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## MANAGEMENT OF SOCIO-ECOLOGICAL SYSTEMS IN TERMS OF SOCIO-ECONOMIC CHANGES IN UKRAINE

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The article deals with the issues of organizational development of socio-ecological systems management in conditions of socio-economic changes in Ukraine that foresee the development and approval of integrated state ecological-economic policy based on the ecological-economic system of market reforms and accounts for the mechanisms of the structural-functional model of the socio-ecological system management proposed by the authors.

**Key words:** socio-ecological system, socio-economic system management organization, ecological-economic policy, structural-functional model.

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## УПРАВЛІННЯ СОЦІОЕКОСИСТЕМАМИ В УМОВАХ СОЦІАЛЬНО-ЕКОНОМІЧНИХ ЗМІН В УКРАЇНІ

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Розкрито актуальні питання організаційної побудови управління соціоекосистемами в умовах соціально-економічних змін в Україні, які передбачають розроблення та схвалення інтегрованої державної еколого-економічної політики на основі еколого-економічної системи ринкових реформ, враховуючи механізми дії структурно-функціональної моделі управління соціоекосистемою, запропонованої авторами.

**Ключові слова:** соціоекосистема, організація управління соціоекосистемами, еколого-економічна політика, структурно-функціональна модель.

### Statement of the problem

Modern scale of environmental changes in Ukraine poses a real threat to the life and health of our citizens. Environmental degradation due to the hypertrophic development processes in material production and extensive use of resources has reached dangerous levels. Nowadays in Ukraine, the rate of impacts intensity increase on the environment is faster than the level of biological adaptation of living organisms to their habitat. Destabilization of the environment in most parts of Ukraine has a direct relationship with the deterioration of health, and if drastic measures to improve the environment are not taken now, in the future we can observe deficiency of food resources, water, oxygen, while the genetic degradation will accelerate

population degradation and its gradual extinction. Therefore, the research of the organizational structure of socio-economic system management is of high priority.

### Analysis of recent research and publications

Research related to the study of the relationship within socio-economic systems has been conducted by modern domestic scientists: H. Bachynskiy, M. Holubets, S. Zlupko, V. Nekos, O. Palamarchuk, V. Popovkin, O. Shabliy. Thorough research related to the theoretical modeling socio-economic systems can be found in the works of I. Alexandrov, B. Burkynskiy, L. Melnyk, I. Sotnyk, O. Badrak, Yu. Bazhal, B. Baranovskiy, E. Hirusov, A. Holubets, L. Hryniv, B. Prykin, M. Rudenko, H. Strukov, L. Shostak. Theoretical and applied aspects of socio-economic systems management was described in the works of O. Veklychko, O. Vrublevska, I. Hrabynskiy, M. Dolishniy, I. Mykhasiuk, M. Orobchuk, A. Dubodyelovoya, L. Ribun, I. Syniakevych, Yu. Stadnytskyi, A. Horonzhyi, Yu. Tunytsia, S. Kharichkov, V. Shevchuk, etc. The analysis of scientific literature suggests that at the present stage of the development of the theory and practice of management in a market economy of Ukraine the issues of socio-economic systems management has not been thoroughly studied, and the organizational development of socio-economic systems management has been poorly highlighted.

### The formulation of objectives

The objectives of to paper are:

- to analyze the efficiency of socio-economic systems, to identify the key factors determining its level;
- to identify the role and importance of information for socio-economic systems management;
- to justify the areas for the improvement of socio-economic systems management, particularly in terms of socio-economic changes in Ukraine.

### Presentation of main materials

Organizing socio-ecological systems management is only possible through accounting for the functioning peculiarities of each subsystem, such as social subsystem, whose aim is to increase the standard of living, economic subsystem aimed at profit maximization and environmental subsystem that aims to conserve and restore natural resources (fig. 1). Management in socio-ecological systems should be provided by the authorities entrusted with responsibilities through the appropriate use of the information base and appropriate methods and management practices.

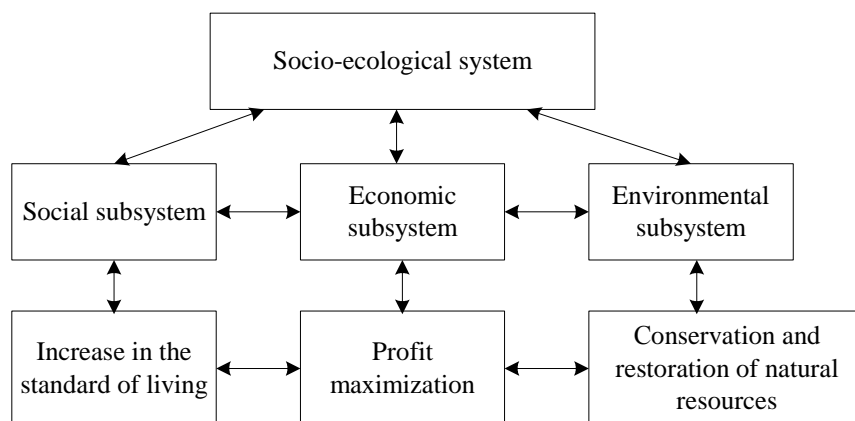


Fig. 1. Functioning of the socio-ecological system

Among the structure of public, political and scientific priorities, real attention should be given to the establishment and development of socio-ecological research on the environmental issues. For this purpose we have to find very necessary minimal funding to introduce structural innovation. All this will contribute to the integration of ecological political methodological and methodical principles for adopting appropriate laws, concepts, public-political decisions, resolutions, etc. Without public and political support for

environmental policy, there is no basis for resolving appropriate issues. It is important to develop a socio-economic research of environmental issues, in particular, to analyze the nature of modern controversy in the formation of environmental mechanisms for the legislative, executive and judicial power, environmental requirements in the structure of the programs and activities of political parties, public organizations, movements, etc. It is worth to purposefully coordinate relevant research work plans of political scientists, lawyers, economists, philosophers, historians of the institutions of NAS of Ukraine and universities at national and regional levels in the context of the Scientific Council of NAS of Ukraine on environment and development, Coordinating Council on priority directions of science and technology development “Environmental Protection” of the Ministry of Education and Science of Ukraine, Ukrainian National Committee for UNESCO Man and Biosphere program, regional scientific centers of NAS of Ukraine.

The State should take all the responsibility for strategic management of environmental policy. Thus, the basis for state regulation must be based on the continuity and complexity of process managing. The principles and practices for social management, industrial production management and management of a set of all its branches have to be really made “greener”, we need to create an effective ecological economic system for environmental management; latest technology for resource use, bring the country to the global level of understanding, and therefore practice sustainable use of natural resources and the environment. The constructive function of the state in the formation of the developed system of market economic instruments for environmental policy and making state budget environment-oriented should strengthen. At the legal level it is advisable to ensure clear distinction of natural resources ownership rights at the national, regional and local levels.

Improving political and ecological validity of government decisions is a prerequisite for raising the value of environmental policy in society, transforming public opinion on the environmental component of nation-building, the development of environmental law framework. For this purpose it is necessary to increase the number of experts who should be involved in developing the provisions of environmental legislation, involving social scientists: political scientists, philosophers, sociologists, anthropologists and others since environmental policy and its legislative framework should be comprehensive and focused on human rights. From the ecological-politological point of view current trends in the policy for passing the state budget, the taxation system, financial and credit management, justice etc. must be objectively assessed.

The implementation of the main directions of the state policy of Ukraine in the field of environment, the use of natural resources and environmental safety must provide state protection for the environmental business market and environmental services, a significant increase in environmental benefits from the State Budget of Ukraine and local budgets, full-scale implementation of the economic mechanism of nature use, ecological systems certification, licensing, auditing, leasing and other components of environmental activities.

It is necessary to form a single economic and ecologically safe environment which has to become the basis for sustainable and environmentally friendly development. Economy greening should include the development and implementation of public policy for the use of natural resources as national economic potential used in social work and which has its own value. A fundamentally new economic mechanism of nature use and environment protection should immediately be introduced, resulting in a significant increase in the share of environmental expenditure in GDP at least to the level of 1.2–1.5 % in the East European countries in transition, instead of the current 0.25 – 0.3 %. It is necessary to promote economic restructuring towards improving the use of regional natural resources and economic opportunities, improve production management based on environmental criteria aiming at the introduction of effective economic instruments for the protection and restoration of ecosystems through investment priorities, protection and further expansion of protected areas in order to conserve biodiversity, prevent further irreversible loss of the gene pool and biological resources of the country, providing loans to the companies that produce environmentally-friendly products, priority and favorable tax conditions, cooperation in addressing environmental issues with the international community in the interest of improving public health, minimize significant social and economic costs caused by complex environmental situations [3, p. 71].

The implementation of the proposed measures requires amendments to the legislation of Ukraine, fixing organizational and managerial mechanism weaknesses. In order to improve this mechanism, we believe, it is necessary to improve its structure (fig. 2). We offer to establish Socio-ecological Information Center under the Cabinet of Ministers of Ukraine, the State Socio-ecological Committee, Research and Analytical Council on Socio-ecological Issues, public monitoring and control of socio-ecological systems, NGOs on socio-ecological issues.

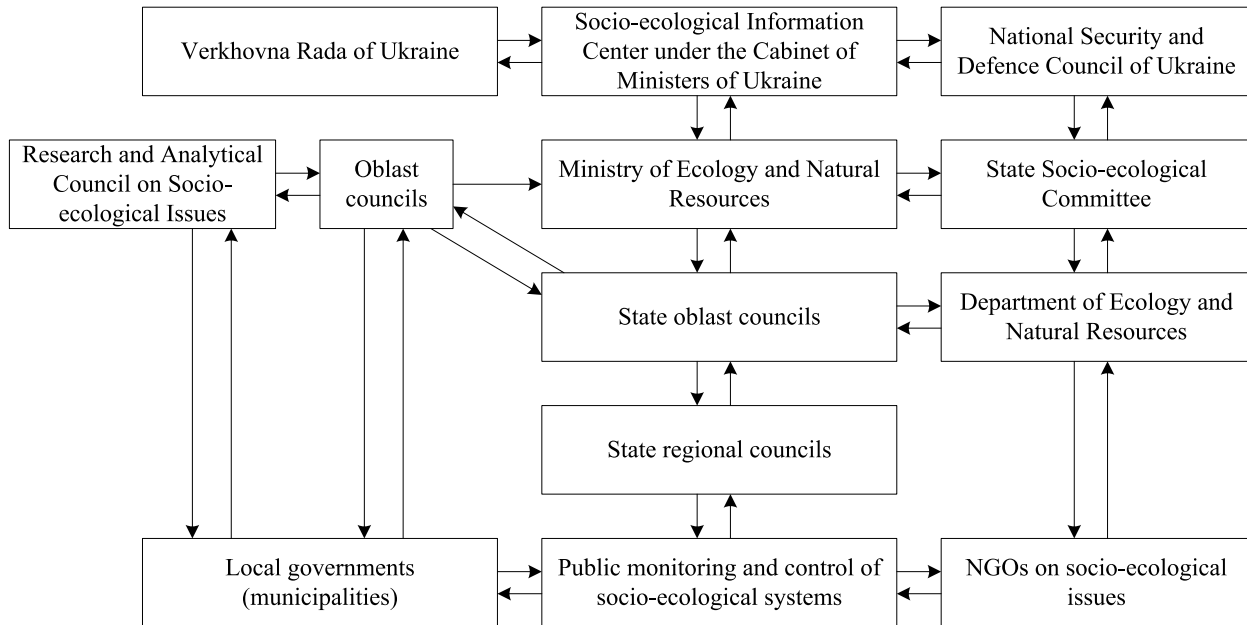


Fig. 2. Organisational structure of the socio-ecological system management

These new units are to ensure the effectiveness of organizational structure for socio-ecological system management at the state level (Socio-ecological Information Center and State Socio-ecological Committee), at the regional level (Research and Analytical Council on Socio-ecological Issues) at the local level such structures as public monitoring, socio-ecological systems control, and NGOs on socio-ecological issues are extremely important.

The main objective of the proposed innovations is to allow for the functioning peculiarities of each socio-ecological system component, namely the social subsystem, whose aim is to increase the standard of living, economic subsystem with profit maximization and environmental subsystems aiming at the conservation and restoration of natural resources. Of particular importance is the feedback on the implementation of environmental and conservation programs, which has to be based on permanent public monitoring, aimed at obtaining socio-ecological information from the public and experts needed to make science-based decisions at national and regional levels.

One of the most effective mechanisms to encourage the development of environmental business and financing various environmental activities in Ukraine should be a system of environmental insurance funds. The main sources of their formation may include premiums of businesses associated with the risk of hazardous environmental situations and accidents; deductions from profits, other income not subject to tax. Effective instruments of environmental business include international and national environmental labeling and environmental certification of the manufacturers. Eco-labeling is used as a promotional tool, providing high competitiveness of the goods.

Given the ecologically safe development, the investment, science and technology, innovation policy must be radically reoriented with clearly defined national priorities for sustainable economic development, the state pricing, credit, tax and customs policy must be improved aiming at greening and the transition of the national economy to a model of sustainable environmentally friendly development.

It is time to expand comprehensive training – people responsible for targeting policies at environmental protection and practices for present and future development. For this purpose, it is reasonable to develop a comprehensive strategy for ecological education programs, which would involve political and socio-economic aspects for addressing the issues of society influence on the natural environment in Ukraine, the issue of the historical background of the relationship between human and nature, preserving traditions and customs, protection of natural monuments etc. [5, p. 141].

Thus, the first and immediate task of socio-ecological processes management is the implementation of environmental management principles that enable to radically reshape economic activity and, thereby, to harmonize the interaction between society and nature. However, this harmonization will never be implemented if the socio-ecological recommendations proposed by scientists remain on paper or will be implemented in a slow and casual manner. Implementation of scientific socio-ecological developments depends on belief and activity of direct executives, society as a whole and every citizen in particular. Only when the vast majority of people understand the danger of socio-ecological crisis for the continued existence of humanity and realize the necessity of voluntary abandonment of some wealth for the sake of averting this disaster, can we eliminate the acute crisis of relations between human society and the natural environment.

Therefore, an important task of the state management of socio-ecological processes is to promote relevant knowledge and environmental awareness, i. e. introduction of socio-ecological education, which refers to the transfer of a specific set of rules and regulations on the careful attitude towards nature in the process of life and production activities from generation to generation and therefore protection of nature from damage [4, p. 94].

Elements of this education can be found in different religions, starting from pagan religion. A set of “taboos” (prohibition of certain actions, including the ones harmful to the nature) characteristic of primitive religions later transformed into the concept of sin. The national traditions of all peoples provided for the respect for nature. Since childhood children were taught by their parents and grandparents that it was a sin to throw garbage into the spring or river, cut trees without any reasons, torture and kill defenseless animals. Unfortunately, XX century was particularly devastating not only for nature, but also for human morality. And now, to restore the disturbed dynamic balance of the biosphere of our planet, we must first restore the morality of people.

To improve the environmental culture of the society, the state should implement a comprehensive educational program in the field of environmental protection, starting from pre-school institutions and ending with the primary, secondary schools and universities [2, p. 41].

Ecological knowledge should be mandatory qualification requirement for all officials involved in the use of natural resources and whose activity involves some impact on the environment.

Specific colleges and universities that would prepare experts in the field of environmental protection and natural resource management with regard to social needs should be established.

The next steps should include:

- Environmental rehabilitation of territories in the area of industrial enterprises, promotion of greater involvement of centralized capital investments under the relevant resolutions of the Cabinet of Ministers of Ukraine, own funds and investment of companies in the introduction of new environmentally friendly technologies;

- Addressing the issues of recycling and disposal of industrial and domestic waste by creating businesses on the recycling and disposal of domestic and industrial waste, construction of new landfills and reconstruction of existing ones;

- Providing supply of money to the targeted funds for environmental protection within the regional budget and planning priority financing of environmental protection measures, monitoring the progress and status of their implementation, effectiveness and intended use of the funds;

- Implementation of “State Program for the Development of National Ecological Network of Ukraine”. The development of protected areas network in the city.

- Organization of environmental monitoring and information support for the environmental activities.

Effective economic measures that would create adverse conditions for associations, businesses and organizations, under condition of wasteful use of natural resources and damage to the environment through its activities, and stimulate the use of opportunities to avoid harmful effects on nature are required. These measures include:

- Setting limits for natural resources use, emissions and discharge of pollutants into the environment as well as waste disposal;
- Introduction of quasi prices for the use of natural wealth in the form of state certificates or rights to environmental pollution, penalties for nature damaging, etc.;
- Provision of tax benefits for the enterprises, institutions, organizations and citizens if they take measures to improve the use of natural resources and protect environment during the transition to low-waste and waste free resource- and energy-saving technologies, production and introduction of pollution control equipment and facilities for the disposal of pollutants and recycling waste, as well as environment control devices and devices which control sources of emissions and discharge of pollutants;
- Concessional short-and long-term loans for the implementation of measures to ensure the sustainable use of natural resources and the environment;
- Rising requirements for the depreciation of fixed assets of nature reserve funds;
- Exemption from tax for environmental protection funds;
- Under contractual conditions, transfer of environment extrabudgetary funds to enterprises, institutions, organizations and citizens to implement measures on harmonized reduction of emissions and discharge of pollutants and reduction of harmful physical, chemical and biological effects on the environment, the development of environmentally friendly technologies and industries;
- Provision of opportunities for getting natural resources upon the security.

Today the issue of systematic and complete conservation of the environment and the existence of nature is of the paramount importance for humanity. The goal has long-term, environmentally approved economic development, and the development of relations in society, which will not put the right and the possibility of future generations to choose the way of development in jeopardy while meeting the needs of the present generation (fig. 3).

This policy requires precedents. Therefore, this argument should not be applied incorrectly, preventing the implementation of national innovations and achievements in the field of environmental protection. On the contrary – each state must act for the benefit of European standards relating to the country's own standards or even better conditions of other European countries to develop a common European policy on environmental protection [2, p. 76–80].

It is necessary to create an independent assessment commission responsible for the implementation of continuous analysis of improvements in environmental policy in order to avoid dangerous consequences. Also at the national and regional levels, it is required to take the following measures:

- Develop and implement a program for the sustainable development of socio-ecological systems, adopt regulations aimed at concessional loans, create favorable financial and economic conditions (tax and customs exemptions) for businesses that take environmental protection measures;
- Combine the efforts of scientists, local government and regional administrations to develop projects on the implementation of environmentally and economically efficient systems of sustainable management and to achieve the ecological, economic and social balance within socio-ecological systems;
- Develop and implement a program for the restoration of traditional (environmentally friendly) and environmental management practices.

### **Conclusions**

It is necessary to elaborate and adopt integrated national environmental and economic policies. Only on the basis of ecological-economic system of market reforms in Ukraine could the relationship between human and nature be reshaped (balanced). Given this we need:

- a) To develop and implement a uniform system of economic assessment of natural resources, measures for their protection and financial evaluation of damage that is inflicted to the environmental by the irrational nature use;

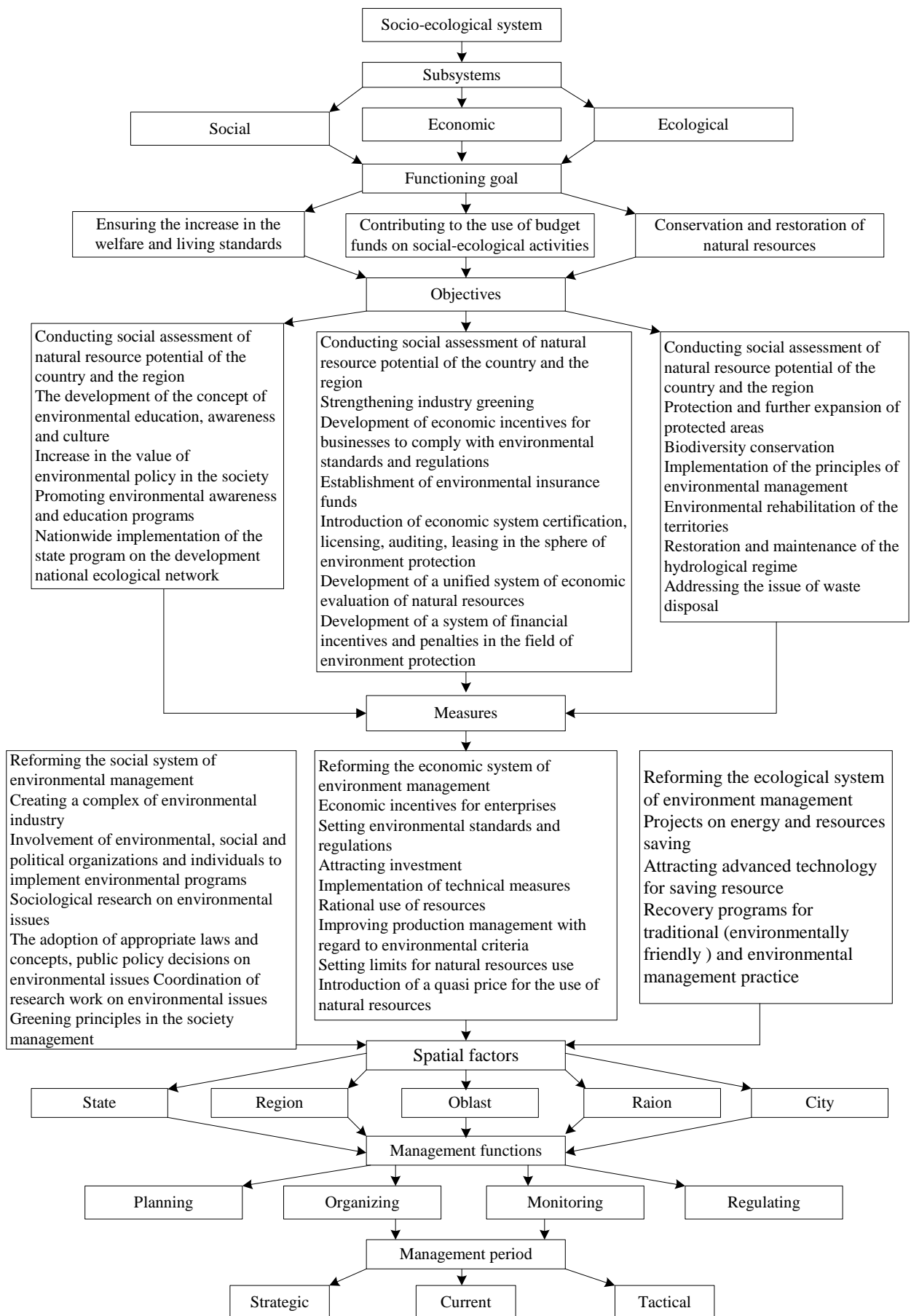


Fig. 3. Structural and functional model of socio-ecological system

b) To improve appropriate tax instruments, environmentally focused loans, subsidies, compensations, environmental fees, prices, payments for the conservation of natural resources or their saving, sale of environmental rights to emissions and pollution;

c) To set the legal framework for the regulation of the market of environmentally friendly products, ecological services, control and protection of the interests of domestic producers and the Ukrainian state;

d) To promote the ecological production and its functioning on the competitive basis;

e) To implement the policy of stimulating prices and premiums for environmentally friendly products and services;

f) To form branch centers and develop legislative and regulatory framework for environmental auditing, environmental standards, environmental licensing of various economic activities and environmental certification of products, environmental control, accreditation of environmental business entities that produce, works and provide service in the environmental field.

### **Prospects for future research**

The main reasons for environmental problems in Ukraine and its regions lie in the unbalanced development of the productive forces of the country, which have been developing without environmental requirements for a long period. Excessive intensification of agricultural production, extensive capacity building in heavy industry based on outdated technology, careless attitude of bureaucracy, large-scale transformation of landscapes, etc., have led to overexploitation of natural resources, unjustified impact on the environment.

Therefore, the issues covered in this article concern possible ways to improve the socio-ecological systems management in terms of socio-economic changes in Ukraine.

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