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## ECOLOGICAL CULTURE AS A MECHANISM OF SOCIAL DEVELOPMENT

Marina Volnistaya (a)\*, Ariz Gezalov (b), Eka Korkiya (c), Agamali Mamedov (d)

\*Corresponding author

(a) Republican Institute of Higher Education, 15, Moskovskaya Str., Minsk, 220007, Belarus  
mgv22@mail.ru, +7(017)2228313

(b) Russian Philosophical Society of the Russian Academy of Sciences (Azerbaijan-Russia, Baku-Moscow),  
12, build. 1, Goncharnaya Str., Moscow, 109240, Russia, arizkam@mail.ru, +79264744427

(c) Lomonosov Moscow State University

1, build. 33, Leninskie Gory, Moscow, 119234, Russia, ekakorkiya@mail.ru, +79037222471

(d) Lomonosov Moscow State University, 1, build. 33, Leninskie Gory, Moscow, 119234, Russia  
akmnauka@yandex.ru, +79859791213

### *Abstract*

The paper addresses the processes of formation of ecological culture and social mechanisms to ensure sustainable socio-natural development. The methodological core of sustainable development is perception of humanity and nature as a single global system capable of providing a socio-natural type of development, where socio-natural interaction occurs under conditions of the latest technological transformations. This approach allows us to outline the main parameters of management for sustainable development. The concept of sustainable development should be studied based on the concept of globalization. Initially, sustainable development involved search for appropriate responds to environmental challenge, but later its content expanded and covered all significant areas of life of society. As a result, this trend of social development is one of the ways to solve crucial environmental issues, including those caused by transformation of society in the context of globalization. Thus, globalization under the impact of the environmental crisis, as a scientific problem, displays many theoretical and applied aspects of research. Socio-political, economic, cultural and family factors that directly affect the development of this aspect of globalization are crucial for strengthening the national security of any country and any region. The globalization issue is studied in the areas related to social philosophy – economics, political science, history, psychology, law, sociology, demography and social psychology. The authors use a sociological theory and institutional approach to give scientific credence to the project of multifunctional ecosystems. The paper provides a number of interdisciplinary methodological principles to solve the problem of green economy.

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## 1. Introduction

Modern organization of the life of any state in terms of the structural-functional approach is a system complex of reproductive activity of people as social subjects based on division of labor and modern technologies. It includes technological processes related to functioning of man-machine systems, local natural ecosystem, biogeocenosis as components of the whole, in which these processes should be localized, and the socio-cultural environment adopting new technologies. According to the idea of an open system, this whole complex appears as a special developing object open to the external environment and capable of self-regulation and self-organization. According to well-known scientists (Mamedov, 2017; Soroko, 1997; Yakovets, 2002), it is the self-regulation mechanism that allows society to create high level organization of social interactions that ensures its sustainable self-development, self-reproduction and satisfaction of basic vital needs of people without outside intervention. Representatives of the theory of structural functionalism (Parsons, 1994) put forward the thesis that the ability to self-organize is the main distinction between social systems. Turner (1985) summarizes the basic ideas of theorists of functionalism relative to the mechanisms of self-organization of social systems:

- as a limited system, society self-regulates and tends to homeostasis and balance;
- as a self-sufficient system similar to an organism, society obviously has certain basic needs and demands which are crucial for its survival, preservation of homeostasis and balance both in the external environment and in the internal one;
- a sociological analysis of this self-sufficient system with its needs and demands should explore functions of its components, which implies satisfaction of the system's needs to maintain balance and homeostasis;
- systems with needs should apparently include certain types of functional structures to ensure their survival (homeostasis) and balance.

Parsons found out that self-organization and self-regulation properties of the social system are manifested through the presence of homeostatic characteristics in it (Parsons, 1994). At present, the so-called *homeostatic approach* has been formed within the framework of the systemic paradigm during the study of characteristics and properties of self-regulation, which allow the social system to come to an equilibrium state. The expediency of this approach for the analysis of society in interaction with the natural environment was explained by Prangishvili (1997), Urmantsev (1988), Gezalov (2009) and others. Earlier, Belarusian specialists Zelenkov and Vodopyanov (1987) and Semenyenya (2000) proved the advantage of interdisciplinary scientific tools enriched by techniques of various disciplines and branches of knowledge.

## 2. Problem Statement

According to the homeostatic approach, the global socio-natural system includes a wide range of self-organizing systems, which face the problem of viability, survival and adaptability under the impact of various external and internal disturbances. The homeostatic approach determines that systems that involve the human factor should be represented as homeostatic (viable) systems to clearly explain their properties, evaluate decisions made in their management and restructuring. "In these systems, researchers are attracted primarily to homeostatic mechanisms as subsystems for maintaining the level of organization when the

internal and external conditions of system functioning change (feedback)” (Ashby, 1964, p. 250). In the past decade, the term "homeostasis" has been widely used in social and environmental disciplines, which is caused by the study of the current state of ecosystems of varying degrees of complexity. The term "homeostasis" was introduced by V. Cannon to describe the process of biological self-regulation of functions in the body (as cited in Demchuk & Yurkevich, 2003). Modern science considers homeostasis as a property of systems together with the man to maintain relative dynamic stability of the composition and function parameters. The term "homeostasis" was most intensively developed in application of the cybernetic approach to the study of multi-level systems of biological nature (organism, population, biocenosis, human society). These objects have feedback that allows identification of a variety of mechanisms to ensure their stability. In the middle of the 20th century, the term "homeostasis" showed an additional general scientific potential. In studies by the biologist Ashby (1964), the term "homeostasis" was transferred from biology to various social and technical disciplines. This was caused by attempts to model complex objects of different nature: social, economic, cultural. Important theoretical and practical results were obtained in the study of the so-called "reflexive" objects, which primarily include social systems.

### **3. Research Questions**

In terms of the homeostatic approach, society as a social system can be represented in models of ultra-stable systems. This assumption is based on the above conclusions by Parsons and Merton that a self-regulated system has a tendency to homeostasis and equilibrium, and on concepts of the homeostatic mechanism developed by Ashby (1964), who defined ultra-stability as a stabilization property of the process through double-loop control.

The concept of a social system as an ultra-stable system can also be based on the distinction between culture and civilization by Kant (2019). Ultra-stable system is a system that includes a responding part and the external environment continuously reacting with each other and determining the state of the significant variable, (for example average life expectancy), and some regulating component (state) capable of changing the areas of its behavior. Stabilization of this system is ensured through double -loop control, one of the loops affects the position of a representative point in the trajectory of the social subject, and the second one affects the areas of its behavior.

The principle of ultrastability in this case is ensured by double -loop control. In the first loop, eco-culture impacts the technological basis of society to achieve the required practical result, and in the second one, the state with its institutions creates a field of behavior for subjects of the social system that will most contribute to solution of the same problem.

In this case, eco-culture implies a set of humanistic values based on ecocentrism principles. It includes knowledge, abilities, skills, level of intelligence, moral and aesthetic development, system worldview, ways and forms of communication of people, a set of goals, and values and patterns that determine person’s activity, his life style, and most importantly, behavioral standards in society based on ecologism principles (Zelenkov & Vodopyanov, 1987), i.e. eco-culture is a kind of ecological genotype of society (Korkia, Kurbanov, & Mamedov, 2017).

Civilization is a systemic organization of public life, which includes primarily the technological basis of society (Babosov, 2002). In this case, civilization seems to be a certain level of development of

eco-technologies that essentially implies not only resource saving, but reproduction of natural potential as well. The concept of society as an ultra-stable system opens up broad horizons for direct application of scientific tools to find answers to the questions posed by organization of life support within the social system and to ensure stability of indicators of quality of life, indicators of socio-natural interaction. To do this, indicators of life quality should be strictly formalized and adopted as a guide to action, both at the state and cultural level. The homeostatic characteristics of the social system suggest the existence of ultra-stability, as defined by Cannon, which are a set of interrelated rules of behavior of an organic system to maintain its stability. In order to ensure the environmental safety of the subjects of the social system, these rules can be the principles of ecologism formed based on the environmental paradigm of development.

#### **4. Purpose of the Study**

Ecologism considers social behavior of people as a way of life and actions of a living organism that depends not only on its biological characteristics and the volume of the ecological niche, but also on education received (the latter applies mainly to man) (Volnistaya, 2004). In the framework of this study, the principles of ecologism are considered as a necessary social toolkit for ecological optimization of the social system. The compulsory structural component of ecological optimization of the social system is the processes of formation of social norms and values of the ecocentric worldview, since the developmental paradigm based on anthropocentric approaches has become the main cause of global socio-ecological contradictions. According to the developers of this theoretical construct, the most important goal of ecologism today is to develop more reasonable options for the trajectory of social development. This can be achieved if the activity of society will be built with allowance for the basic laws of nature, among which the following principles are crucial for organization of vital activity within the framework of the social system.

#### **5. Research Methods**

- the principle of dynamic stability, which implies maintenance of the variable of the socio-natural development within the permissible range, which directly affects the quality of life as a result of self-organization of the social system;
- the principle of sufficient diversity shows the diversity of the management subject (i.e., social regulation of socio-natural relations should be diverse);
- the feedback principle assumes that adequate data on quantitative and qualitative output (power of the information-material flow) of the system, which is possible only under social and environmental monitoring in the social system, is required to ensure stable dynamics of life activities of the social system;
- the principle of restricted growth implies that the economy is developed only at the expense of renewable resources (the transition to an intensive path of economic growth);
- the principle of openness of the system implies the existence of social activities in organization of life processes and satisfaction of basic needs of people in renewable energy sources;

- the principle of sustainability of the economy assumes that production technologies used in the social system should be focused on minimization of the damage to the environment;
- the principle of ultra-stability is manifested through the presence of the amplifier of managerial capabilities in the social system, the presence of double-loop management system, division of powers in management, regulation of social and natural interaction through selection of stable fields of behavior for social actors in contacts with nature;
- the principle of population homeostasis involves renewal, reproduction of human resources, and impact of social management mechanisms on demographic activation.

Implementation of the "environmental imperative" in organization of life activities of the social system requires purposeful choice of developmental strategy, which will globally aim at, for example, improvement of social and natural relations within the concept of sustainable development. The principles of ecologism may be in demand during development of the subject content of the ideology of the young state, and state policy to ensure a comprehensive security system for its citizens; during development of state programs in both short and long term, which make the social system transfer to a qualitatively new state. Ecologists persistently emphasize that in work with complex systems that involve the human factor the ecology provides the right perspective and outlines the basic framework of acceptable human intervention in socio-natural processes. According to Parsons, physical environment is the last and most important factor in the hierarchy of the existence of the social system. It creates the conditions for system functioning, but does not organize them, like, for example, a power system or technology. "Physical factors are not controlled by highly ordered cybernetic systems; therefore, we must adapt to them, otherwise the human life will disappear" (Parsons, 1994, p. 471). It is obvious that the social system (society) must comply with the requirements and constraints determined not only by internal conditions, but also by environmental conditions to maintain the required level of internal integration. This compliance is attained through adaptation of the social system to new social and ecological conditions. Based on the concepts by Gig (1981), who determines the logic of self-organization of the social system as follows: the social system itself controls its behavior since controls are inside it (and this is one of its most significant differences from technical systems), it can be stated that mechanisms for self-organization of the social system are possible only based on adaptation and goal-setting activity, which is always characteristic of the conscious behavior of a person as a social individual. Parsons (1994) also believes that the ability of the system to organize itself is manifested through adaptive behavior.

Sociology interprets behavior as external manifestation of the activities of the subjects of the social system – it is a form of transformation of social activity into real actions relative to socially significant objects. Natural environment belongs to the category of this type of socially significant objects. Sociological interpretation of behavior is conceptualized through the category of social interaction. Interaction of society with the natural environment occurs through anthropogenic activities aimed to meet the basic needs of people, which change the state of both nature and man, as evidenced by the data from the above sociological analysis.

A new disciplinary field that emerged in sociology – social systemology – defines behavior as an external form of manifestation of the system (society) activity caused by environmental effect, and as a system response to environmental effects (Reznik, 2003). Thus, it can be assumed that interaction of the

social system (society) with the external environment, which includes environmental factors (socio-natural interaction), is formalized through dynamic behavior of the social system. Gig (1981), the author of the interdisciplinary applied general theory of systems, suggests 3 types of dynamic behavior inherent in systems of any nature – controlled, diffuse, and purposeful. At the same time, he argues that purposefulness is the main difference between "organic" systems, including the difference between social and technical ones. Similar to Gig, the authors of the theory of purposeful systems, Ackoff and Emery (1972), believe that an important distinguishing feature of social systems, probably the most important, is not only purposeful behavior, which is not typical of technical systems, but also their constituent parts that possess the characteristics of purposefulness. Thus, there is a need of compliance between the "external" (including environmental) and "internal" goals of the organizational integrity of the social system. Social practice shows that this is a big problem both at the stage of the initial system design and during current management process (Babosova, Mamedov, & Panich, 2015; Babosov, 2002). According to the system paradigm, the goal is the desired state of the object or system, and the subjects of the system strive to achieve this goal. Joint activities necessarily imply a single goal as an ideally presented future result of activities to which any community (team) of people strives for. K. Marx also referred the society to systems that are able to carry out purposeful activities and achieve their goals. New goals of the social system are initiated when exciting effects of the external environment appear, for example, environmental challenges associated with changing climatic conditions, depletion of the natural-resource potential, and the problems of energy supply of social activities (Mamedov, 2017).

The choice of goals is a key activity among all types of functional activities in the social system. It should be based on a comprehensive analysis of carefully developed programs – options for implementation of the development strategies based on predictive assessments of the state of all channels of communication of the system with its environment. The idea of goal-setting as a system response to disturbing effects of the external environment suggests a fundamental condition of the need to form reliable channels of communication between the social system and its environment.

The authors of the theory of purposeful behavior (Ackoff & Emery, 1972) proposed a model of three-phase living space for implementation of purposeful choice in the activity of a social individual (an individual or group of individuals organized as a single whole). Researchers define the state of purposefulness as an interactive, consistent series of choices that leads to goal achievement. Each choice is made by the social individual when he is in one of the functional states: "aspiration", "knowledge" or "habitualness". In the "aspiration" state, the individual answers the question "What to do?" to choose the goal. In order to successfully choose the goal at this stage, the individual must have practical work skills and a certain range of knowledge about possible ways to achieve the goal, understand the interrelationships of possible events, and have a creative imagination. In the state of "knowledge", the individual chooses the method to achieve the goal he has chosen being in the state of "aspiration." To do this, the individual must be aware of possible methods and means to achieve the goal. At this stage, he responds to the question "How to do?". Finally, in the state of "habitualness", the individual chooses the means to solve problems. At this stage, he only needs to have practical skills (Demchuk & Yurkevich, 2000).

This approach can be used as a basis for a structural-functional model of adaptive behavior of the social system. Parsons' idea about the characteristics of self-organization and self-regulation of the social

system that manifest themselves through homeostatic characteristics enables a sociological interpretation of these characteristics in terms of socio-natural relations. In our opinion, the main ones are: the ability to adapt (based on the potential of self-development), the ability to set a goal and organizational forms of goal-setting (integrated state target programs and projects), availability of mechanisms of public administration and regulation as the ability to integrate and coordinate social actions. Thus, taking into account the fundamental principle of isomorphism of large systems, the structural-functional model of the adaptive mechanism of the social system considers, as a set of system-forming components, a triad of functional roles: strategy – tactics – activity, or: goal-setting – forms and methods of solution – objective activity, which are well known in organizational decomposition. The system-forming components of this model (analogy method) can be considered as a triad of functional roles: strategy – tactics – activities, or: design – technological preparation – production, which are well known in organizational decomposition.

This model can become the basis for conceptual constructs of the division of labor in creation of organizational mechanisms for ecological optimization of the social system. Adaptive behavior of the social system is directly related to the components of social goal-setting in the system, evaluation structures, and execution structures. Modern sociology determines the degree of the self-organization capability of the system through the prism of the development of social relations in society. They depend on the stratification structure of the social system and on the structure of the social division of labor.

As we see it, the tools of state power play a crucial role in self-organization processes of the social system. The structure of decision-making on organization of social activities in the social system directly depends on these tools. A combination of methods of state and management influence on social activities in the social system enhances achievement of the state of dynamic equilibrium between the social system and its external environment.

In order to achieve this state, the system requires a certain "invariance of components" (Gig, 1981). In terms of the structural-functional approach, this invariance in the social system is manifested through life-support functions: sample maintenance, integration, goal achievement, and adaptation. "Sociology deals with only one aspect of social systems, mainly the functional one, that is, it studies the structures and processes related to integration of these systems," noted Parsons (1994, p. 473). The theorist of sociology believed that the main system-forming factors of the social system are its functions related to life support. These functions can be assigned to the system from the outside – by the environment – and show what role the system performs with respect to it. This provision has important effects: the impulse to change, including a qualitative change in the system, is generated both within the system and by external factors. This is sufficiently substantiated in the framework of dialectics – any change in the function produced by the environment causes a response in the system functioning mechanism. Merton (1957) defines functions as observable effects that contribute to system adaptation. In the theory of action systems, Parsons argues that the fundamental principle of organization of living systems (including systems with human participation) is the principle of differentiation of the structure in response to environmental effects. According to the American sociologist, the principle is applicable to the analysis of action systems, since the latter are subsystems of the living system (Parsons, 1994). Parsons's approach clarifies the mechanism of the social system adaptability, when the social system can restructure the organizational structure of its

life-support functions in response to adverse external changes. This is a functional adaptation of the social system to new environmental conditions.

Functional adaptation of the social system is manifested through the adoption of adequate decisions that meet the requirements and threats from the environment. As we see it, adaptation of the social system is formalized in social practice through a certain decision-making system, which is aimed at choosing the goals of joint objective activity and defining methods to achieve them during self-organization. Interdisciplinary theories claim that adaptability of the social system is manifested in its ability to maintain significant variables within the limits that ensure the living conditions of its existence. It should be noted that Ashby (1964) defines behavior that will ensure stability of some internal variables and protect them from adverse external effects as adaptive behavior of the system (in conditions of continually changing environment).

Thus, we can define adaptive behavior of the social system as an acquired property manifested through the ability to adequately choose the goals and methods to meet the environmental requirements, and to maintain significant variables within the limits that ensure the living conditions of the system.

In the social system, such variables can be indicators of the life quality, and indicators of social and natural interaction. A system with efficient mechanisms of adaptation will ensure the stability of these indicators in conditions of natural disasters, the emergence of new revolutionizing discoveries in the scientific and technical sphere, etc. On the contrary, the system with low adaptability is not able to protect against shocks and finally will be rejected due to its inability to ensure safe living.

Practical implementation of the processes of functional adaptation of the social system to changing environmental conditions can only be carried out with the help of certain social mechanisms of organizational nature. These mechanisms lead to synchronization of the actions of social institutions as a social system. Mechanisms used to implement functional adaptation of the social system as integrity to new environmental conditions and to overcome social and economic transformations using the social system of the Republic of Belarus can be referred to as social and ecological ones. The above theoretical and methodological analysis allows us to conclude that the main components of the socio-ecological mechanisms to ensure a sustainable development strategy are:

- social norms and values that form the worldview of ecocentrism as the basis of public environmental awareness and behavior;
- a system of multi-criteria assessments of phenomena and factors ensuring sustainable development of the social system of the Belarusian society;
- a set of methods of state and government influence on the strategy of environmental behavior of business entities;
- a set of organizational technologies based on principles of multi-functionality and satisfying social and environmental standards and norms of social and economic activities.

At the same time, public goal-setting plays an important role in implementation of the sustainable development strategy (state programs of socio-economic development, large-scale social projects on organization of reproductive activities of society); public value system, principles and norms of legislation in force in the country; **government regulation system; various forms of civil society structures.**

The mentioned system-forming factors that ensure sustainable development of society as a social system are comprehensively studied by scientists in the fields of philosophy, political science, social management, and jurisprudence. In our opinion, civil society structures can be considered as a special infrastructure of organizational support for decision-making on implementation of the sustainable development strategy by our young state. Various forms of civil society structures can be considered as a special technological layer of social organization that interacts with the main sectors of the life support of the social system. Structures of civil society are the organizational basis for formation of a certain type of social behavior of the subjects of the social system, which is based on the specific content of the public culture of the organization of social activities. The theory of sustainable development of socio-economic systems developed by Demchuk and Yurkevich (2003) defines the structure of civil society as a technological core, the subject content of which is economic activity. However, these structures do not focus on the profit; their intended purpose is the solution of social problems, including environmental ones. Formation of civil society structures is currently the focus of attention not only of sociologists, but also of political scientists and economists. To date, social sciences face a difficult task to determine the essence, mechanisms of education and technologies of social design of civil society structures in continuously changing conditions of social reality.

## 6. Findings

In social practice, functional adaptation of the social system is formalized through manifestation of the purposeful state determined by the choice of a strategy for socio-economic development that would be aimed at the ecological optimization of the social system.

## 7. Conclusion

The goals of social development imply creation of an acceptable and high-quality ecological environment. This determines the need for transition from the sectoral to a safer territorial way of management of social activities. This goal-setting can change the long-term prospects of socio-economic development towards favorable socio-environmental forecasts and stable dynamics of life quality indicators.

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