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ENVIRONMENTAL-ORIENTED MODEL OF INTEGRATED MANAGEMENT

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ABSTRACT

The article proposes an ecologically oriented model of integrated management of Ukrainian enterprises based on coimplex integration of environmental aspects into their management system at all stages of the life cycle, which will increase the competitiveness of enterprises and become the basis for their successful transition to sustainable development in the medium term. To restore and increase the life-sustaining conditions of nature on the basis of adequate compensation for damage to ecosystems, the main provisions of the concept of balanced interaction of companies with the environment have been developed. The concept implies adequate compensation for damage to nature by determining the rational relationship between levels of production and resources consumed. Based on the concept, an ecologically oriented model of integrated corporate governance has been created, the main difference from the existing international ISO standards and their analogues is the integration of environmental aspects into the organization's management system, which allows to take into account the environmental component at all stages of the life cycle. The introduction of an environmentally oriented model of integrated management in the company will ensure effective environmental transformation of the management system, which will serve as a basis for improving the environmental acceptability of their activities.

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Introduction. The development of business entities in modern conditions is accompanied by increasing environmental impact, which requires radical changes in the practice of business management. The objective need to form conceptually new approaches to environmental and economic management of companies exists due to Ukraine's integration into the world economic space as well as changes in our country's international obligations to protect the environment and environmental safety. Named obligations arise from the theses of ratified conventions and agreements. The dominant tendency of exceeding the natural resources rate of use over the production

volumes rate of growth, accumulation of a significant amount of waste actualize the problems of ecological and economic management.

Analysis of recent research and publications. Theoretical and methodological principles of ecological and economic management of the enterprise are covered in the works of J. Adreona, O. Bakulich, I. Biletskaya, B. Burkinsky, T. Galushkina, Z. Gerasymchuk, O. Golub, D. Grosman, A. Gusev, A. Danylenko, M. Dolishny, M. Zgurovsky, O. Kashenko, A. Cornwell, P. Kostyuk, B. Christrem, L. Maslovskaya, L. Melnyk, V. Mishchenko, A. Oksanych, L. Okorokova, S. Kharichkova, M. Chumachenko, V. Shevchuk, L. Shimanovska-Dianych, V. Shubravska and others. The works of M. Beseda, I. Bystryakov, L. Varava, B. Danylyshyn, S. Doroguntsov, O. Kryvoruchkina, D. Lipnytsky, V. Mishchenko, O. Palamarchuk, S. Polovnikova, M. Khyzhnyak are devoted to ecological aspects of enterprise functioning. V. Shestopalov, E. Yakovlev and others. The concept of ecological and economic management, which is focused on the simultaneous increase of economic efficiency of production and economic activity and reduction of negative impact on the environment is fragmentary

The purpose of the article is to develop an environmentally friendly model of integrated management of Ukrainian enterprises based on complex integration of environmental aspects into their management system at all stages of the life cycle, which will increase the competitiveness of enterprises and become the basis for their successful transition to sustainable development in the medium term.

Materials and methods of research. The research used the scientific provisions of organizational management theory, industrial organization theory, the concept of sustainable development, resource conservation theory, scientific foundations of ecology and environmental protection, set out in the works of famous Ukrainian and foreign scientists, methods of organizational management theory, methods of strategic enterprise management, methods, mechanisms and tools of organization management, methodology of ecological management, the concept of "thrifty production".

Presentation of the main research material. A natural, evolutionary growth stage of the sustainable development concept is the elaborated idea of balanced “enterprises – environment” interaction. The block diagram of achieving an equilibrium balance of sustainable development of the ecological and economic system is presented in Fig.1.1.

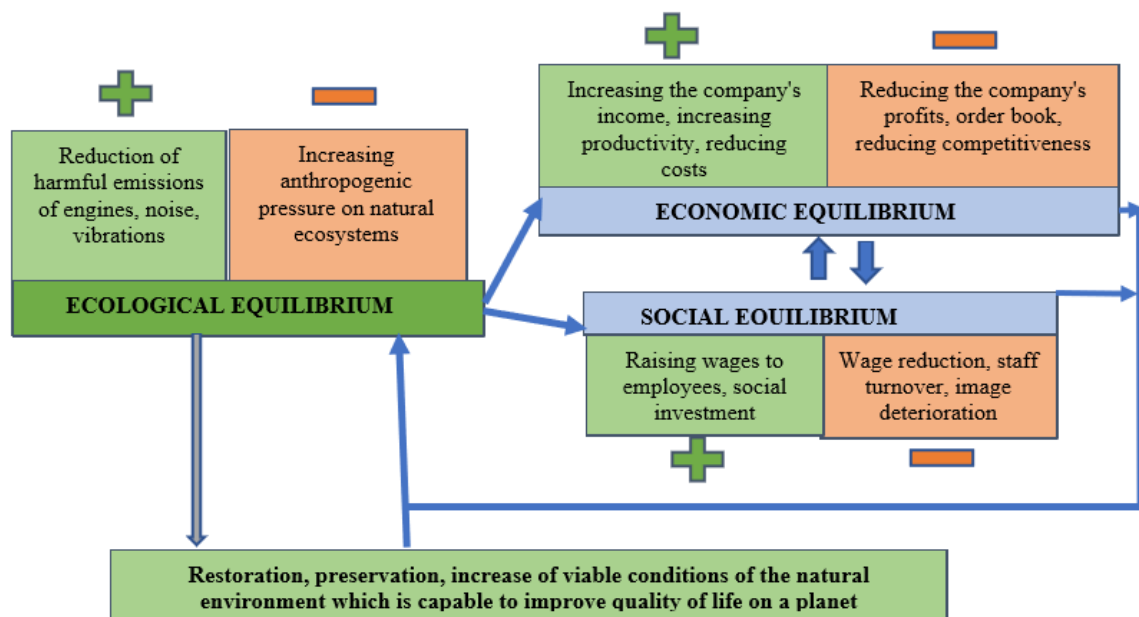
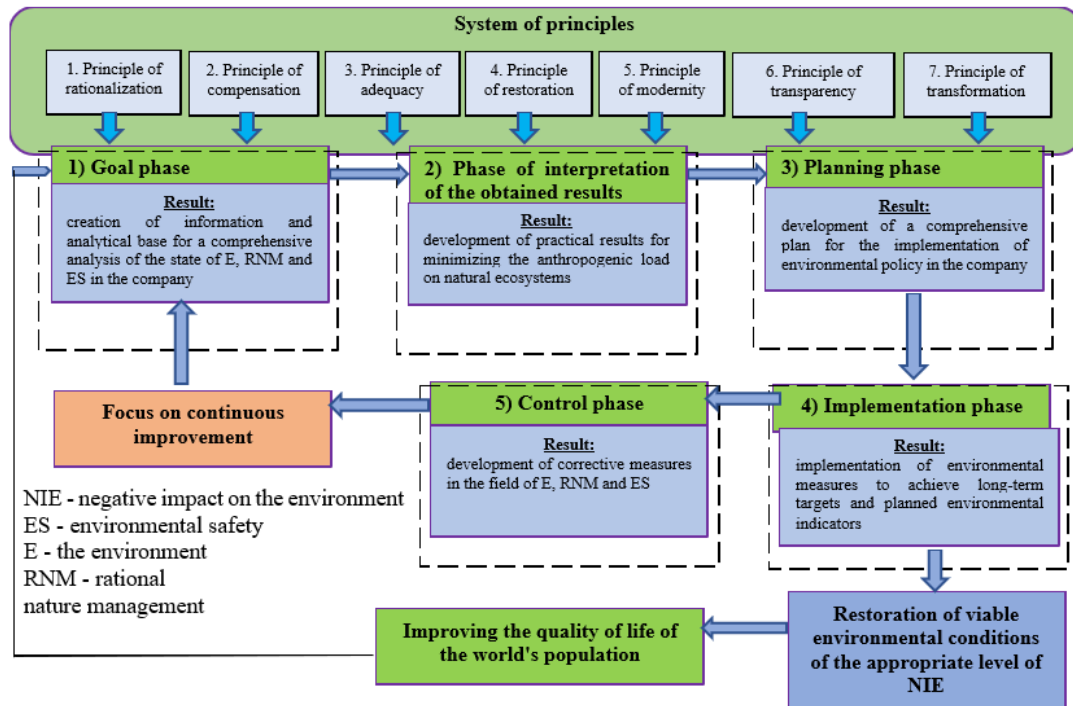


Fig. 1.1. Block diagram of achieving an equilibrium balance of sustainable development of the ecological and economic system

Source: the author's own research

The conceptual model of equilibrium interaction of enterprises with the environment implies the realization of a set of environmental measures corresponding to the level of negative impact, which will reduce the anthropogenic influence to limits that do not exceed the compensatory capacity of natural ecosystems, namely self-healing, conservation and enhancement (Fig. 1.2).



*Fig. 1.2. The concept of balanced interaction of enterprises with the environment
Source: the author's own research*

Equilibrium interaction of society and nature is the basis of sustainable development of the world. In this study it is proposed to understand the achievement of balanced interaction of enterprises with the environment as the nature of environmental management, in which the fee for excessive emissions of pollutants, waste and production, funds and fines for damages caused by environmental violations are missing. The need to develop a concept of balanced interaction of enterprises with the environment is due to a significant excess of compensatory capacity of natural ecosystems to self-renewal, due to the enormous anthropogenic pressure on natural ecosystems and their degradation, which requires accelerated recovery of natural capital, adequate to the environment [1]. It should be noted that natural capital is an important economic asset and a source of public goods. In this case, a necessary condition for ensuring the quality of life of the world's population is the restoration of natural capital, adequate to the level of negative impact on the environment.

R. Constanza and G. Daly define natural capital as a stock, which is the source of the flow of natural services and real natural resources. In its composition, the authors distinguish the active, or renewable, and passive part. Active capital is characterized by the ability to self-reproduce (ecosystem). The passive part of natural capital includes conditionally non-renewable elements of the natural environment (minerals) [2].

Additional consumer benefit ("environmental component" of the value of goods), which is included in the cost of goods sold, should go to the restoration of natural capital (air, water resources, soils, etc.), adequate to the level of negative environmental impact. The conceptual model is based on the following principles that ensure a harmonious relationship between society and the environment (Table 1).

Based on the proposed idea, a conceptual model of the integrated management has been developed. According to it, enterprises should be managed as environmental and economic systems. The main feature is the complex integration of environmental management into an organization's single management system. Conceptual model of integrated enterprise management as ecological and economic systems is shown in Figure 1.3.

Conceptual model of integrated enterprise management is considered as a set of various influential factors. All processes are interconnected and have different levers of influence. The main factors are controlled and providing influence, as well as the main production processes. Combining these three components, we were able to get a conceptual integrated model of enterprise management as ecological and economic systems.

Table 1. Principles of the concept of equilibrium interaction of enterprises with the environment [3]

Principle	Meaning
1. Principle of rationalization	The rationalization of the relationship between society and nature will ensure a forced transition from anthropocentric thinking to biocentric and will contribute to the achievement of ecological and economic balance, because there is no useless life in nature
2. Principle of compensation	The negative impact on the environment caused by enterprises should not go beyond the compensatory capacity of ecosystems, which will contribute to the accumulation, restoration and preservation of natural capital and increase the assimilation potential of ecosystems for greater environmental productivity
3. Principle of adequacy	The set of implemented environmental measures within the framework of environmental policy at enterprises must be adequate to the negative impact on the environment
4. Principle of recovery	Forced recovery of natural capital over its consumption will stimulate the growth of "green" economy through the development and implementation of innovative environmentally friendly technologies that can be provided only through the accelerated development of scientific and technological progress
5. Principle of modernity	Timely solution of existing environmental problems will help to increase the environmental and economic efficiency of enterprises in the medium and long term and prevent the degradation of natural ecosystems
6. Principle of transparency	Strict following of the principle of ecological transparency that guarantees stakeholders an open access to the actual and relevant information concerning the organization's nature preservation status
7. Principle of transformation	Environmental training of senior management and employees should become an integral part of the corporate culture of the enterprise, which contributes to the transformation of people's worldview and the transition from anthropocentric thinking to biosphere

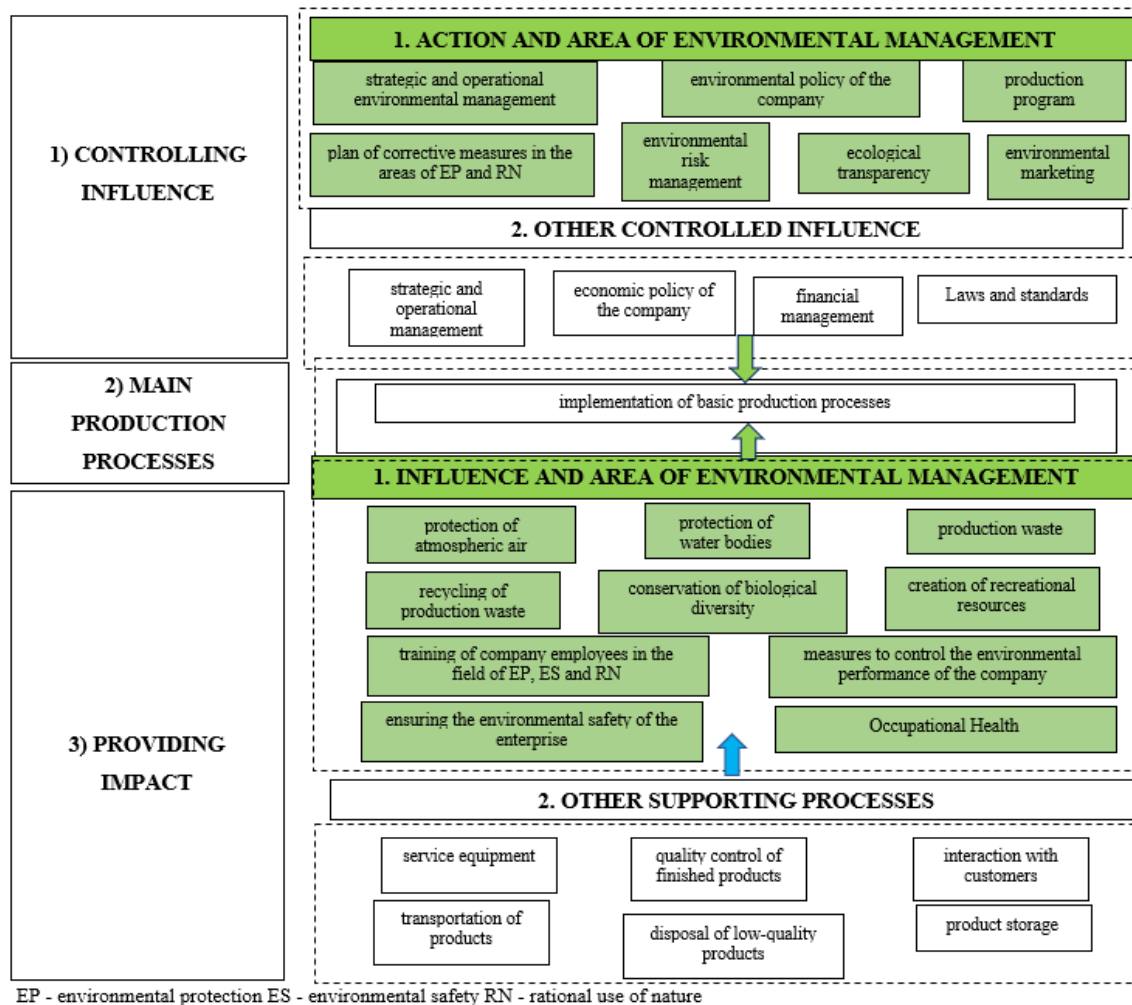


Fig. 1.3. Conceptual model of integrated enterprise management as ecological and economic systems
Source: the author's own research

Based on the proposed concept, a conceptual model of integrated enterprise management as ecological and economic systems has been developed, the main difference of which is the complex integration of environmental management into a single management system of organizations. At all stages, processes (management, production) are implemented, providing within the concept of balanced interaction of organizations with the environment, which will contribute to the creation of an integrated management system with a single policy, goals, strategic objectives and mission (Fig. 1.4). For each block of processes the corresponding system of management of regulation of activity which main function is implementation of control is developed.

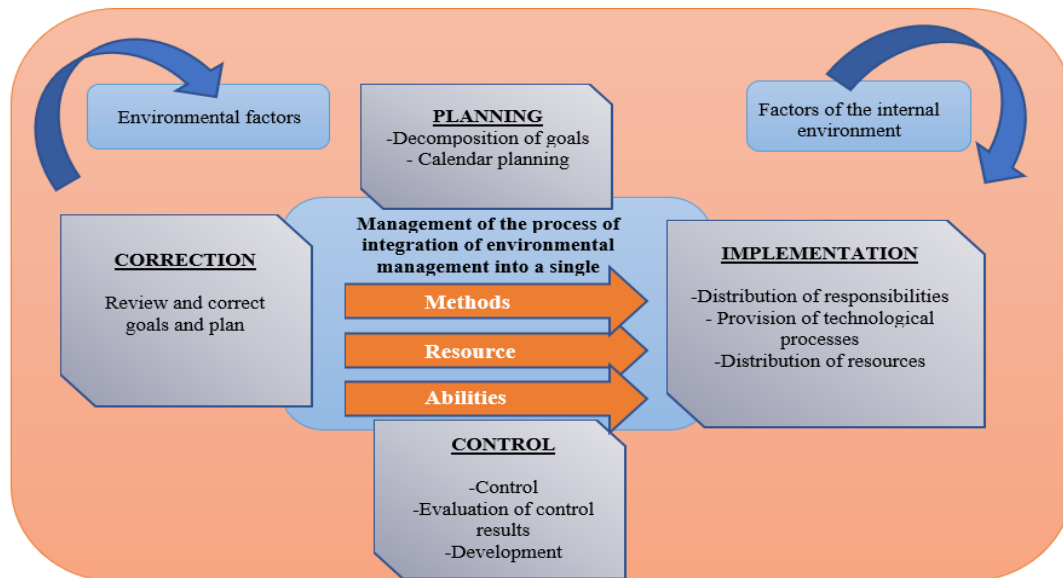


Fig. 1.4. Functional-structural model of integration of environmental management into a single enterprise management system

Source: the author's own research

The application of the developed model and the Deming-Schuhart cycle allows for each block of processes to develop an appropriate management system for the regulation of environmental activities, the main function of which is the implementation of continuous monitoring. According to the groups of processes implemented within the framework of ecologically oriented model of integrated enterprise management, the following main measures have been developed to ensure balanced interaction of organizations with the environment: [4]

1) Rational use of nature:

- reduction of the nature intensity of the enterprise (reduction of water consumption due to the introduction of circulating and repeated water supply systems, reduction of the energy intensity of the enterprise due to the introduction of energy-saving technologies). This will reduce costs and at the same time use hidden organizational reserves instead of attracting large investments aimed at environmental protection and environmental management.

- the most complete use of the resource potential of production and consumption waste.

2) Minimization of anthropogenic load on natural ecosystems:

- reduction of pollutant emissions into the atmosphere;
- reduction of industrial waste generation;
- reduction of physical factors influence (noise, vibrations, electromagnetic fields).

3) Conducting measures for the control over ecological efficiency of the enterprises:

- carrying out of production ecological monitoring and control;

- conducting external and internal environmental audits, including pre-certification and certification for compliance with international standards.

4) Carrying out of the actions directed on constant improvement of ecological management system at the enterprises:

- introduction of innovative technologies, including introduction of the best available technologies in the field of environmental protection, rational use of nature and maintenance of ecological safety of production processes;

- environmental education of employees of the organization, the population, as well as the public, comprehensive assistance to the volunteer environmental movement;

- development and implementation of programs, carrying out corrective and preventive measures together with the public to make timely decisions in the field of improving the environmental efficiency of production activities of enterprises.

5) Conducting measures connected with increasement of the ecological transparency.

In order to succeed, it is proposed to organize seminars, webinars, forums, dialogues, round tables (including international participation) on environmental activities of enterprises, its main key results related to environmental safety of production processes, environmental protection and environmental management. Reports (environmental reports, reports on sustainable development), which contain information about the environmental activities of enterprises, should be placed in the public domain on the company's websites.

6) Carrying out measures related to the advanced recovery of natural capital over its consumption.

It is proposed to develop and implement innovative environmentally friendly technologies in production. The implementation of this set of measures will allow companies to make a significant contribution to solving global environmental problems (global warming, ozone depletion, destruction of plant and animal species, air pollution, soil pollution and distortion of natural landscapes, waste generation).

Conclusions. Based on the study, the following conclusions were obtained:

1) the main directions of development of ecologically oriented processes, priorities and main tasks of ecological policy are determined;

2) developed the main provisions of the concept of balanced interaction of companies with the environment to restore and increase the life-sustaining conditions of nature on the basis of adequate compensation for damage to ecosystems;

3) an ecologically oriented model of integrated enterprise management has been developed.

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