Prerequisites for implementing the principles and tools of “green” economy in the Altai Republic

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Abstract. The study aims to identify the prerequisites and features of the implementation of the principles and tools of a “green” economy in the Altai Republic, one of the constituent entities of the Russian Federation. The paper suggests a number of approaches to the formation of the main stages in the implementation of the principles and tools of a “green” economy in a region. The authors also systematize the key prerequisites necessary for introducing the principles and tools of a “green” economy in the Altai Republic. The study presented in this paper will contribute to the development of priority “green” sectors in the economy of the Altai Republic.

1. Introduction
In contemporary conditions, the development of the economy and social sphere in many countries and their regions is characterized by such problems as environmental pollution; growing anthropogenic load on ecosystems; irrational resource consumption; inefficient recycling systems and consumption wastes; population poverty, etc. The need to solve these problems determines the search for new models of economic growth, the important features of which should be the effective use of natural resources; the preservation and increase of natural capital; reduction of environmental pollution; low carbon emissions; preventing loss of ecosystem services and increasing incomes and employment. As of today, one of these economic growth models is the “green” economy model. The purpose of this model is the socio-economic development of the region through the effective use of natural resources, ensuring the reproduction of resources and the preservation of ecological systems. However, the effectiveness of the implementation of the principles and tools of the “green” economy in individual regions depends on its successful adaptation to the specific conditions of the region’s development and the consideration of differences in natural, human, and financial resources.

The aim of the study is to determine the prerequisites and features of the implementation of the principles and tools of “green” economy at the regional level. The object of the research is the process of introducing the model of “green” economy in the Altai Republic.

2. Materials and Methods
In the course of the study, the authors used such general scientific methods as system analysis, descriptive, comparative research methods. The paper is based on the works of domestic and foreign authors on the problems of building a model of “green” economy. More than that, we relied on materials of international, Russian, and regional conferences, as well as legislative and regulatory acts of the Russian Federation and the Altai Republic.
3. Results

The study of the theoretical foundations of the problem of introducing the “green” economy model in individual regions clearly demonstrates that, at present, there are many definitions of this concept. But most authors are inclined to the point of view shared by the UN experts in the field of environmental protection. According to this view, a “green” economy is “an economy that provides long-term improvements in people’s well-being and reduced inequality without risks to the environment, or an economy that promotes social progress, sustainable consumption and production” [1].

Therefore, the following principles can be attributed to the basic principles of a “green” economy:

- Ensuring equality, fairness and objectivity in relations between countries, regions, within one generation and between generations;
- Ensuring interconnection and consistency of the principles of “green” economy with the principles of sustainable development;
- Improving the quality of life of the population: reducing poverty, increasing the level of incomes of the population, ensuring equal access of the population to universal benefits;
- Ensuring sustainable and efficient use of resources, rational consumption and resource-efficient production;
- Providing employment, including through the creation of “green” jobs;
- Providing a comprehensive assessment of natural and social capital (internalization of externalities, the organization of “green” accounting and auditing, etc.);
- Searching for funds to achieve the goals of a “green” economy (attracting “green” investments, selling “green” bonds, developing a system of state financial support, etc.) [2].

In our opinion, the process of introducing the principles and tools of a “green” economy in the region should be carried out in stages (Figure 1).

![Diagram](image)

**Figure 1.** The process of introducing the “green” economy model at the regional level.

At the first stage of the implementing the principles and tools of a “green” economy at the regional level, the particularities of the region should be taken into account. This will allow to determine the balance between the possibilities of the socio-economic development of the region and its natural resource potential, which is the goal of a “green” economy.
At the same time, analyzing and defining the features of regional development, which are a prerequisite for the “green” economy model, an assessment and analysis of important indicators of the region in the following areas should be carried out:

- Availability, level, and condition of the region’s natural capital (mineral resources, land resources, forest resources, biological and water resources);
- Assessing the socio-economic situation in the region (GRP per capita; investments in fixed capital per capita; a sectoral structure of GRP and investment in fixed capital; a degree of depreciation of fixed assets, an income level; unemployment rates; life expectancy at birth, etc.);
- Assessing the environmental situation in the region (polluting emissions; wastewater discharges; production wastes; emissions from motor vehicles; a share of specially protected natural territories, etc.);
- Evaluating the institutional environment of the region (a set of factors that influence the functioning of economic entities through the activities of political, economic, social and other institutions).

Based on the analysis and determination of the features of regional development, specific goals and objectives of the “green” economy model in the region should be formulated. At the same time, when shaping the goals and objectives of the “green” economy model, goals and objectives should be defined in three areas of regional development: environmental, economic, and social.

On the basis of identifying features of regional development, “sectoral” priorities of a “green” economy should be clarified and shaped at the regional level. In turn, for the development of priority “green” sectors of the economy, effective mechanisms and tools should be identified. When developing mechanisms and tools for a “green” economy in the region, a number of circumstances must be taken into account, including the peculiarities of the region’s socio-economic development, the types of financial and economic instruments implemented in the region, the ability of governments to develop tools for a “green” economy and to ensure effective monitoring of the implementation of the goals of a “green” economy [3]. The main instruments of the “green” economy that can be applied in the region are presented in Table 1.

Table 1. Main instruments of the “green” economy.

| “Green” economy mechanisms | “Green” economy tools |
|----------------------------|-----------------------|
| Regulatory mechanism       | - Developing a regulatory framework governing the economic, technological, and environmental bases of the “green” economy model; |
|                           | - Developing a set of technical regulations and technological standards, enshrining the mandatory and other norms and standards for energy efficiency, the use of energy from renewable sources, in the field of ecology, etc.; |
|                           | - Developing a system of legal liability for violation of environmental legislation, etc. |
| Financial and economic mechanism | - Reforming the system of taxes and payments through the introduction of taxes or payments for environmental pollution (“green” taxes) or the use of certain types of resources; |
|                           | - Stimulating the development of “green” business and “green” technologies (“green” innovation) through government subsidies, government procurement and other forms of direct support; |
|                           | - Developing a package of measures to stimulate “green” investments in the economy (tax, property and other benefits, the introduction of simplified administrative procedures, information support and investment projects, etc.); |
|                           | - Using new sources of funding for activities in the field of “green” economy (“green” bonds, etc.); |
|                           | - Encouraging the creation of “green” jobs (assistance in training and retraining of the personnel, its evaluation, etc.); |
|                           | - Formation of a system of environmental certification and labeling (for organic resources, land resources, forest resources, biological and water resources); |
The effectiveness of applying the “green” economy principles and tools at the regional level (based on its goals) is determined by the degree of achievement of results, which are subject to the development of priority “green” sectors of the economy. More than that, it is characterized by the socio-economic and environmental consequences of its implementation, taking into account the effectiveness of economic, institutional, and legal mechanisms to ensure the transition to a “green economy”.

4. Discussion
As noted earlier, when introducing the green economy model in a particular region, the specifics of regional development should be taken into account. Thus, when introducing the principles and tools of the “green” economy in the Altai Republic, the following features of regional development and prerequisites should be taken into account:

- The Altai Republic has a low level of economic development. Thus, in the overall ranking of the Russian Federation in 2017, the Altai Republic ranks 82nd among 85 constituent entities of the Russian Federation (83rd in 2016, 82nd in 2015);
- The Republic of Altai has a rich natural resource capital, including mineral resources, land, water and biological resources. At the same time, the use of the region’s natural resource capital is characterized by a number of features: reserves of mineral resources are not sufficiently studied in terms of geological, economic, and environmental features of their development; a significant part of the region’s agricultural land is subject to erosion processes; the main environmental problem of wastewater disposal is the low degree of sewerage in settlements, etc.;
- The natural resource potential and the predominance of the rural population led to the agrarian and tourist-recreational specialization of the region. At the same time, agriculture and tourism are identified as priority areas for the socio-economic development of the Altai Republic. This is enshrined in the Strategy for the Socio-Economic Development of the Region until 2035;
- One of the acute problems of the socio-economic development of the Altai Republic is the energy supply. Until 2015, the Altai Republic did not generate electricity on its territory, with the exception of ten small diesel power plants, a wind farm, and two small hydropower plants with a total capacity of 1.3 MW. They were intended for local power supply of objects in remote and remote settlements of the region, and not connected to the general power grid of the Altai Republic. In 2015-2017, a number of solar power plants were launched in the region [5]. Dependence on the electricity supply of the region increases the relevance of the development of local energy based on renewable energy sources;
- The ecological situation in the Altai Republic is recognized as quite favorable. However, we can identify a number of environmental problems: the increase in the level of air pollution in the republic by motor transport, which, along with boiler houses, is becoming one of the main sources of pollution; a specific factor of environmental impact of the Republic of Altai is the objects of tourist infrastructure, which are characterized by such types of environmental violations as: illegal cutting and damage to trees and shrubs, non-compliance with the requirements for the protection of water bodies from pollution and depletion, non-compliance with the requirements in the field of waste management and in the field of land legislation; growth in the volume of municipal waste in the absence of waste processing facilities in the region.
The features of each region will determine the “sectoral” structure of the “green” economy model. At the same time, the basic principle of the development of a “green” economy is to ensure a balanced interaction of the main priority “green” sectors. These industries define the essence of regional development on the basis of a “green” economy, as ensuring a favorable environment for economic growth in the region. Thus, the main areas of the Republic of Altai, contributing to the “greening” of the entire economy, include: “green” agriculture (organic agriculture), forestry, sustainable water management, fisheries, alternative energy, tourism development, waste management and their utilization.

5. Conclusion
One of the new models of economic growth, ensuring the socio-economic development of the region through the effective use of natural resources, ensuring the reproduction of resources and the preservation of ecological systems, is the model of “green” economy. At the same time, the introduction of the principles and tools of the “green” economy will be effective only if it adapts to the specific conditions of the regional development, taking into account the level of economic development, resource potential, management system, etc. At the same time, it is precisely the consideration of the specific features of regional development that will determine the types and applicability of “green” economy instruments.

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