

# Features of Green Supply Chain Management for Investment Projects in the Recreational Territories of the North Caucasus Republics

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**Abstract-** The term sustainable or green supply chain refers to the idea of integrating sustainable environmental processes into the traditional supply chain. The development of most industries in the real sector of the national economy is accompanied by a buildup of negative environmental impact. This situation, of course, requires an objective environmental and economic assessment and prediction of possible impact scenarios. In the North Caucasus, a number of recreational regions (Kabardino-Balkaria, Karachay-Cherkessia, North Ossetia-Alania, Chechen Republic) contain promising deposits of tungsten, molybdenum, zinc, oil, etc. Moreover, those deposits are located in places where ecosystems are very vulnerable, which causes the need for a special approach to ensure environmental requirements in the implementation of investment projects in the environmental management system. In today's realities, it is obvious that the development of the above strategically important deposits will not be performed without the participation of foreign partners, which is associated with certain features of the strategic management of an investment project, the development and approval of project documentation, etc. Undoubtedly, here it is necessary to foresee the possibility of the formation of a number of fundamental differences in Russian and foreign requirements for conducting socio-ecological and economic examination of investment projects. All this requires a certain harmonization between Russian and international requirements, unification of methods for organizing environmental support for investment projects implemented within the boundaries of specially protected natural territories of the North Caucasus.

**Keywords;** green supply chain management, economics of natural resources management, promising deposits, socio-ecological and economic assessment, investment projects, environmental support, sustainable development.

## 1. Introduction

Green supply chain makes the applications of the key sustainable development strategy outstanding. It emphasizes how green practices can be adopted in firms to mitigate the environmental degradations and increase the economic and operational performance of firms. As far back as the 18th century, the most advanced economists noted the importance of natural resources and physical and climatic factors for the development of the economy. So, for example, T. Malthus, A. Pigou, A. Smith and others even at that time analyzed the relationship between welfare and the parameters of the resources involved; they saw the danger of unlimited population growth, problems of the future situation in the economy in the face of increasing limited resources of the Earth. [1-8]

In the middle of the last century, the new term "natural capital" was introduced into scientific circulation in the framework of the new discipline "Environmental Economics".

It should also be noted the contribution of the World Bank, the European Bank for Reconstruction and Development, the UN and other organizations that have made a significant contribution to the study of the problems concerning sustainable development and environmental support of investment projects. It is also appropriate to note the Russian researchers involved in environmental issues of sustainable development in various sectors of the national economy [9].

Particular results regarding the forecasts of world development were achieved by the Club of Rome. The participants in this club built various scenarios for the near future and justified to the world community the need to take immediate measures to prevent a global crisis, which, moreover, will have an environmental and economic character. The members of this club also created various mathematical models of the trends on "peaceful coexistence" of economic, social, environmental and

technical systems in world development, which were published in the book "World Dynamics", "The Complicated Situation of Humanity".

It should be noted that these works had a great resonance in the world community, because they reflected concern about the state of the environment and the possible prospects for the development of world civilization.

Undoubtedly, environmental development requires a set of global studies regarding anthropogenic environmental impacts, the formulation of fundamental principles on the basis of which the successful implementation of the principle comprising environmental development at all hierarchical levels — global, regional, and local, is possible. [10-16]

The theory of eco-development itself presupposes a change in the control object: an ecological and economic system comes as the main form of organization for future development instead of the existing economic system.

The combination of natural and production potentials in the new ecological and economic system requires a transition to quantitative methods of measurement, through the use of which it was supposed to manage the commensurability under consideration. The main content of the concept under consideration is that natural capital rather than production acts as a limiting factor in modern development. Undoubtedly, this approach to setting priorities allows us to propose an organizational structure focused on the implementation of goals, to set up responsibility systems, systems for building an information base, training and retraining systems, and recognition systems for the most priority ways of sustainable and balanced development.

All of the above encouraged us to choose this research topic.

## 2. Research methodology

*Application of environmental management principles to the entire set of activities across the whole customer order cycle, including, design, procurement, manufacturing and assembly, packaging, logistics and distribution.* The main principles of institutional theory, the theory of sustainable growth, environmental economics, and the development of leading and Russian scientists in the field of environmental development made up the methodological green supply chain strategy basis of this study.

In the course of the study, a systemic and interdisciplinary approach to the processes under study was applied, and such general scientific methods as analysis and synthesis, deduction and induction, groupings, comparison, generalization were also used. The information-statistical base of the study was made by the regulatory legal acts of the Russian Federation and its subjects regarding the regulation of environmental

protection, nature management and ensuring the sustainability of the balanced development of the socio-ecological and economic system.

## 3. Research results

Green supply chain are integrating ecofriendly concept into supply chain management to improve environmental sustainability with different green practices including, green purchasing, green distribution and warehousing, green transportation with usage of biofuels, green manufacturing processes and the products' end-of-life management. The so-called "green" economy is based on the environmental development concept which involves the solution of its theoretical and practical problems within the framework of the corresponding macro ecological approach. The point is that the economy of the world community can and should develop exclusively within the framework of the economy of nature laws. [1] From the position of the macro ecological approach, the ecological and economic system oriented towards environmental sustainable development acts as the main object.

We consider the ecological and economic system of a separate region or regional economic complex as part of the ecosphere within the boundaries of a specific territory, where there is a certain interconnection of natural, social and industrial structures and processes carried out through mutually supportive flows of substances, information and energy.

The main task of the new economy which is digital and knowledge-based, is the purposeful transformation of all isolated and disparate systems into a single balanced ecological and economic system in which the anthropogenic load will not exceed the self-healing potential of the natural system.

It is clear that this will require a multiple reduction of enormous pressure on ecosystems. Two examples are enough: 1. world industrial production has increased over the past half century by 20 times, the population has increased 4 times; 2. predatory use of non-reproducible natural resources continues, which leads to environmental degradation.

Solely administrative methods can no longer be used to solve these problems. The peculiarity of modern environmental problems is such that their solution must be coordinated with the needs of the world community, the emerging demographic situation, the growing level of well-being of individual layers and the stratification of society, etc. [9]

The development of the digital economy erases the territorial boundaries between countries and guides them towards building anti-crisis programs with a predominance of environmental components, restructuring the national economy with an emphasis on industries producing new types of environmentally friendly

technologies and products and providing environmentally oriented services.

The role of state institutions should also be noted: they contribute to the definition and establishment of the boundaries of human expansion, redirect financial flows from the sector of maximum profit to the sector of socio-ecological balance. [6]

In accordance with paragraph 7, "The Millennium Development Goals," at the present stage of its development mankind must:

- reduce the level of depletion of natural resources by reducing environmental impact;

- improve from an environmental point of view the conditions for the development of mankind, and to neutralize environmental threats to the health, safety and living of an individual. [7]

Undoubtedly, these are the most difficult, but necessary for an immediate solution tasks.

In these conditions, in our opinion, the Russian Federation should abandon the inertial development scenario and move on to the innovative scenario, because only this allows an effective transition to sustainable and balanced development.

Definitely, this requires technological modernization and a profound change in the model of Russian economic growth. Under these conditions, a new paradigm is needed, the environmental priorities of which will be to build up (restore) the quality of the environment and the environmental conditions of human existence, and to build a balanced and environmentally sustainable system for developing a competitive economy. [15]

We have to admit that practically no one indicator set for increasing the environmental efficiency of the economy, lowering the level of environmental costs and other environmental priorities, as reflected in the "Concept for the Long-Term Socio-Economic Development of the Russian Federation for 2020", was never achieved either in the country or in the republics of the North Caucasus.

So, it was planned to transfer the morally and physically worn-out Hydromet plant in the city of Nalchik, which is engaged in the tungsten and molybdenum refinement in the steppe zone of the republic. Moreover, the first tranche in the amount of 500 million rubles was allocated from the federal budget ...However, the republic was neither materially nor morally ready for this transfer of the plant, as a result of which it was forced to return the money back to the budget a year later...

It is appropriate to recall that Nalchik is one of the most famous resort and sanatorium territories of all-Russian significance.

The problem remained unresolved. And this will continue until the organizational and economic mechanism of the new (digital, green) economy is launched in the republic (with the direct participation of state structures) by creating an effective (relevant to

modern tasks) system on taxation, lending, creating a favorable investment climate and other such highly effective tools to stimulate the creation, use and popularization of new knowledge in order to ensure quality growth. [2, 9]

The same situation exists at the Ardon Zinc Plant in North Ossetia-Alania, in the Karachay-Cherkessia Republic, etc.

All this confirms the need for structural rationalization of the regional economy in the depressed agrarian-oriented republics of the North Caucasus. Also, it is necessary to create an effective environmental management system, improve the regional legislative base, actively introduce innovative technologies, develop economic regulation, and improve the environmental monitoring system to ensure environmentally-oriented economic growth in the regions of southern Russia.

In the course of our study, we saw how important it is in the republics of southern Russia to teach the population to comply with national legislation in the field of environmental protection. This applies in the same manner to the leaders of different levels of the region. There are frequent cases when an investment project is implemented without environmental support.

For example, it was recently revealed that the construction of a cableway for recreants in the "Elbrus region" National Park was carried out without a proper assessment of environmental risks, without environmental monitoring, etc., as a result of which it turned out that ragweed was brought into the National Park together with gravel, and this was done despite the fact that for the regulation of such environmental management there is a complex of federal and regional regulatory legal acts, sometimes, taking into account international requirements.

In accordance with national legislation, several examinations are necessary to objectively and diversely assess the territory designated for future activities even before the start of an investment project. This includes a background assessment of the territory, an assessment of possible impacts on the territory of the proposed activity, and a study of other potential impacts. This approach makes it possible to determine the degree of disturbance of the terrain, highlight environmental and social constraints, develop justification, the appropriateness of engaging the investment project in question in a given locality, etc.

Such a study of an investment project allows at the next step to proceed to the development of specific measures to neutralize or minimize the negative impact on the environment. In this form, the investment project goes to the state environmental and state examination.

There is no doubt that green supply chain is a relatively new idea, which is gaining popularity so as to improve environmental performance in the whole chain. In our opinion, in modern realities, an environmental assessment should be carried out in conjunction with

social expertise, with the involvement of the general public in making environmentally important decisions. Undoubtedly, all this creates a significant positive image for an investment project itself, which is especially important if foreign investors participate in it.

Conducting a diagnosis of environmental impact requires a good knowledge of the climatic and socio-economic conditions of the study area. For this, first of all, it is necessary to carry out environmental engineering surveys, which should allow a detailed study of environmental conditions and identify the main factors of technological impact. Such an approach should ensure the rational and safe use of the territory and neighboring land areas, and prepare the necessary data and justify the list of materials necessary for the territorial planning and architectural design. The set of requirements regarding the organization and procedure for engineering and environmental surveys is regulated by the relevant SNiP (Building Code) 11-02-96 "Engineering surveys for construction". [13]

It is difficult to overestimate the importance of engineering and environmental surveys, because they allow a comprehensive study of the technogenic and natural characteristics of a given territory, its economic use and social sphere; assess the current state of the environmental components and the state of the ecosystem as a whole, the ability of ecosystems to restore their stability with respect to various technogenic impacts; to predict possible changes in ecosystems during the construction of construction projects, their operation and liquidation; assess environmental risk; to develop recommendations for the prevention of dangerous environmental violations of industrial activity and to justify effective measures for environmental protection and compensatory actions; to develop a set of measures to take into account the interests of the local population (socio-economic, ethnic, cultural, historical and other interests); conduct regular environmental monitoring at the appropriate stages of work.

A detailed study of the totality which includes the natural, social and economic components of the environment allows us to get an objective assessment of its background state, identify trends in anthropogenic transformation, etc. Of course, all this will positively affect the subsequent environmental support of an investment project.

Another problem is the need to analyze the impact of a given (planned) activity on the environment. It should be noted that most of the principles of public policy in the context of eco-development are designed to carry out appropriate environmental assessments, including regarding the presumption of environmental hazards and threats to the proposed activity; obligatory analysis and forecasting of planned impacts; the prohibition of economic activities with unpredictable consequences for the environment, which can degrade natural ecosystems,

change or destroy the genetic fund, and deplete natural resources; ensuring specified compliance of economic activities with environmental requirements and environmental safety requirements, etc. [10, 14]

Analysis and generalization of special literature allowed us to develop a modified algorithm, where the mandatory assessment of environmental impact was added.

At the first stage, the main technical and economic solutions are given.

At the second stage, a study of the current state of the work area environment is made.

At the third stage, the environmental impact of the planned facility and its possible consequences are assessed.

At the fourth stage, a set of measures is developed to reduce and neutralize hazardous environmental impacts through the organization of industrial environmental controlling and monitoring.

At the final - fifth - stage, a list and calculation of the costs of environmental protection measures is given.

It should be emphasized that the mandatory economic assessment of planned measures to reduce possible negative impacts and damage to the environment and the calculation of compulsory environmental insurance allows us to talk not only about environmental diagnosis, but about a comprehensive socio-ecological and economic assessment of the investment project.

#### 4. Conclusions

Internal environment management contains support and encouragement from senior managers. Internal management is a key critical success factor for enterprises to adopt green practices. Pressure employees bring about, encouragement and support from environmental-protection motivate senior management. Meanwhile, the perception of environmental risks involved could bring positive change in adoption of green practices

1. In today's realities, one of the most important factors in the development of the economy of the national economy is the development of industry, which, undoubtedly, may be accompanied by an increase in negative environmental impact. This situation requires constant monitoring of the environmental and economic situation and forecasting the possible consequences when implementing new investment projects, especially in recreational areas, which are the republics of the North Caucasus.

2. Our study allowed us to further develop the organizational and economic tools for the environmental support of investment projects and propose an algorithm for the mandatory assessment of the environmental impact of business activities.

3. The mandatory environmental impact assessment of any investment project makes it a guarantor of ensuring

compliance with environmental requirements when predicting environmentally hazardous production and business activities.

4. The implementation of the proposals developed by us in the paper will provide an opportunity to objectively diagnose environmental and economic risks at an early stage of design, to comprehensively and multilaterally assess the environmental status of a given territory and the possible consequences of planned activities, which, ultimately, will increase the level of environmental feasibility of investment projects.

### Conflict of interest

Authors confirm that there are no conflicts of interest.

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