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FACTORS OF SUSTAINABLE DEVELOPMENT OF AGRICULTURE

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Аннотация. The scientific novelty of this study lies in the development of theoretical and methodological approaches to addressing environmental and economic issues in regional development. The authors highlight the significance of social factors such as fair working conditions, protection of farmers' rights and interests, improvement of the standard and quality of life of the population.

Ключевые слова: social, ecological and economic system, agricultural development.

The ecological-economic system, which is a complex and contradictory set of elements, connections and relationships, is in a dynamic context, alternately assuming an equilibrium and non-equilibrium state.

Equilibrium represents a certain optimum between economic potential and qualitative parameters of the life of society, the correspondence of methods of nature management to rational criteria of development and restoration of the environment with sufficient provision of production with natural resources [3].

In this context, the ecological-economic system is subject to the influence of various factors of the external and internal environment, therefore the equilibrium state is relative, temporary and transient. The main factor disrupting this equilibrium is human intervention in the natural environment and their productive activities. This influence is countered by tendencies that seek to return the ecological-economic system to a state of equilibrium under new, changed conditions.

These are factors that ensure optimal human activity from an ecological perspective. A state of equilibrium is considered ideal and therefore difficult to achieve; a state of disequilibrium is more common. As a result of the quantitative accumulation of negative ecological and economic changes, the system transitions to a qualitatively new state, defined as nonequilibrium.

Thus, the main causes of ecological-economic imbalance are the growth of consumption of natural resources and the growth of production.

During our research and analysis of agricultural social sustainability, common themes emerged, including «human rights», «working conditions», «quality of life» and «social impact». They reflect key issues that must be addressed for social sustainability to be effective. For example, the working conditions of agricultural laborers are linked directly to their quality of life, and the production methods of agricultural businesses affect the social fabric of local communities. There are also social equity issues related to the production, allocation and consumption of agricultural products, such as how to compete in a globalized marketplace for smallholder economies, or the impact of agricultural modernization on traditional farming practices. Such issues must take into account the framework of social sustainability to ensure that agricultural development is

not only concerned with economic growth, but also with social equity and well-being [2].

According to a number of scientists, indicators of sustainable development can be classified into several distinct groups, each addressing different aspects of sustainability [1,2,3].

– The first group, social indicators, reflects population dynamics and societal well-being. They include income levels, health, education, and poverty rates, which are crucial for assessing well-being and understanding the impact of socio-economic conditions on people's lives. For example, population changes not only indicate growth or decline but also provide insights into age distribution and its implications for future services, employment, and economic productivity. Monitoring health and education levels helps assess human development, which is vital for maintaining a skilled, adaptable workforce.

– The second group, the group of economic indicators, focuses on patterns in consumption and production. This includes the adoption of green technologies, which are essential for sustainable industrial practices. They reveal trends in resource efficiency, innovation, and economic diversification. By analyzing these indicators, policymakers can identify which sectors are progressing toward sustainability and which require further support.

– The environmental indicator group includes measurements about protecting and fixing natural things like forests, water, soil, and living things. Also, it includes efforts to stop land from becoming desert and other types of environment damage. These indicators give important information about the environment and how well conservation plans are working. They are very important not only for knowing how healthy ecosystems are now, but also for helping make policies about managing resources and protecting the environment.

– Finally, institutional indicator sets are central to the formulation of laws and regulations that support sustainable development objectives at all levels of government. This includes integrating sustainable development into national economic planning and management systems, and actively participating in international partnership projects to promote sustainable development. Strong regulations and policies are essential not only to ensure the effective implementation of sustainable development plans but also to define responsibilities and ensure that all parties share accountability for achieving the Sustainable Development Goals.

Eventually, the absence of a clear framework for understanding the social aspects of agricultural sustainability presented a key challenge. With the development of this field, researchers, policymakers, and practitioners need to work together to build a methodology that brings ideas from the social sciences into sustainability tools.

That will help increase the effectiveness of sustainability efforts, ensure that these efforts are fair and balanced, and meet the needs of agriculturally relevant groups. The only way we can truly achieve sustainable agriculture that respects human rights, improves working and working conditions, and enhances the quality of life of those.

It should be noted that scientific and technological progress, along with an increase in the standard of living, can lead to environmental problems. In this regard, the assessment of sustainable development of the agro-industrial complex with regard to the balance of environmental, social and economic components deserves attention [2].

The ecological and economic system, which is a complex and contradictory set of elements, connections and relationships, is in dynamic interaction, taking alternately an equilibrium and non-equilibrium state [2].

Accordingly, we have identified the factors influencing sustainable agricultural development at both the micro and macro levels.

Micro-level factors primarily affect the production process. These include production and technological factors (methods and technologies of production, etc.), organizational (form of labor organization), personnel factors (personnel qualifications, management system).

At the macro level, we have identified the following factors:

– social (improving the standard and quality of life of the population, increasing life expectancy, reducing morbidity);

– environmental (reducing the level of environmental burden on socio-economic systems);

– economic (investments in environmental protection projects, stimulating the development of high-tech agri-food products).

Consequently, to effectively promote agricultural sustainability, future assessment tools should place greater emphasis on measuring social sustainability and integrating social science theories into evaluation systems. The goal of sustainable agricultural development can only be achieved by establishing a balance among the three dimensions: economy, environment, and society.

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