

## SOCIO-ECONOMIC BACKGROUNDS OF AGRICULTURAL PRODUCTION ECOLOGIZATION

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This article reveals the economic and social preconditions of ecologization agricultural production. Purpose of this article is to offer a system solution of environmental problems in the agricultural sphere both at the global and local levels. It has been found that meeting the needs of mankind is accompanied by new innovative technological solutions that are sometimes dangerous to human life and health, and increase in the food production in developing countries is accompanied by depletion of natural resources, specifically land and water. On the basis of scientific and special methods of economic research, core areas of ecologization agricultural production have been grounded: meeting the needs of the population in the environment-friendly food; ensuring people environmental safety; use of technologies and methods of agricultural production that do not harm human health and the environment.

*Keywords: agricultural production, ecologization, sustainable development.*

*JEL code – Q15.*

### **1. Introduction**

The desire of the mankind to meet the continuously growing demands came into conflict with the nature ability to self-recover and resource potential of the planet. Desertification, natural disasters, acid rain, soil salinization and acidification, ozone depletion, and unpredictable climate change is a strong indication of the natural system misbalance. The global community has recognized the fact that the global transformations in the biosphere have reached its critical proportions. This necessitates a radical revision of the existing methods of managing and developing the new approaches to the organization of human life, based on the principles of ecologization social production.

Some authors choose an ambiguous approach to the study of ecological problems of agricultural production. Some of them note the existing environmental problems in agriculture and suggest its ecologization through systemic modernization and introduction of organic production (Lamine, 2011), crop diversification (Allaire, 2013). The others suggest the ways and mechanisms of solving the problems of science and technology ecologization without revealing the factors that triggered their appearance (Barbier, 2009; Kupinets, 2010; Bigdan, 2012). Many works of scientists dedicated to solving problems ecologization agricultural production through the introduction of sustainable and ecological-safety land use (Rusan, 2009; Fedorov, 2010; Hutorov, 2010).

At the present stage of development and interaction between society and nature the production ecologization appears not as an isolated phenomenon, but is considered as an objective need for economic growth and is an integral component of sustainable development. This, in turn, determines the need to study the socio-economic prerequisites for environment-friendly agricultural development to achieve the optimal, consistent transition of the agricultural sector to a new level, which is one of the most important and urgent problems of modern science.

*The aim of this paper is to propose a systemic solution of environmental problems in the agricultural sphere in its global and local dimensions by implementation of the ecologization principles as an integral part of sustainable development. The object of our research is the process of agricultural production ecologization. The subject of our research is a set of theoretical, methodological and practical aspects of ecologization in the global and national dimensions.*

## **2. Research Methodology**

The methodological basis of research is a systematic approach to the ecologization of agricultural production as a process aimed at the use of a set of methods and techniques of management, which prevent the development of negative environmental effects in agro-ecosystems through the introduction of new environment-friendly, resource and energy-saving equipment and technology management solutions, innovations, combined with ecologization of education, training and public thinking. The use of the methods of scientific abstraction, generalization and comparison revealed the main factors determining the appearance and development of the global environmental problems in the sphere of agricultural production and rural development. With the help of an abstract logical method the conclusions were formulated and the generalizations were made about the socio-economic prerequisites of agricultural production ecologization. The use of the methods of induction and deduction, as well as an abstract logical method enabled us to formulate the core areas of agricultural sphere ecologization, which aim at meeting the needs of the population in the environment-friendly food; provision of people with safe environment; use of technologies and techniques which do not harm human health and the environment in agricultural production.

## **3. Findings**

The ecologization of the economy should be seen as an important requirement of today. It proposes a more versatile and, at the same time, a more systematic approach to the definition of the objective reality of the relationship between social production and the environment. Ecologization the public manufacturing activity in modern conditions provides the steadily growing influence of the environmental factor on production, its terms, contents and results, which increases the importance of developing the theoretical and methodological foundations of agricultural production ecologization. It should be recognized that presently there is a gap between the prac-

tice of management, economic policy and economic theory, both in terms of time and space. In this regard, the practical problems of ecologization, the use of adequate state regulators in the field of reproduction and consumption of vital goods in general and the ecologization of agricultural production in particular have not yet found an adequate theoretical understanding.

Now we have a situation where the vast majority of mainstream economic theories do not contain the environmental component. This is mainly due to the fact that the basic paradigm of macro- and microeconomics was formed in an era when the cumulative integral influence of human activities on the environment did not exceed the limits of self-recovering capacity of ecological systems and the consumption of products created by man did not harm its health.

The traditional view of economics as the relationships within society in production, distribution, exchange and consumption of material goods necessary for a person does not fully reflect the dialectics of ecological and economic relationships of the categories such as environmental safety and economic feasibility. A variety of models is offered to solve the problems of agricultural production ecologization. The theoretical foundation of their development consists of four main economic schools, i.e. physical economy, neoclassical, neokeisian and neo-institutional.

A retrospective review of the theoretical heritage shows that with each new stage of scientific and technological innovation, defining the nature of technological paradigms, there was an increase of anthropogenic stress on natural systems, which ultimately led to the activation of their depletion and degradation. Scientific and technological progress, which has brought positive changes to the development of economic systems, left the environmental ones unattended, while they are inherently fundamental not only for the development of the productive forces, but for humanity as a whole. The economic growth, the engine of which is defined as a quantitative growth manifested in increase of the production volume, supply expansion, demand promotion mainly for secondary means of consumption, jeopardizing the existence of the natural basis of life and human livelihoods and the ability to meet the people's urgent needs.

The economic needs are closely related to production, exchange, distribution and consumption. The diverse needs of the people and their interests are considered as the main reasons for sustained economic development of the mankind. The deeper nature of economic needs is revealed in the law of needs growth. An example of this law effect in the present conditions is that the number of different types of consumer goods and services is increasing in developed countries more than twice during each decade (Enzyklopädie ... 2002). However, the planet's natural resources are finite and limited. According to the expert estimates published in the German magazine *Frankfurter Rundschau* in 2012, to reach the German welfare, the humanity needs the resource provision from 2.5 planets. In the case of needs satisfaction at the level of the U.S. population, already 4 planets are required (Joachim, 2012).

In the global measurement, an increase in consumption, combined with population growth over the past 45 years, led to the growth of humanity needs more than

twice (Bondar, 2012). During the 20<sup>th</sup> century, the world population has increased 3.6 times (more than 4 billion people). For that period, the energy and raw material consumption has increased more than 10 times (Mazur, 2008). It requires a "fair and uncompromising critical analysis of business models underlying the global economy development..." and encourages the search for alternative economic development models that will provide "the saving nature development by man" (Fizychna ..., 2013).

The current situation requires a reorientation of an obsolete economic paradigm to a qualitatively new level of production, which will take into account the natural potential of the planet and ensure a balanced development of the environmental, social and economic systems of production. According to many researchers, the financial and economic crisis of 2008–2009 marked the onset of a fundamentally new stage of the global economy development, the defining feature of which is the limitation of resources, especially energy and food, as well as the shortage of fresh water. The issues of environmental and socio-economic stability, the resumption of sustainable (balanced) growth, and strengthening of the fight for the limited global resources came to the fore.

Still, a decrease in productivity of agricultural lands, large-scale water pollution, intensive degradation of natural ecosystems (for the past 25 years, the proportion of degraded or irrationally used ecosystems reached 60%, and by 2050, this share could grow by 10%), a significant increase in the waste amount, and environment pollution is still an issue. Given the global nature of environmental issues, these challenges affect all countries, but it is expected that the greatest share of its burden will fall on the developing countries (Incorporating ..., 2012).

Ecologization of the economy and an updated version of sustainable (balanced) development is considered by international experts as the new engine of the economy, able to solve a number of acute problems of modern social and economic development, including the danger of environmental degradation, depletion of the natural resource base, increase of the frequency of weather anomalies and climate change (Pakhomova, 2012).

Finding the most effective post-crisis model is also happening in Ukraine. Considerable attention is paid to the systematic approach to the development of specific measures and targeted actions based on the existing global threats. It is a full involvement of intellectual capacity in the processes of addressing the pressing issues of Ukraine's economy transfer to the path of sustainable use of all types of resources (especially land, energy and mineral raw materials), provision of dynamic development of the agricultural sector of the economy, Ukraine's integration into the global process of solving the problems of food, environmental and energy security (Burravliov, 2008).

Today the world, including Ukraine, undergoes the rapid development of globalization processes and regional economic integration, which, among other things, leaves its mark on the intensity of use of the natural resource potential, involved in

the processes of agricultural production and their ecological status at national and regional levels.

A significant part of the environmental problems is associated with impairment of the global food security of mankind. Aware of the fact that the global food problem is systemic in nature, and in the near future it is expected to be impaired even more, we must be prepared for new challenges. According to FAO, by 2050 the global population, which now stands at 7 billion people, will increase by 74% and reach 9 billion (The State ..., 2011). This causes an increase in the need for food. Thus, according to expert estimates, it is expected that demand for food in the developed countries will increase by 70% and in the developing countries by 100%, respectively (The State ..., 2011). Yet today the number of people with insufficient nutrition, according to FAO estimates, is more than 1 billion people. This is mainly the African (239 million) and Asian (578 million) population (The State ..., 2011). In this regard, the modern science faces an important task to find reserves for increased agricultural production without harming the environment and human health.

Today countries that have problems with food or countries that seek to contribute to their solution require not food but productive resources, especially land for its production. A significant amount of transnational integrated structures operating successfully in the agricultural sector of Ukraine are created with involvement of foreign capital and are focused exclusively at foreign markets.

The business of agricultural transnational corporations (ATCs) is aimed at the conquest of productive resources, capturing the distribution markets and profit earning. Quite often they are directly involved in the transfer of facilities which are environmentally harmful and dangerous to human health to the developing countries. Thus, in the 90s of the last century the massive growing of rape began in Ukraine. It is exported as raw materials mainly to Germany for the purpose of processing. These trends continue today. Besides rape depleting the soil, the sunflower production, which is also focused on export, is fairly common in Ukraine.

The book *Globalization as a Destroyer of the Industry and the Gravedigger of the Productive Forces* by Engdahl shows that the desire to shift the "harmful" and labor-intensive agro-industries in the less developed countries (i.e., transnationalization of the economy) acts as a destructive alternative to production modernization in metropolitan countries. ATCs, which are guided by the principle of maximizing profits, often have a negative impact on the world economy and ecology of the planet (Prizhigalinskiy, 2012). All attempts by the UN to adopt a code of ethics for their activities were in vain.

In an effort to increase revenues of an agrocoperation, the owners resort to the use of management practices which are environmentally harmful and dangerous to human health. Currently, common enough in agricultural practices are stimulators and inhibitors of growth, the products of genetic engineering, antibiotics, pesticides, chemically synthesized fertilizers, which in some cases are used in unreasonably high doses.

Certainly, all this has an extremely negative impact on public health. The human body receives to 90% of major pollutants with food which do not perform any of the nutrition functions and adversely affect human health under appropriate conditions. They include heavy metals, nitrates, nitrites, pesticides, and radionuclides (Timchenko, 2007). All of these compounds are highly toxic, capable of accumulating in the environment and human body, and are able to move long distances. Their decay period lasts for decades. The deterioration of population healthcare leads to objective growth of healthcare needs which the current health system is unable to meet the full. Thus, the health is a significant social problem, which negatively affects the labor resource potential of the state and its development.

This once again demonstrates the close relationship and interdependence between social, economic and environmental systems. Thus, the deterioration of the environment, work with hazardous substances, and consumption of low-quality foods lead to an increase in the incidence of diseases in the population, resulting in significant economic damage manifested in a decrease in income due to temporary disability benefits and spending on treatment. This negative environmental effect is manifested not only in relation to human health and welfare (although it should be regarded as decisive), but also leaves its mark on the social institutions (family, enterprise, government, etc.). In particular, the temporary disability of workers employed in various spheres of social production, including in agriculture, leading to poverty, lost a significant amount of gross output that is estimated at billions of dollars across the state. On the other hand, there is a need for direct governmental payment of benefits for temporary disability (under sick leaves), which, consequently, increases the losses of the national economy several times.

This raises the need to develop a new development strategy with predomination of the ecological imperative, the benchmark of which should be the transition from quantitative to qualitative change. Thus, a prerequisite for the next stage of scientific and technical progress should be ecologization of all sectors of the economy that will provide a balanced environment-oriented development of social relations.

Based on the current global economic, social and environmental trends (Davis, 2006) we should recognize that it is only possible to ensure the economic growth, which would not harm the environment and man, subject to a complex and purposeful implementation of new, environmentally oriented innovations in education, training, production, management and public policy.

The international institutions of civil society, in particular with anti-globalism tendency, require the development of fundamentally new basic doctrine of socio-economic development. Its main task should be to ensure the conditions for sustainable development, which would, above all, match the interests of scientific and technological progress to abilities of the nature and the needs of society. The modern environmental and economic problems are mainly due to the fact that for quite a long time, the development of the productive forces was subordinated exclusively to the achievement of economic interests. The criterion of the efficiency and competitiveness of business entities is to maximize profits. The new eco-socio-economic para-

digm should facilitate the harmonization of relations between man and nature. In other words, there should be a process of ecologization the latest developments of science, engineering and technology. It is science that should serve as the main driving force of the guide and design the future of eco-socio-economic development.

However, it should be recognized that the growth rate of the scientific potential started going behind the technological capacity growth rate. The technocratic shift occurred in the development of science. The knowledge of biological and social forms of material motion makes up only 5% of the total knowledge. Such developments will inevitably lead humanity to an aggravation of the old and the emergence of new conflicts with the environment, which are called "global crisis" (Prizhigalinskiy, 2012).

The harmonious existence of mankind requires priority development of scientific humanitarian potential of the society over the technical potential. The information society implies the submission of economic growth to qualitative parameters of social and environmental development. Not an increase in consumption of goods and services, but the formation of fully developed human beings is the criterion of progress. This requires a significant investment in the sphere of all-round development of human capital, i.e. science, education, health, housing, culture, sports, arts.

#### **4. Conclusions**

1. The socio-economic factors determining the need for ecologization of agricultural production, include meeting people's needs in environment-friendly food; ensuring human environmental safety; use of technology and methods of agricultural production as well as processing of raw materials that do not harm human health and the environment. It should be noted that the range of social needs in recent years has expanded significantly. Now it includes the environmental needs of the recreational resources and rural "green" tourism. Over recent years, actively developing organic production. Much attention is paid to the introduction of environmental and biodynamic technologies of agricultural land use. Increasingly, the question is raised about the need to conserve and enhance soil fertility, protection of agricultural land.

2. Acceleration of degradation process rates is taking place in various environmental subsystems, not only provokes environmental harm, but also manifests itself in significant financial losses at the regional, national and global levels. This necessitates the development and introduction of new models and the balanced nature of transition to sustainable consumption. In this context, the environmental aspect is highly important. This is primarily due to the fact that the environmental challenges of the modern world are a major threat to the further development of not only the national economy but also the global socio-economic system.

3. Development of society during the last third of the 20<sup>th</sup> century took place in the conditions of buildup of contradictions and deepening the crisis of industrialism, the transition to forming of foundations for a new post-industrial civilization. The experience of the developed countries has shown that high consumption level is achieved

at high price, i.e. the loss of non-renewable natural resources, the irrational use of human potential; and the imbalance between human activities and its environment.

The scientists suggest that if all countries in the world have tried to approach the standards of consumption in the developed countries using the existing and obsolescent technology, such an attempt would be restricted to the absolute limits of resources available to the society and this would lead to environmental disaster.

4. Study of the main reasons for ecologization of agricultural production creates theoretical and methodological background to change priorities and form the highly efficient ecological and socio-economic agricultural policy, and is essential to optimization of the use of resources. At the same time it is expected that this will contribute to the development of new theoretical and practical approaches to the organization of production by improving the management systems and development of environmentally-oriented technological solutions.

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## **ŽEMĖS ŪKIO PRODUKCIJOS EKOLOGIZACIJOS SOCIALINĖ IR EKONOMINĖ APLINKA**

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### **Santrauka**

Šis straipsnis atskleidžia ekonomines ir socialines sąlygas žemės ūkio produkcijos ekologizacijai. Straipsnio tikslas yra pasiūlyti sisteminių žemės ūkio srities aplinkosaugos problemų sprendimą visuotiniu ir vietos lygmenimis. Buvo nustatyta, kad žmonijos poreikių patenkinimą lydi nauji inovatyvūs technologiniai sprendimai, kurie kartais yra pavojingi žmogaus gyvybei ir sveikatai. Be to, maisto produktų gamybos didėjimą besivystančiose šalyse lydi gamtinių išteklių, ypač žemės ir vandens, eikvojimas. Mokslinių ir specialių ekonomikos mokslo tyrimų metodų pagrindu buvo išskirtos pagrindinės žemės ūkio produkcijos ekologizacijos sritys: tenkinti gyventojų poreikius aplinkai draugiškais maisto produktais; užtikrinti saugią aplinką žmonėms; naudoti žemės ūkio produkcijos gamybos technologijas ir metodus, kurie nekenkia žmonių sveikatai ir aplinkai.

*Reikšminiai žodžiai: ekologizacija, tvari plėtra, žemės ūkio produkcija.*

*JEL kodas – Q15.*