

# Innovative Aspects of Ecological and Economic Management of Investment and Construction Activities for the Sustainable Development of the Region

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**Abstract.** In the presented study examines innovative approaches in the process of formation of investment - construction complex on the basis of observance of environmental - economic aspect. Considered the ecological and economic aspects of the management of investment and construction activities. Attempted to develop recommendations for the management of investment and construction activities in a sustainable direction of economic development. Developed control system of the environmentally oriented development of the regional investment - construction complex, with the application of the ecosystem approach. Defined: the location of the investment - construction complex in the regional ecological - economic system; the totality of the relations and interactions of the enterprises of investment - building complex with elements of economic and ecological subsystems. It is revealed that the main innovative characteristic of the regional ecological - economic system are the processes of relationship and interaction between economic, natural resource and environmental elements of the site, which form the economic and ecological subsystems. The proposed innovative system of management of ecological-economic component of the investment-construction activity will allow to refuse from the implementation of investment projects, production models, which do not provide for environmentally friendly economic and social development of the territory, do not contribute to the creation of favorable and comfortable environment for human life.

## 1 Introduction

The solution to the problems of sustainable development of the region's economy directly depends on the state and development potential of the investment and construction sector. In investment and construction sphere are various enterprises and organizations whose activity is aimed at the formation of the human environment and the creation of material-technical base of enterprises of other sectors of the economy. The value of the investment

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and construction sector to ensure economic growth of the region due to the location of the investment-construction complex in the regional ecological-economic system [1-19].

It is not only a performing creative functions, but also is influenced by activities of enterprises investment – construction complex on the state of individual ecosystems and the environment in General. In investment and construction sector directly develops and implements investment projects, and this means that the level of greening investment planning depends on the state of the environment and its change, and, consequently, the conditions of life of present and future generations [3, 6]. One of the most important areas of achieving strategic goals of socio-economic development of society is the development of investment and construction activity, which generates the basic capital, converted to urban and architectural environment, changing the ecological conditions of human life, the overall quality of life [1]. Of great importance are the reliability and safety of buildings and structures, environmental quality and ecological safety of construction production, as well as the impact of the environment on human health and its socio-psychological behavior. In addition to the direct impact on the ecological systems and environment of enterprises investment-construction complex indirectly influence the conditions of human life through developing design solutions that are in the process of their implementation are translated into real construction projects.

Therefore, the need of this study, due to objective necessity of development of methodology of management of investment-construction activities, appropriate balanced ecologically - oriented model of economic development, development of practical recommendations for the regulation of investment and construction activities in a sustainable direction of economic development.

The study theoretical and methodological bases and innovative aspects of ecological-economic investment-building, economic problems, effective management of the development of investment-construction complex in modern conditions, research on the possible use of innovative ecological materials in construction investment activities, dedicated to the works of scientists works Asaul V. V[2], Nuzhina I.P. [3], Gorbunov A.A. [4], Ivanov S.N. [4], Grebennikov A.A. [5], Mottaeva A.B. [6], Schumpeter Josef Alois. [8], Witt U. [9], Lena E. Bygballe, Malena Ingemansson, [10], Anttonen Markku, Minna Halme, Eeva Houtbeckers, [11], Alfredo Serpell, Romina Alvarez [12], Nicole Parthenopoulou K., Malindretos Michael, [13].

## 2 Methodology

An essential element of the regional investment - construction complex is a building product, as an object of interaction of subjects of regional investment - construction complex in the implementation of investment and construction activities.

The ecosystem approach in the management of economic development means a transition in management from the economic system to ecological and economic. Place of investment - construction complex in the regional ecological - economic system is determined by the totality of the relations and interactions of the enterprises of investment - building complex with elements of economic and ecological subsystems (see in Fig. 1) [3], the role of the Converter of investment resources in the form of capital investment and value of investment - construction complex in the formation of living environment, the development of individual elements and regional ecological - economic system as a whole. Managing the development of regional eco - economic system through the regulation of economic behavior of economic entities. The relationship of investment - construction complex is regulated using the tools and mechanisms of the institutional environment, acting as the balancing factor for development [2].

Thus, the mutual influence of subsystems, investment and environmental policies that are implemented by the economic subjects, identify trends in socio-economic development of the region as the ecological - economic system, the higher the level of development which imposes new requirements for the condition and development of all elements, including investment - construction complex.

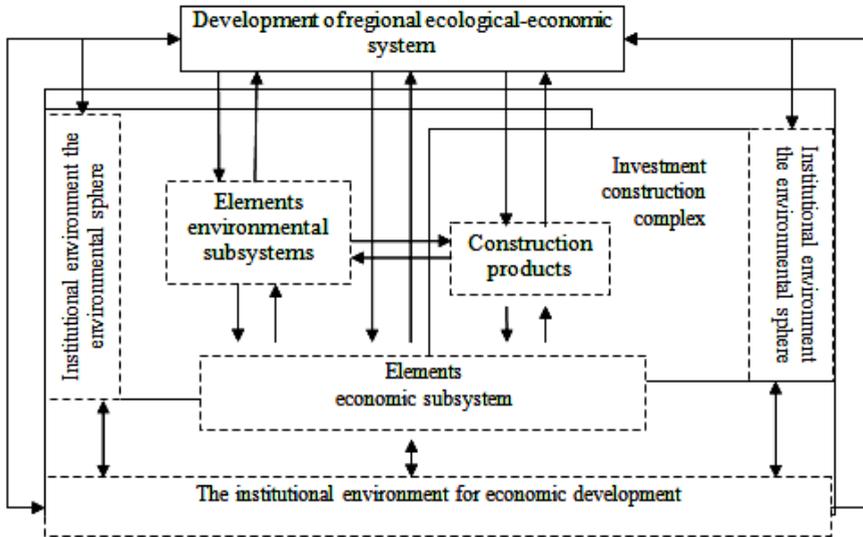


Fig. 1. Model of development and relations suit in the regional ecological-economic system.

The contents of the ecosystem approach is revealed in the formulation of strategic objectives and functions of ecologically - oriented management of investment and construction activities, on the basis of the relationship of investment processes, conditions of human life, the state of ecological systems and the environment in General. The main functions of ecologically-oriented management of investment and construction activities include:

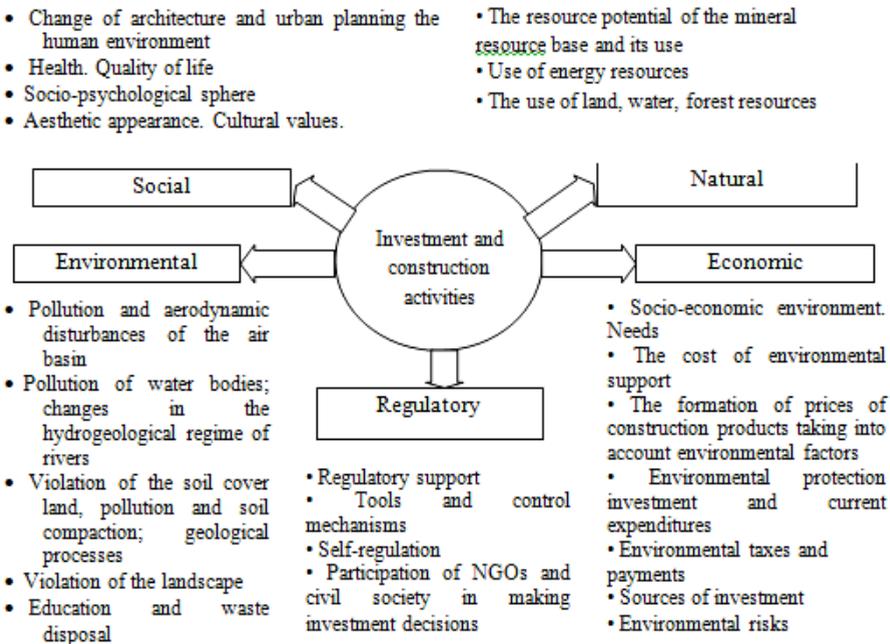
1. The analysis of activity of the enterprises of investment - building complex, taking into account environmental factors in the development, which is based on qualitative and quantitative characteristics of ecological and economic interactions of investment - construction complex in the regional ecological - economic system.
2. The planning and design of investment projects in accordance with the requirements of greening the production processes of creation and exploitation of construction products. The level of greening investment planning determines operational indicators of a facility, including its resource-saving features.
3. Organization of ecological support of investment - construction activities, construction and installation works through the use of environmentally friendly technologies in the construction industry and environmental initiatives.
4. Control over execution of managerial decisions and regulation of investment and construction activities in accordance with objectives of ecologically oriented management.

We know that due to territorial tightness, the use of local raw materials for the production of basic construction materials and other features of construction production, investment and construction activity has a distinct regional character. The development of environmentally - oriented model of development of investment and construction activities, as an integral part of the overall strategic objectives of the formation of a model of socio-economic development of the region, predetermines the positioning of the region as a

"regional ekologic-and-economic system" [4, 6]. The main system-forming sign of a regional ekologic-and-economic system are processes, due to the interrelation and interaction of economic, natural resource and environmental elements of the site, the totality of which forms an economic and ecological subsystems, respectively. The nature of the interactions of elements and subsystems defines a condition and dynamics of development of both separate elements, and the regional ecological - economic system as a whole. Accounting for this circumstance predetermines necessity of selection in the composition of regional eco - economic system of the subsystem of ekologic-and-economic interactions [5]. Thus, the regional ekologic-and-economic system should be regarded as an integrated territorial system of the meso-level, combining a set of interacting heterogeneous elements forming the environmental and economic subsystems, as well as a set of relationships between elements and processes under certain climatic and spatial-temporal parameters [2]. As the underlying determinants of environmental and economic aspects of investment and construction activities, highlight the natural, environmental, economic, social, regulatory (see Fig. 2) [3]. Ekologic-and-economic cooperation in investment - construction complex in the regional ekologic-and-economic system based on the use of natural and environmental resources, the impact on the environment and society.

### 3 Results

Using as methodological assumptions of the functions of the environment, the author proposed a classification of the ecological and economic interactions of investment and construction complex types, depending on their area of occurrence in the course of investment and construction activities, which includes: natural-resource interaction; technological collaboration; social interaction; institutional interaction; economic cooperation arising from economic expression of the totality of the processes of ecological-economic interaction of subsystems and elements using the scorecard.



**Fig. 2.** Basic factors determining the ecological-economic aspects of investment-construction activities.

Considering the greening of investment and construction activities in the practical aspect, singled out the greening of production and greening of the mechanism of regulation of investment and construction activities. Precondition for the implementation of ecologically acceptable investing is not only greening the production processes, but the mechanism of regulation of investment and construction activities. In this case, greening means the mainstreaming of environmental orientation of the whole set of methods and tools used for the regulation of investment and construction activities, including legal, technical and economic regulation [3,5].

Theoretical and practical aspects of the greening of investment and construction activity are interrelated. System events the greening of investment and construction activities is the practical implementation of the ecosystem approach in the management of investment and construction activities. The implementation of the measures determined by the capabilities of the institutional environment of ecological and economic regulation of investment and construction activities, and the boundaries of their implementation – based on the life cycle of construction products. The capabilities and performance of ecological and economic regulation of investment and construction activity depend on effective forms of interaction between authorities, construction businesses and companies.

The proposed system of environmental-economic component of the investment-construction activity will allow refusing from the implementation of investment projects, production models, which do not provide for environmentally friendly economic and social development of the territory, do not contribute to the creation of favorable and comfortable environment for human life.

## 4 Discussions

Currently in Russia there are not enough comprehensive studies on ecological and economic regulation of investment and construction activities in the Modernization and actualization of the objectives of a green economy lead to the need to develop a balanced model of development of the national economy, individual economic sectors, environmentally competitive industries and activities, including investment and construction activities [7]. According to the state ecological monitoring, more than 54% of the urban population of the Russian Federation living in conditions of high and very high levels of air pollution. More than 40% of the population faces problems of water quality, on average, the Russians are losing up to one year of life due to air pollution, the magnitude of the economic damage caused by the impact on population health in connection with air and water pollution, is estimated by experts not less than 4-6% of GDP [8]. Therefore, the basic principle of strategic development, investment and construction sector in the twenty-first century should be economic parity, social interests and environmental needs of society.

In recent time gained significant scientific material and performed empirical research of economic problems of increase of efficiency capitalocratic investment, assessment of competitiveness of construction enterprises, improve the methods of management of investment projects, regional investment and construction complexes, etc. However, remain insufficiently explored aspects of ecological and economic regulation of investment and construction activities, the problems of economic estimation of investment projects taking into account environmental factors and investitsionno - building complexes. The transition to ecologically-oriented model of development necessitates the development of an integral concept of environmentally sound development of investment and construction sector, and in turn is the basis of mechanism and tools of ecological and economic regulation of investment and construction activities in the region [2,4,5].

According to the author, the greening of investment and construction activities should be considered in theoretical and practical aspects. In the theoretical aspect of the greening

of investment and construction activities is the concept of environmentally sound development of investment and construction activities, the implementation of the main provisions of which will ensure a harmonious combination created a civilized architectural and town-planning environment of human life and the preservation of environmental quality, both for current and for future generations. The main directions of transition to environmentally sound development of investment and construction activities are:

- implementation of the ecosystem approach in managing the development of investment and construction activities. The formation of strategic programs of development of investment - building complex, taking into account priorities of regional environmental policies to increase energy efficiency and the reduction of nature intensity of socio-economic development. In the framework of the ecosystem approach the subjects of investment and construction activity taking management decisions with a view of the close relationship of investment processes, urban and architectural conditions of human life and environmental;

- the formation and development of the institutional environment of ecological and economic regulation of investment and construction activities in the region. Environmentally-oriented behavior of the subjects of investment and construction activities defines the institutional environment that shape organizations and institutions, legislative acts, formal and informal constraints, mechanism and tools of ecological and economic regulation of investment and construction activities;

- life cycle assessment of construction products, accountability of economic entities of investment and construction complex for environmental performance, which covers all points of contact with the environment, arising during and in connection with the establishment and operation of construction products;

- formation of effective system of interaction between authorities, business and society in the process of preparation, discussion, decision-making and implementation of investment projects. The main purpose of such cooperation is to harmonize the interests of the state, society and the construction business in the field of investment and construction activities in line with priorities of social and environmental policies. Achieving the goal of environmentally sound development of investment - building activity involves, along with the state and market regulation, active participation of civil society.

## 5 Conclusion

Thus, the conditions of ecologically acceptable development of regional investment - construction complex are: minimization of construction products are nature-based sustainable use of natural resources within the ecological life cycle; maximization of the generalized indicator of the ecological-economic efficiency of investment projects based on application of the best available technologies and environmental initiatives; modeling the equilibrium state, in which the increase of volume of performed works, manufactured products and the cost of ecological support of investment - construction activity does not violate the financial stability of economic entities.

The operation of construction companies as ecological - economic system necessitates evaluation of the effectiveness of activities based on ecological-economic analysis for structured components: an analysis of organizational aspects of environmental support productive activities; analysis of impact on components of the regional ecological-economic system; analysis of the ecological and nature intensity of work; analysis of the use of resources, providing ecological support of investment-construction activities; analysis of the impact on economic and financial performance of enterprises; investment analysis [2,3,5].

The practical significance of the study lies in the feasibility of using proposed scientific approaches, techniques in the practice of management, organization and planning of activity of the enterprises of investment-building complex, taking into account environmental aspects of development, in the activities of state administration bodies in the development of strategic plans and programs of development of investment and construction sector, relevant social and environmental priorities of the region development, the implementation of ecological-economic monitoring of construction industry.

The author believes that mainstreaming environmental knowledge in the regulation of investment and construction activities is possible through the expansion of the range of integration of ecoinstituit in the institutional environment of investment and construction sector and the institutional environment of ecological and economic regulation of investment and construction activities. The completeness of the integration processes is determined by the degree of greening of the totality of tools and methods of regulation of investment and construction activities.

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