing and disposal of waste, the introduction of innovative technologies;
- control and regulation of the level of industrial pollution;
- water supply, air protection measures, sanitation and hygiene;
- adaptation of the population and industry to climate change.

The "decoupling effect" is achieved through the introduction of green technologies in developed countries; its essence lies in the fact that an increase in investments in the green economy ensures economic growth without harming the environment [19].

The Organization for Economic Co-operation and Development (OECD) under green technology means [20]:

- technologies implementing general environmental management: waste, land reclamation, etc.;
- technologies for producing energy from renewable sources, such as solar energy, wind energy, biofuels, etc.;
- technologies mitigating the effects of climate change;
- technologies that reduce pollution of atmospheric air, surface and groundwater;
- technologies that increase fuel efficiency;
- technologies that increase the energy efficiency of buildings, structures and lighting devices.

However, there is an opinion that a decrease in consumption may occur due to the introduction of new technologies; this factor is a prerequisite for the functioning of the green economy. In turn, it will lead to inhibition of economic development and decreasing living standards in the world. In addition, critics of green development argue that the formation of a green economy can only be successful on a planetary scale, but not within a single country.

In addition, the inhibition of economic growth of the world economy can occur during the transition to a green economy due to the sanctions introduced by some countries, protectionism, quotas or technical and environmental standards for the use and disposal of goods.

In contrast to these opinions, it should be noted that the average losses from natural disasters are about 181 billion dollars/year; about 5-7 trillion dollars/year will take for the development of infrastructure until 2030 and build a low-carbon economy will require to funding (about 1.1 trillion dollars/ year) to 2050 annually [21], [22], [23].

Thus, green financing is a huge resource that you need to learn how to use.

The positive effects of developing the Arctic are obvious:

- political effect (confrontation with large players who are not interested in developing the Arctic shelf by our country);
- economic effect (increasing the economic independence of the region by attracting additional resources and investments);
- socio-economic effect (the creation of new jobs as part of the development of the Arctic).

The Arctic is the most important region for the Russian Federation. The area of the Arctic zone of Russia is about 700 million hectares; this territory is the main resource base. The industrial

development of the continental shelf of the Arctic is just beginning. Enormous reserves of natural resources and an advantageous strategic position lead to the fact that its role is growing steadily. The concentration of huge natural resources in the Arctic, transit opportunities and the availability of oil and gas pose a geopolitical task for some of our neighboring states to bring this region under their control. The US Geological Survey (USGS) considers that in the Arctic, the estimated reserves of technically recoverable oil and gas resources are 412 billion barrels of oil equivalent, of which 84% are located on the Arctic shelf, including approximately 47.3 trillion m³ of gas and 90 billion barrels of oil [24].

According to numerous estimates, the Russian continental Arctic shelf has the greatest resource potential, despite the fact that it has been least studied in comparison with the northern waters of neighboring countries. The Barents Sea was studied by Norway 20 times more than in the Russian Federation, and the United States explored the Chukchi Sea 10 times more than Russia [25].

Prospective resources of the Arctic shelf amounted to 66.6 billion tons of standard fuel in 01/01/2011; recoverable oil resources are estimated at 9 billion tons (according to the Ministry of Natural Resources and Ecology of the Russian Federation). From the end of 2013 to the present Gazprom Neft Shelf LLC has been carrying out commercial oil production at the Prirazlomnoye field at a depth of 20 m, the reserves of which are estimated by specialists at 70 million tons. The offshore ice-resistant platform, capable of autonomous operation for a long time, is used for year-round operation (production, storage and shipment of oil) at the Prirazlomnoye field. Neighboring oil fields (for example, Dolginskoye field) will be involved in the development, which will be delivered to the same ice-resistant platform, in order to optimize previously incurred costs and increase the economic efficiency of the Prirazlomnoye field development [26].

Since the development of the northern territories requires new types of equipment and a completely different level of technology, the development of the Arctic can serve as an impetus for the modernization and technical re-equipment of the entire Russian oil and gas industry [27].

The development of scientific and technological progress and the emergence of new mining technologies have opened up new prospects for the development of the region. There is a real opportunity to attract investment green finance for the implementation of large-scale Arctic programs in modern conditions.

Large-scale infrastructure projects in the Arctic zone for the extraction of minerals will create new jobs and, in general, improve the socio-economic development of this region.

At the present stage, the development of the Arctic in Russia is given significant attention. Today, the Arctic regions are faced with the problem of underfunding of socio-economic development programs; therefore, subsidies from the federal budget are allocated for them. The created concept for the development of the Arctic, which is the basis for solving environmental problems along with the updating of the Russian Arctic Strategy. It is noted that a special role in the development of the Arctic will belong to Russian oil and gas corporations. The development of the Arctic will additionally provide funding for programs for the development of nearby territories in the predicted range of 5 to 30 years. It is of great importance in the context of the introduced economic sanctions, as a result of which Russia needs additional sources for replenishing the budget and attracting investments. The state program "Socio-Economic Development of the Arctic Zone of the Russian Federation" has been developed for the long-term development of the arctic [16].

It is necessary to take into account the complex natural and climatic conditions of the population, production and mining at the industrial development of the Arctic. These factors lead to a high cost of work at all stages, starting from the exploration stage. In addition, the environmental risks and responsibility of Russian subsoil users are increased, which do not have sufficient experience in developing unconventional hydrocarbon deposits (including under ice cover) and do not have the necessary Russian-made equipment. However, it should be noted that any costs to the Arctic region would be profitable for oil and gas companies due to the depletion of confirmed oil reserves in traditional fields.

Since the Soviet era, the Arctic has been producing useful resources: oil, gas, mineral resources, etc. Anthropogenic pressure on the Arctic ecosystem has increased dramatically as a result of industrial environmental management, which did not take enough account of the environmental factor in previous years, which led to its degradation and the accumulation of economic and social problems.

The main hazard in the Arctic is chemical pollution; it is due to the low assimilation ability of its ecosystems. High levels of pollution of atmospheric air and water bodies were revealed in the northern regions. For example, the most unfavorable state of water bodies was revealed in the Arkhangelsk and Murmansk regions, the Nenets and Yamalo-Nenets Autonomous Okrugs; there, the number of samples selected for analysis that do not meet sanitary and chemical indicators is 2.7 times higher than the average for Russia [28].

Decisions to minimize environmental risks that were delayed in previous years led to the accumulation of waste and pollution of the Arctic region.

Therefore, it is necessary to attract private capital at the legislative level in the framework of public-private partnerships, to stimulate creation of green jobs and development of natural resources in the Arctic with an emphasis on the use of modern low-waste and wasteless technologies of production and extraction of hydrocarbons and other minerals (e.g., with the involvement of green financings), and also to participate in the development of programs for environmental improvement of territories and their rehabilitation [29], [30], [31], [32], [33].

To implement these tasks requires:

- further development of environmental legislation;
- development and application of legislative and financial instruments to mitigate the effects of climate change;
- development and promotion of technologies, solutions used for environmental protection, reducing the level of pollution of water, air, soil and allowing to increase the culture of waste management;
- implementation of modern technologies only after their testing; it requires the creation of specialized centers for their testing and certification, taking into account the climatic conditions of the region;
- implementation of measures to improve energy efficiency in the Arctic;
- attraction of direct Russian and foreign investments;
- rehabilitation and rehabilitation of the northern territories;
- disposal of previously accumulated industrial waste in the Arctic.

Currently, Russia has introduced strict environmental protection requirements for enterprises operating in the Arctic; they are introduced at the design stage of any new production. It is necessary to extend these requirements to existing production facilities in order to encourage the owners of these enterprises to carry out modernization and reconstruction.

It is well known that any production, mining and processing of minerals have a negative impact on the environment, which is accompanied by emissions into the atmosphere, the formation of waste and waste water. High requirements for the cleanliness of Arctic production projects encourage companies to work in compliance with all environmental standards, to apply modern technologies and finance environmental activities.

Thus, financial instruments are needed to regulate the activities of companies that conduct economic activities in the Arctic. These are not fundamentally new institutions in technical terms, but their difference lies in the environmental component. In the modern world, green loans are widely used, as well as other green financing tools (bonds, banks and green funds).

There is no comprehensive legislative framework for the assessment of green projects, has not established a system of verification and certification of green bonds and other financial instruments; there are no green banks in our country. In addition, the implementation of green initiatives requires financial resources, which are usually insufficient in the country's budget and local budgets; so public-private partnership programs are being developed for their effective implementation. Green finance

provides money for industrial production, the main condition of which is to mitigate the anthropogenic impact on the environment and efficient use of resources.

Many countries encourage the development of the green finance market at the national level. Green financial instruments can act not only as a kind of vehicle for the development and introduction of modern technologies, but also as a necessary condition for attracting Russian and foreign investments and protecting them from "non-competitive" political pressure from neighboring countries aimed at reducing the economic development of the Russian Arctic. The reputational losses of competitors and "partners" that they may suffer from the accusations of companies and countries are great; the goal of their business and development is to protect the environment.

The green economy implies sustainable development of green agricultural and industrial production, renewable energy, etc. if risks are insured and a guarantee mechanism is formed, many infrastructure initiatives in the Arctic can be implemented within the framework of green financing. The term "green" Bank means that it has a wide range of "green" financing products. Such banks have developed lending to energy service companies, "green" technologies in the field of energy efficiency and reducing greenhouse gas emissions, extraction, processing of raw materials, etc.

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Russian banks may be interested in the rapidly developing market for trading quotas for greenhouse gas emissions. There is a great opportunity to create financial funds in Russia, such as the carbon partnership in forestry and other climate investment funds; their budget can be filled by reducing and selling greenhouse gas emissions. There are broad prospects for applying green financing mechanisms for energy efficiency projects. The use of energy-efficient wall insulation is directly related to reducing greenhouse gas emissions by reducing the heat energy spent on heating buildings and structures. Funds received from quota trading can be transferred to a special environmental Fund and, as green investments; they can be used to Finance energy-saving measures and reduce greenhouse gas emissions. Effective implementation of this direction will require changes to the legislation of the Russian Federation.

Since the green lending segment is poorly represented on the Russian banking market, it is necessary that the priority of the green economy in the development of the Arctic be supported by government decisions that will help to integrate the green component into the region's financial system.

In addition to banks, private businesses can also finance environmental projects. For example, in 2017 the holding company "Arctic Capital" (Yakutsk) invested 1.2 billion rubles in an investment project for the extraction of alluvial gold in the Ust-Yansky region of the Republic of Sakha-Yakutia based on the processing of man-made dumps formed during mining in previous years [35]. It is necessary to develop a mechanism for stimulating private investment and green co-financing by banks of environmental measures for processing man-made waste using modern technologies To activate the private initiative [36].

However, it is clear that it is necessary to increase the share of public spending and the efficiency of its spending on infrastructure development and environmental protection in the Arctic. Today private capital will not be able to solve social and economic problems in the Arctic without state support. Herewith, it is necessary to create a mechanism to support and encourage green business investments in the environmental sphere. It is necessary to develop clear rules for working for businesses in the Arctic region, which will allow them to invest in the real sector of the Arctic economy not only for profit, but also for solving important environmental, social and climate problems.

According to the calculations of UNEP, the implementation of the green economy growth program, which assumes an annual investment in environmental protection in the amount of 2% of world gross domestic product, will increase the growth potential of the green economy, which will eventually exceed the growth rate of the "normal business" scheme after 7 years.

4. Conclusion

The significance of the Russian Arctic is obvious. The presence of explored reserves of hydrocarbon and most importantly potential oil and gas resources, the possibility of extracting other natural resources, the presence of the Northern Sea Route - all this makes control over this region a geopolitical priority of Russia in the face of limited resources and depletion of existing deposits in the world.

Integrated development of the Arctic region requires solving many problems; it is necessary to ensure a balance between economic development and ensure environmental safety requirements for any kind of work, as well as minimize the negative impact of industry on the nature of the Arctic.

It is necessary to develop new regulations to unify and harmonize the environmental legislation existing in the Russian Federation at the state level, including to activate the development of the green economy. It is also required to improve the quality of public administration, give the real economic incentives to investors to encourage the introduction of advanced low-carbon competitive technologies in production, thereby ensuring a transition from the traditional model of economic growth to a green economy.

The green economy implies changes not only in the environmental sphere; it is necessary to form a new technological structure. Political, social and environmental transformations lead together to a common goal in the concept of a green economy - to the sustainable development of mankind.

Thus, the green economy is another area that determines the strategic development of the Russian Arctic.

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