

Chapter 3

FOOD SECURITY AND ENHANCING ENVIRONMENTAL SUSTAINABILITY IN TERMS OF GLOBAL CHANGES AND CHALLENGES

Liudmyla Demchuk

ORCID: <https://orcid.org/0000-0001-5698-7113>

PhD in Education, Associate Professor of the Department of Ecology and Environmental Technologies

State University of Zhytomyr Polytechnic

Liudmyla Nonik

ORCID: <https://orcid.org/0000-0003-4234-8948>

PhD Student, Assistant of the Department of Ecology and Environmental Technologies

State University of Zhytomyr Polytechnic

Iryna Voynalovych

ORCID: <https://orcid.org/0009-0000-1811-4928>

Assistant of the Department of Ecology and Environmental Technologies

State University of Zhytomyr Polytechnic

Natalia Rusetska

ORCID: <https://orcid.org/0000-0002-5568-4708>

Teacher of Natural Sciences, the Highest Category

Zhytomyr Agricultural and Technical College

(Zhytomyr, Ukraine)

PROTECTION OF THE ENVIRONMENT AND INCREASING THE ENVIRONMENTAL SUSTAINABILITY OF SOCIO-ECONOMIC SYSTEMS IN THE CONTEXT OF GLOBAL CHANGES AND CHALLENGES

Abstract

It is shown that nature protection has become one of the main priorities of Ukraine, as the preservation of biological and landscape diversity is the basis that provides the possibility of any nature management and development of society. In the conditions of global challenges, an important condition for sustainable development of an individual country and the world economy as a whole, increasing the effectiveness of the mechanism of international economic relations is the ecologization of the economy. The transition of the entire system of economic reproduction of mankind on the principles that meet the objectives of environmental conservation environment. Ecologization of the economy and transition to sustainable development provide a balanced solution of socio-economic tasks, tasks of preserving a favorable state of the environment and natural resources. environment and natural resource potential in order to meet the vital needs of present and future generations. It is substantiated that the main task of sustainable development of Ukraine is to ensure dynamic socio-economic growth, environmental preservation and rational use of natural resource potential by building a highly efficient economic system, which stimulates productive labor system, which stimulates productive labor, scientific and technological progress, and has a social orientation social orientation.

It is concluded that the problem of achieving a certain balance in the relations between the state, nature and man, based on legislative and organizational-technical solutions, has reached its critical level. This explains the objective need for state intervention in the natural-ecological sphere in order to achieve a balanced socio-economic development within this triad "society-nature-human". Moreover, it is the state that needs to take the leading role in this process, as it can and should lay the foundations for a global environmental-economic partnership between domestic business entities and foreign partners for the sake of survival and further development foreign partners for the sake of survival and further development of Ukraine, as well as of the entire modern civilization modern civilization.

Keywords: *ecologization, economy of Ukraine, ecological component, ecological situation, sustainable development, the concept of sustainable development.*

Introduction

Global challenges and, above all, the global ecological crisis prompts mankind to ecologization of all spheres of activity. Therefore, today, the environmental aspect of economic life is increasingly actualized, gaining priority in interstate relations. With the development of civilization, with the development of civilization, the rapid growth of the Earth's population, its production and waste, the problems of relations between society and nature are accumulating and becoming more and more complex society and nature are accumulating and becoming more complicated. The most urgent problems of preserving living conditions of mankind include environmental degradation, depletion of natural resources and environmental safety, ecological safety. At the turn of the 20-th and early 21st centuries, the significance of these problems has immeasurably increased, giving them the status of global challenges.

At the turn of the 20-th and early 21-st centuries, the significance of these problems has increased immeasurably, giving them the status of global challenges, as the degradation of the biosphere, which has led to large-scale natural disasters, has become too visible and tangible large-scale natural cataclysms, deterioration of the quality of life and health of people in practically all corners of the planet corners of the planet. Taking this into account, there is a need to develop methodological foundations of regional and global policy aimed at the greening of the environment global policy aimed at ecologization of the economy and, accordingly, an effective mechanism for its practical implementation of its practical implementation (Rjhzhenko, 2017).

The scale of global anthropogenic impacts on natural complexes necessitates a harmonized type of relations between socio-economic progress and the environment within the concept of “sustainable development” (Khaite, Erehtchouko, 2020).

The concept of sustainable development is undergoing some changes, which are explained by the reasons of both economic and socio-ecological nature. Among the most significant ones are those economic bifurcations, within the framework of which there is a transition to a new technological environment.

Among the most significant are those economic bifurcations within the framework of which the transition to a new technological

mode is taking place, which in turn leads to the intensification of digitalization and ecologization of the production sphere. Recently, there have been significant changes in the structure of the economies of all countries of the world due to the spread of coronavirus infection. This led to a new round of transition of the whole socio-economic system to the organization of its national economic component as a system of work on remote access with self-isolation of workers, which required additional development of automation forms as a condition for the survival of the economy of all countries for the survival of the economy of all countries. In this case, the new realities of the concept of sustainable development under the influence of economic, medical, biochemical, political and social factors highlight green technologies and their supporting resources – green investments and green tools to stimulate the economy to ensure the conditions of sustainable development, their realization in practice as a driver of economic growth.

Thus, it is necessary to carry out technological modernization of production in all sectors of the production sphere of the economy while strengthening the protectionist policy of the state in the direction of its environmentally-oriented nature, based on stimulation of environmentally friendly production and rational nature management and fiscal and prohibitive pressure in respect of environmentally dirty technologies and systems that do not meet the requirements of energy and resource saving.

Materials and Methods

Under the influence of the activation of digital technologies in the industrial economy with its simultaneous greening, penetration of environmentally friendly technologies into everyday life, society and economy, many components of the education system are being transformed. Therefore, the educational subsystem of the socio-economic system faces the following task the task of supplementing the ecological component of the processes of education and upbringing of students.

Results and Discussion

The ecologization of the economy and society's consciousness is not absolutely new problem. Practical reflection of environmental

friendliness is closely connected, first of all, with the state regulation of environmental management processes state regulation of nature management processes. What is new in this problem is equivalence of exchange between the state, nature and man, which is based on legislative, organizational and technical solutions. This problem at the present stage is very acute. It has been formed during the last two centuries and now has acquired special importance. Therefore there is an objective need for the state to intervene in the natural-ecological sphere in order to to achieve a balanced global environmental-economic partnership between business entities, countries and peoples, and a balanced global ecological-economic partnership between the business entities, countries and peoples, international cooperation for the sake of survival and further development of civilization development of civilization.

It is obvious that the growth of the economy and the needs of mankind should be correlated with the limits of environmental capabilities of our planet, which is the meaning of the concept of “sustainable development”, that is, such a development of society that meets the needs of current generations and at the same time does not jeopardize the ability of subsequent human generations to meet their needs (UN, 2002).

In the context of global challenges, an important condition for sustainable development of an individual country and the world economy as a whole, as well as for increasing the effectiveness of the mechanism of sustainable development.

In the conditions of global challenges, an important condition for sustainable development of an individual country and the world economy as a whole, for increasing the effectiveness of the mechanism of international economic relations is the ecologization of the economy, the transition of the entire system of economic reproduction of mankind to the principles, corresponding to the tasks of environmental conservation (UN, 2002).

Today, such a statement of the question means radical optimization of resource use in the process of economic activity and consumption, elaboration of such development priorities that organically combine the financial and economic efficiency of economic activity with its environmental consequences financial and economic efficiency of economic activity with its environmental

consequences.

This is especially true for the Ukrainian economy, which is characterized by extremely irrational and inefficient consumption of resources and extremely unfavorable environmental consequences consumption of resources, extremely unfavorable environmental conditions of life, complication of the functioning of the national economic system due to the increasing complexity of the national economic system functioning of the national economic system due to ever-increasing energy and raw material costs (Dovhal, 2013).

Ukraine should also appropriately respond to global challenges in this area by supporting progressive world initiatives and decisions, participating in various international alliances and agreements, such as the Agenda 21 signed in Rio de Janeiro in 1992 and the Convention on Biological Diversity and the Convention on Biological Diversity. Today, at the turn of the third millennium, Ukraine is trying to become a reliable international partner in solving global and regional problems at the regional and world level. Its rich natural-resource potential, highly educated population, developed industry and infrastructure create all the necessary prerequisites for active participation in the process of ecologization of the globalized economy and, moreover, of the national economy and, moreover, the national economy of Ukraine (UN, 2002; Laforest, 2014).

The current environmental situation in Ukraine can be characterized as a crisis, which is the result of the disregard for the objective laws of development and reproduction of natural resources.

The current environmental situation in Ukraine can be characterized as a crisis, which is the result of neglect of the objective laws of development and reproduction of the natural resource complex of Ukraine over a long period of time, namely structural deformations of the economy, when preference was given to the development of extractive, natural resource complexes in Ukraine favored the development of extractive, most environmentally hazardous industries in Ukraine (Verkhovna Rada of Ukraine, 1998).

As it is known, sustainable development implies mandatory harmonization of economic, ecological and social development in such a way that the quality of economic, ecological and social development is not reduced for generations, It is well known that

sustainable development implies mandatory harmonization of economic, environmental and social development in such a way that the quality of life of mankind, environmental degradation and social progress are not reduced from generation to generation quality of life of mankind, environmental degradation and social progress, which together constitute the content of the process of greening the economy. Together constitute the content of the process of ecologization of the economy (UN, 2002). This process cannot be reduced only to certain environmental protection measures. Its name consists in the preventive protection of the environment directly within the framework of production activities, that is, within the economic system, not outside it. Therefore, effective environmental policy can and should be implemented, first of all, in the context of socio-economic transformations aimed at ensuring sustainable development development. At the same time, direct environmental protection measures do not replace, but are organically woven into the directions of realization of an environmentally favorable mode of economic activity implementation of environmentally favorable mode of economic activity (Danylyshyn, 2002).

The main achievements of Ukraine's international cooperation in the sphere of ecologization of the economy are:

- reflection of national interests and position of the state in policy documents and decisions of forums of international intergovernmental organizations;
- expansion of the scope of international cooperation through the conclusion of new agreements, treaties and programs;
- affirmation of Ukraine's international political authority and the improvement of the national legal framework; and legal framework;
- improvement of environmental qualifications (legal, technological) and management methodology, aimed at improving the environmental situation in Ukraine;
- obtaining, through international cooperation, assistance in the field of environmental protection, etc. etc.

Experience shows that it is quite difficult to implement an effective sustainable development policy in the state even with a prosperous economy, and even in the case of a prosperous economy, it is difficult to implement an effective policy of sustainable development difficult even in a prosperous economy, and this

problem is all the more difficult in Ukraine, which is experiencing a deep systemic crisis and is forced to implement an effective sustainable development policy in the country deep systemic crisis and has to simultaneously solve many problems: economic, social, political, environmental, social, political and environmental problems.

In Ukraine, six Euroregions (Carpathian, Upper Prut, Lower Danube, Dnieper, Bug and Slobozhanshchina). The border territories of neighboring countries have many common features not only in natural-geographical, but also in ecological-economic, geopolitical and other aspects (Danylyshyn, 2002).

Transboundary ecological-economic relations of Ukraine have a number of peculiarities due to the presence of the border and its arrangement, the need for interstate regional-border, ecological-economic and ecological-information cooperation, ensuring international environmental security, and the use of natural resources security, use of natural resources.

The problems of the process of international ecologization of the economy, as well as the problems of cooperation between neighboring states (at different levels – district, regional or national) show that considerable attention should be paid to the study of the ecological and economic state of exactly the border territories. This is due to the fact that human activity in the border territories of the state can negatively affect the state of the environment, the health of citizens and the environmental safety of the population of all the bordering states.

The current economic and environmental reforms in Ukraine are aimed at achieving a compromise between production and natural potential with a subsequent transition to their harmonious coexistence in the interests of people coexistence in the interests of people. The formation of a national environmental policy is based on

The basic principle according to which the environmental security of the state becomes an important element and component of national and global security.

As already mentioned, sustainable development as a process of harmonization of productive forces, providing satisfying the necessary needs of all members of society, provided that the integrity of the natural environment is preserved and restored in stages. The

process of harmonization of productive forces, ensuring the satisfaction of the necessary needs of all members of society, provided that the integrity of the natural environment is preserved and gradually restored, creates opportunities for a balance between its potential and the needs of people of all generations needs of people of all generations. The basis of sustainable development is the parity of relations in the triad of man – society – nature, which ensures the transition to such a way of interaction between nature and society, which is characterized as the era of noosphere (Laforest, 2014).

The main objective of Ukraine's sustainable development is to ensure dynamic socio-economic growth, environmental conservation and the rational use of natural resource potential in order to meet the needs of present and future generations by building a highly efficient economic system that stimulates productive labor, scientific and technological progress and is socially oriented a highly efficient economic system that stimulates productive labor, scientific and technological progress, and has a social orientation.

Sustainable development should be realized within the framework of effective functioning of the market system and state regulation of the economy, coordination of actions in all spheres of life of the society. Therefore, today it is necessary to focus on such priority areas of formation of conditions of sustainable development of Ukraine, such as:

- realization of an integrated approach to the formation of state policy in the economic, ecological and social spheres;
- combining the economic and environmental components of socio-economic reforms;
- introduction of integral indicators of sustainable development of Ukraine.

The strategy of sustainable development should form the basis for irreversible consolidation of the goals and course of socio-economic reforms in the country, will contribute to the democratization of society and ensure national security of the state. The policy of sustainable development meets the strategic goals of Ukraine for the near and distant future (Dovhal, O., Dovhal, H., 2008). However, today in Ukraine there is no existing governmental document that would proclaim at the state level the parity of environmental and

economic strategy, and the environmental situation in Ukraine is becoming threatening.

The level of technogenic load on the natural environment in Ukraine is quite high, exceeding the similar indicator of developed countries by 4-5 times. In Ukraine there is a tendency towards environmental destruction and irreversible loss of natural resources, the risk of increasing the number of floods, waterlogging of cities, landslide processes is predicted. According to estimates by the Ministry of Ukraine for Emergency Situations and Protection of the Population from the Consequences of Chernobyl. According to estimates by the Ministry of Ukraine for Emergency Situations and Population Protection from the Consequences of the Chernobyl Disaster, losses from waterlogging, landslides and karst processes amount to 350-400 million UAH annually (Danylyshyn, 2002).

The damage caused to nature in the production and consumption of products is the result of irrational use of natural resources. In this regard, there is an objective need to establish interrelation between the results of economic activity and indicators of environmental friendliness of manufactured products, technology of its production products and the technology of their production. Justification of environmental friendliness today is an integral part of the management system, influencing the choice of priorities management system, influencing the choice of priorities in providing the national economy with natural resources and services within the stipulated volumes of consumption services within the stipulated consumption volumes. Cost indicators should reflect the effectiveness of efforts to reduce (or increase) the anthropogenic load on nature. With their help they are used to calculate environmental damage and assess the effectiveness of measures to stabilize the regime of natural resource use natural resource use. In the conditions of intensive economic development an important role is given to the system of economic indicators endowed with the most important functions economic indicators, endowed with the most important functions of economic activity: planning, accounting, evaluative, controlling and stimulating. Economic indicators should express the final result taking into account all phases of the reproduction process taking into account all phases of the reproduction process. At the present stage

of socio-economic development the main goal of economic policy is to increase the national wealth through the effective utilization of natural resources, labor and labor use of natural resources, labor and scientific and technical potential of the country.

Conclusions

One of the most important priorities for improving the environment and increasing the environmental culture of the population is to strengthen citizens' motivation to separate garbage collection. The problem of garbage disposal has recently gained special significance. The organization of a system of separate garbage collection contributes to the development of industrialized garbage processing in the country, reduces the accumulation of garbage in landfills, reduces environmental pollution, saves resources through recycling and recycling of garbage.

The organization of a separate waste collection system contributes to the development of industrialized waste processing in the country, reducing the accumulation of waste in landfills, reducing environmental pollution, and saving resources through recycling based on the best available technologies.

Thus, the current environmental situation in Ukraine can be characterized as a crisis, which was formed over a long period of time due to neglect of the objective laws of development and reproduction of the natural-resource complex of Ukraine in the process of structural deformations of its national economy deformations of its national economy, which favored the development of extractive industries – the most environmentally hazardous industries in Ukraine.

The modern economy of Ukraine is characterized by a high proportion of resource- and energy-intensive technologies, the introduction and increase of which is carried out in the most economical way – without the construction of appropriate treatment facilities, which became possible in the absence of effective legal, administrative and economic mechanisms of environmental protection, administrative and economic mechanisms of nature management and without taking into account the requirements of environmental protection environmental protection requirements. It should be recognized that the greening of the economy in the minds

of society is not an entirely new problem. Practical reflection of environmental friendliness is closely connected with the state regulation of nature management processes. What is new in this problem is the achievement of a certain equilibrium in the relations between the state, nature and man, based on legislative and organizational and technical solutions solutions. This explains the objective need for the state to intervene in the natural-ecological sphere in order to achieve balanced socio-economic development within this triad “society-nature-human”. Moreover, it is the state that should take the leading role in this process, as it can and should in this process, as it can and should lay the foundations of a global environmental-economic partnership between domestic business entities and foreign partners for the survival and further development of Ukraine and the entire modern civilization.

References:

1. Verbitskiy, Yu. (2002). “Formation of a modern system of organizational and economic mechanisms and institutions for international environmental activities”, *Sb. nauk. tr. In-t mirovoy ekon. i mezhdunar. otmosheniy NAN Ukrainy*, vol.32, pp.146-156.
2. Demchuk L., Kireiceva H., Ziganenko-Dzubenko I., Vovk V. (2023). *Kontseptsiia ekolohichnoi bezpeky derzhavy v konteksti staloho rozvytku ta yevrointehratsii [The concept of ecological security of the state in the context of sustainable development and European integration]. Problemy khimii ta staloho rozvytku. Vyp 1. S. 3–11.*
3. Dovhal, E. A. (2013). “Innovative model of economic development: levels, factors, strategy”, *Visn. Khark. nats. un-tu im. V. N. Karazina. Seriia «Mizhnarodni vidnosyny. Ekonomika. Krainoznavstvo. Turyzm»*, vol. 1042, pp. 86-90.
4. Dovhal, O. A. and Dovhal, H. V. (2008). “International technological division of labor as a synergistic effect of globalization”, *Akademichnyi ohliad*, vol. 2, pp. 94-98.
5. Rjhzhenko V. (2017). *The Philosophical Foundations of the "Society of Intellect": Toward Vladimir Vernadsky's Theory of the Noosphere. Novii kolegiiym. No. 2 (88). P. 4-9.*
6. UN (2002). “Declaration and Program of Action of the Millennium Forum “We are the peoples: UN governance in the 21st century.” Sustainable development and the environment”, *Ekologiya XXI veka*, Vol. 1-2(6-7), pp. 67- 71.
7. Khaitey, P., Erechthouko M. (2020). *Perspectives of sustainability: towards design and implementation. Sus tainability perspectives:*

- science, policy and practice. Springer. P. 3–17.*
8. Laforest, V. (2014). *Assessment of emerging and innovative techniques considering best available technique performances. Resources, conservation and recycling. Vol. 92. P. 11–24.*
 9. Mykiiievych, M. M. Andrusevych, N. I. and Budiakova, T. O. (2004). *Yevropeiske pravo navkolyshnoho seredovyshcha [European environmental law], LNU im. I. Franka, Lviv, Ukraine.*
 10. Cai, Z., Song, Y. (2011). *Environmental protection investment and sustainable development – policy simulation based on nonlinear dynamics // Energy Procedia. 2011. – Vol. 5. – P. 467-471.*
 11. *The Verkhovna Rada of Ukraine (1998). Resolution “About the Main Directions of the State Policy of Ukraine in the Field of Environmental Protection, Use of Natural Resources and Ensuring Environmental Safety”*, available at: <http://zakon1.rada.gov.ua/188/98-VR/0503-1998> (Accessed 20 Jan 2019).
 12. Danylyshyn, B. M. (2002). *“Ukraine: progress towards sustainable development”*, *Informatsiino-analitychnyi ohliad vykonannia “Poriadku dennoho na XXI stolittia” [Information-analytical review of implementation of the “Agenda for the XXI Century”]*, ZAT “Nich lava”, Kyiv, Ukraine.