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DYNAMIC MODEL OF ONE-SECTOR ECONOMY TAKING INTO ACCOUNT THE ENVIRONMENTAL BEHAVIOR OF PRODUCERS AND CONSUMERS

Summary

The urgency of formation and development of the economy with ecologically safe for the environment and human society processes of production and consumption is revealed. The necessity of ecologization of the economy and all other spheres of human life as a fundamentally important stage in building an ecological economy, in which the level, quality and safety of human life would be the goal of its functioning, is substantiated.

Theory and practice of research of ecological and economic interaction results by modern foreign and domestic scientists are of utter significance and actuality.

The effectiveness of modeling as one of the most powerful methods of modern research tools used in the study of ecological and economic processes and systems and the development of dynamic one-sector ecological economy model.

The authors proposed a dynamic model of a one-sector economy, taking into account the ecological behavior of producers and consumers, i.e. an economy in which the production of basic aggregate products and utilization of production and consumption waste is carried out at the same time. The model takes into account the socio-economic structure of society, which is represented in the studied single-sector economy by two social clusters of production owners (producers) and workers (employees). The model was formalized in the space of ecological and economic variables, which include liquid savings (savings) of production owners and workers, the price of basic aggregates, the tariff for the disposal of pollution and the amount of environmental pollution. The model belongs to the class of differential models and is open to various extensions and modifications associated with increasing the number of spatial variables, taking into account the specific behavioral functions of production and consumption, as well as parameters playing an important role in model specification.

In the context of theoretical significance, the proposed model and its possible modifications are designed to formalize and analyze the main approaches and principles of modeling environmental and economic processes, and in the applied sense, models of this class are used for experimental research in computer simulation of ecological-economic dynamics and support of management decisions in real economic practice on the level of ecologization of the economy.

The availability of adequate information allows its identification, exploring the allowable areas of parameters' change and their dependence on time, testing appropriate scenarios for the development of the economy under study and using the knowledge gained in decision support systems.

Keywords: model, dynamics, modeling, ecological economy, pollution utilization.
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