ESG Concept in the Context of the Regional Ecological Development

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Abstract

The main environmental problems of paramount importance are the increased volume of waste produced, accumulation and disposal of toxic garbage, and climate change due to greenhouse gas emissions into the atmosphere, particularly carbon dioxide. Russia has a status of the "major economy," which is focused on extractive industries and natural resources. As a result, the country has many problematic issues in the field of environmental pollution, namely the negative impact of regional enterprises and hazardous waste management. In this regard, the research explores the scientific category "ecological portrait of a region" against the background of the ESG concept. The research considers the national project "Ecology" and the ESG concept from the perspective of a regional ecological portrait establishment. The authors determine the essence of the term "ecological portrait of a region" and the stages of drawing up an ecological portrait of the region. Moreover, the authors present indicators for each stage that can be used to assess the environmental safety, management, and efficiency of the region. Additionally, they describe the relevant aspects of a regional ecological portrait. The research results allowed the authors to conclude that eco-efficiency is an express indicator of a regional ecological portrait.

Keywords

Regional ecological portrait · ESG concept · Environmental safety · Environmental management · Environmental efficiency · Eco-efficiency · National project "Ecology"

JEL Classification

O13 · P18 · P28

1 Introduction

Contemporary social and economic development of humans is based on achieving a balance of three main elements: economic growth, social integration, and environmental protection. Achieving the balance of these three elements brings the enterprise to sustainable development. These elements are the basis of the ESG (ecology, social policy, and corporate governance) concept (Mazhorina 2021).

Among the three components of the "ESG" triad, the environmental one is of prime importance because the environmental requirements of consumers increase, the requirements of state regulatory authorities become tougher, and public awareness of environmental issues grows. The main aspect is energy efficiency. This gives rise to the urgency of drawing up a regional ecological portrait (Mazhorina 2021).

2 Methods

In 2018, the government accepted the national project "Ecology," which is aimed at minimizing the negative effect on the environment. The considered project comprises eleven federal project works. They can be classified into six subgroups (Table 1).

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Table 1 Subgroups of the national project "Ecology"

Subgroup	The subgroup name	Project
The 1st subgroup	Waste	"Preserve our pure homeland," "Infrastructure for safe management of waste of different hazard classes"
The 2nd subgroup	Fresh air	"Preserve fresh air!"
The 3rd subgroup	Water and its Objects	"How can we restore the Volga?", "How to preserve pure water?", "How can we protect the lake Baikal?", "What are the steps to preserve unique water objects?"
The 4th subgroup	Ecotourism and Biological Diversity	"How to preserve the biological diversity and develop eco-tourism?"
The 5th subgroup	Wood	"How can people restore wood?"
The 6th subgroup	BAT (Best Available Technique)	"Applying the BATs"

Source Complied by the article authors

The purpose of realizing the given project is to solve the following significant tasks (Anufriev et al. 2022):

1. To preserve the biological diversity;
2. To ensure the ratio of 100% balance of the disposal and reproduction of forests;
3. To manage the production and consumption waste effectively and remove the unauthorized dumping grounds near the cities' borders;
4. To improve the drinking water quality for all people on the planet, notwithstanding their place of residence (big cities or settlements);
5. To significantly reduce air pollution, especially in large industrial centers.

3 Results

In trying to achieve the project goals, it is advisable to apply the ESG concept, which began to form in the 1970s as a response to the environmental, particularly the climate, crisis and economic inequality between developed and developing countries. The abbreviation ESG stands for as follows:

- Ecology (E), i.e., responsible environmental management;
- Social policy (S), high social responsibility;
- Corporate governance (G – governance).

The ESG conception can be correlated with ESCG factors (Table 2).

Working with the unit of assessment E, we are to assess the environmental risks in a region's activities. This unit of assessment comprises different categories.

The base for assessing the environmental component in the ESG conception is the wide-ranging analysis of the eight groups of indicators:

1. The indicators concerning climatic change. Considering this group of indicators, we are to assess the different risks connected with climatic change within the list of current risks for a region, integration degree of the global climatic change agenda into the regional activities. It is also necessary to assess the presence of a climatic change adaptation program and the participation in international voluntary initiatives in sustainable development, climate action, or voluntary certification.
2. The indicators concerning biological diversity. Using these indicators, one can assess the arrangements a company makes to maintain biodiversity. They are applied for assessing the biodiversity impact degree, the availability of biodiversity conservation programs, realized activities in the protected areas or wetlands of the Ramsar Convention and in the territories characterized by enhanced biological value, and the number of species

Table 2 The content of the ESG concept

Block	ESG		ESCG factors	
	Abbreviation	Definition	Factor	Content
Unit of assessment E	E	Ecology	Environment	Responsible environmental management
Unit of assessment S	S	Social policy	Society	High level of social responsibility
Unit of assessment G	G	Governance	Corporate governance	Qualitative corporate governance

Source Complied by the article authors

on the territories influenced by the region's economic activities.
3. The indicators concerning energy performance. We can list the quality of energy consumption management, the availability of the programs for energy efficiency improvement, and energy intensity.
4. The indicators connected with garbage and packing material. These indicators pay attention to regional programs and policies for disposing of household garbage and industrial waste, as well as the share of recycled and disposed waste.
5. The indicators connected with land use. This group of indicators estimates the land reclamation program for those regional enterprises that pollute land due to their industry specifics.
6. The indicators concerning air pollution. These indicators are designed to evaluate emissions of pollutants into the atmosphere and greenhouse gas emissions in CO_2 equivalent.
7. The indicators concerning water use. Applying these indicators, a researcher is to evaluate water consumption, the use of recycled water, and the disposal of aqueous wastes in the surface watercourse.
8. The indicators concerning the environmental management system. Working with the given group of indicators, one should pay attention to the availability of an environmental management system and the management quality in the sphere of environmental protection. It is also necessary to assess the program "A green office," a strategy or policy for environmental protection, environmental requirements for contractors and suppliers, and the availability of environmental education programs.

4 Discussion

The authors studied the tasks and the goals of the project "Ecology" and the ESG concept. On the basis of the received results, the authors conclude that the development of a regional ecological portrait is an effective tool for achieving the stated project's goals and solving its tasks. For this purpose, the government of the Russian Federation adopted the document in which they approved the projects' key points for sustainable development in Russia and requirements for verifying the system.

The Ministry of Economic Development of the Russian Federation and the Bank for Development and Foreign Economic Affairs worked out the national methodology, which enumerates "criteria in the following areas: waste management, energy, construction, industry, transport, water supply, agriculture, and conservation of biodiversity and natural landscapes, and establishes requirements for verifying the system, financial instruments for sustainable development, and verifiers" (Ermakov 2021; Krasnoshchekov and Semenduev 2013).

On this basis, it is possible to define a regional ecological portrait as the explanation of a region's activities in three areas from the perspective of environmental safety, environmental management, and environmental efficiency.

Compiling an ecological portrait of the region makes it possible to implement the eco-efficient regime, "the purpose of which is to reduce the impact of regional enterprises on the environment, with the simultaneous steady growth of the region's activities" (Mazhorina 2021; Sozinova et al. 2022).

It is proposed to develop a regional ecological portrait in accordance with the following three directions:

1. Environmental safety of a zone;
2. Regional environmental management;
3. The achievement of the environmental efficiency of a zone.

The first step of developing a regional ecological portrait is devoted to assessing the environmental safety of the regional enterprises' activities. At this stage, a regional ecological portrait is developed from the perspective of the environmental safety of the resources and technologies used at enterprises, as well as the finished products produced.

In the second stage, the environmental management of the region is assessed. A regional ecological portrait is developed from the perspective of such management, which contributes to the environmental safety of a region's activities.

The third stage assesses the environmental efficiency of the region's activities. The results of this stage allow us to complement the ecological portrait of a region from the perspective of the effectiveness of measures and actions aimed at the environmental safety of its activities.

The process of developing a regional ecological portrait implies the obligatory calculations of the environmental safety indicators of any region. The given indicators are divided into some groups: gas, liquid emissions, solid waste, radiation, technological facilities and equipment, supply and delivery, products, production, raw materials, basic and auxiliary materials, and energy sources.

Each group contains a list of indicators that can be used to analyze the level of environmental safety of raw materials, basic and auxiliary resources, energy inputs, technological equipment and facilities, supply and provision of goods, output, production, the level and availability of influence of flowing emissions, solid waste, radiation, and gas (Table 3).

After assessing the environmental safety indicators of a region, the next important step is to calculate and forecast the environmental management indicators of a region.

Table 3 Indicators of the regional environmental safety

Indicator group	Indicator title
Raw material	Harmful and toxic materials and substances availability in the technological process; raw stuff ingredients, which can contain harmful substances; the amount of materials per unit of production, etc
Energy sources	Energy consumption; disposal of untreated and insufficiently treated wastewater into surface reservoirs; water consumption; recycled water use, etc
Equipment amenities	The number of contingencies per year; land for production; how many hours does the equipment functions per year
Supplies	How much fuel is used by all the vehicles; how many truck haulages are there every day; etc
Products	Recycling technology; the share of recycled and disposed hazardous waste; the share of recycled and disposed non-hazardous waste, etc
Production	Accident rate; safety arrangements; technological regulations
Emissions, waste, radiation	Composition and amount of emissions into the atmosphere; discharges; composition and amount of solid waste; radiation level; noise level, etc

Source Complied by the article authors taking into account (Ashmarina et al. 2023; Sozinova et al. 2023a, 2023b, 2023)

The second stage in developing a regional ecological portrait is assessing environmental management, which is implemented at an enterprise. At this stage, it is first necessary to assess the compliance of the company's activities with regulatory legal requirements and the level of the environmental management system operation.

For this purpose, the objectives of environmental policy and the number of pollution prevention measures implemented must be clearly defined. A researcher working with this topic needs to define the exact number of achieved targets and planned indicators, the number of employees having specific training, and the results of testing employees' knowledge on environmental aspects of the region's activities. The environmental standards and the absence of penalties for their violation, as well as the availability of the database with regulatory legal acts and their update, are also a significant part of a researcher's attention.

In addition, it is mandatory to calculate current and capital costs that relate to the environmental aspects of products or processes. If measures have been taken to prevent pollution or recycle waste, then savings are to be shown.

Indicators reflecting the environmental management of the region include the following indicators:

- The number of programs or useful information for the population eager to research environmental issues;
- Motivation to perform environmental activity;
- The availability of environmental training programs;
- The number of emergency conditions per year;
- Land for production;
- The indicators concerning media hype (comments and research papers on environmentally-related cases);
- Resources attracted to ensure public support for environmental programs.

The final (third) stage in developing a regional ecological portrait is to analyze the regional ecological efficiency. For this purpose, the following calculations are made:

1. To calculate the degree of the environmental sustainability of production. It is calculated as the ratio of the environmental costs of a region to the total costs. This category expresses the content of environmental costs of a region in their total costs;
2. To calculate the degree of environmental efficiency. It is calculated as the ratio of the financial result that is fulfilled in production activities to the environmental costs of the region (costs for atmospheric air protection, water resources, and land). The category shows the financial result per unit of environmental costs of a region;
3. To calculate the extent of environmental friendliness of products. It can be considered as the volume of products certified for environmental friendliness and safety to the total costs.

5 Conclusions

The research yielded the following conclusions. The process of developing a regional ecological portrait makes it possible to evaluate the eco-efficient approach of work used at the enterprises of any region. The described approach is aimed both at minimizing the impact on the environment and increasing its profitability.

Eco-efficiency includes ecological and economic proficiency. This term reflects the productivity of natural resources.

As a comprehensive indicator of a region's eco-efficient regime, we must apply environmental accounting and analysis, providing accurate information on environmental costs, savings and analysis of the environmental impact of economic activities to determine the eco-efficiency category under study.

We can emphasize that the studied term signifies the specific influence of regional industrial enterprises on producing goods and the environment from the point of view of energy consumption per one unit of production.

The drive to achieve economic benefits by means of reducing the impact on the environment and the natural resources used is the establishment of the eco-efficiency principle.

The studied category of eco-efficiency expresses a ratio value in a regional ecological portrait. It contemplates the ratio of environmental and financial efficiency.

Thus, drawing up a regional ecological portrait makes it possible to conduct an ongoing assessment of the region's activities from the perspective of environmental safety and develop a strategy aimed at effective management of those elements of activities having a significant effect on the environment.

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