

ENVIRONMENTAL IMPERATIVE OF INNOVATIVE INDUSTRIAL PRODUCTION

ЭКОЛОГИЧЕСКИЙ ИМПЕРАТИВ ИННОВАЦИОННОГО ПРОМЫШЛЕННОГО ПРОИЗВОДСТВА

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Abstract: *The parallel functioning of strategies for innovative and sustainable development leads to the emergence of a formal methodological paradox in the form of increasing negative technological impact on the environment due to the prevalence of economic criteria for assessing the efficiency of production over social criteria. This paradox determines the permanent growth of products that can be combined with the concept of waste. To eliminate the methodological paradox, it is necessary to implement the ecological imperative by greening the legal framework that regulates all stages of the life cycle of innovative products.*

KEYWORDS: INNOVATIVE DEVELOPMENT, TECHNOGENIC IMPACTS, ENVIRONMENT, WASTE CONCEPT, ENVIRONMENTAL IMPERATIVE

1. Introduction

The development of the global economic system and its various components (supranational, state, federal, etc.) is carried out with the combined effect of innovation and sustainable development strategies. The specific contribution of each strategy to the development of an economic system of a specific type is determined by a combination of key factors: material, technological, personnel, organizational, regulatory legal [1-10]. The value of application (implementation) of the basic principles of the sustainable development strategy in a really functioning system that determines the effective, safe and comfortable functioning of societies is one of the most important features that determine the prospects of a progressive socially oriented system of functioning of economic structures of various subordination, function, form of ownership [14].

Effective application of cumulative intelligence formed in various spheres of society activity allows integrating the positive signs of dynamically developing business entities with a permanently growing volume of production and an expanding range of marketable products in order to ensure sustainable growth in profitability and the basic signs of the practical implementation of sustainable development strategies that manifest themselves in increasing the share use of raw materials in the final product, a decrease in specific energy, upgrading of technologies at all stages of production and application that make possible the minimization of negative anthropogenic impact on the environment.

An important role in the production functioning of economic systems at all levels of the organization belong to current regulatory legal documentation [12]. At the same time, special attention was paid to the sphere of waste management, because the practical implementation of strategies for the sustainable development proposes the prevention and minimization of negative anthropogenic impact on the ecosphere. In this impact the material and energy components determined by the definition of "waste" have a dominant role.

The effectiveness of improving the management system and the legal framework for the management of waste and its law enforcement is determined by methodological approaches to its formation on the basis of current trends, the development of production infrastructure adequate to the overall requirements of a strategy of sustainable and innovative development.

A large number of studies have been devoted to the problem of normative legal support for the practical implementation of the basic principles of a sustainable development strategy [1-9]. At the same time, there is a need to improve methodological approaches to the development of a legislative framework and its effective enforcement, aimed at translating the principle of "greening" legislation [13].

2. Research methods

For the research we used a systematic analysis of the production, organizational, legal, administrative, social and environmental factors of the operation of economic systems.

As an object of research we used an industrial enterprises of the Grodno region, which produce products for various purposes.

3. Results and discussions

Analysis of the concept-categorical apparatus used in the legislation of the countries of Commonwealth of Independent States (CIS) that regulates the sphere of waste management [1-9] testifies to the traditional concepts of participants in the economic activity (the sphere of production) and members of societies (the sphere of consumption) about the predetermination and inevitability of the process of the formation of material substances, combined waste definition. Meanwhile, the essence of the process of waste generation lies in the initial implementation of a sound technological impact on raw materials, semi-finished products, components, which leads to the formation, on the one hand, of products not used in the final result of labor – products ("production waste"), and on the other – creates the prerequisites for the subsequent destruction of this product at the stages of transportation, storage, operation and maintenance, i.e. the emergence of "consumer waste". This circumstance makes it possible to use, in place of the notions of "production waste" and "consumption waste", the generalized concept of "industrial waste", which combines the concepts "production waste" and "consumption waste" within the "product life cycle" and allows the development of approaches to prevent or reduce the probability the formation of waste products in the form of products of destruction, wear, corrosion damage, aging and other effects of operational factors acting on products obtained in the process of directed technological impact by optimizing stage of marketing research, development, production design, testing and certification, warranty and after-sales service systems.

The current technological paradigm focuses on the parameters of characteristics of consumer properties of commodity products, rather than parameters characterizing the amount of waste and their activity in the negative impact on the environment. This aspect underscores the need for systematic improvement of the current normative legal technical documentation in terms of increasing the level of responsibility for the quality parameters of the products and the quality parameters of the technological operations used, estimated according to the criteria of resource intensity, "low-waste" and environmental safety in various forms.

It goes without saying that "environmental problems are not problems of the environment but in their genesis and consequences entirely social problems, human problems, its history, conditions of its life, its relation to the world and reality, its economic, cultural

and political views "[10, P. 336]. According to N. N. Moiseev [11] "... the strategy of the development of mankind has two components:

1) scientific and technological: in the shortest possible time to reduce our needs, which should reduce the burden on the biosphere;

2) *moral-social – "ecological imperative", which includes a variety of environmental properties, the changes of which human activity can not be permissible under any conditions*» (are noted by us – S.A., A.O., B.A.) [10, P. 337].

The implementation of the environmental imperative in real economic systems is a multifactorial problem. System analysis of possible directions for solving the problem of handling industrial waste testifies to the prevailing importance of the economic factor causing a permanent inefficiently regulated growth in the industrial production of marketable products of various functional purposes, including with the predominant use of traditional (routine) technologies, equipment that are largely unoptimized (unfinished) processes, leading to an increase in total waste weight in general used raw materials, intermediate products and auxiliary materials. A significant part of the traditional technologies mismatch the requirements of the state energy and resource saving strategy, but it is used because of the existing system of functioning of economic systems within the legal framework that does not take into account the current trends in the sustainable development strategy.

Therefore, as A. Moskvin rightly pointed out, the most important factor of the progressive negative man-made effect on the environment is the fact that "... at the present stage of development in the world economy *technologies of incomplete consumption* dominate (are noted by us – S.A., A.O., B.A.), built on the principle "*to extract the most valuable and discard all unnecessary*" (are noted by us – S.A., A.O., B.A.) [15]. The vulgar understanding of progressive economic development as a process with a permanent increase in the volume of production and the nomenclature of commodity output, which dominates the world economic system, "degenerates into a systematically unremovable economic defect: the production and use of a commodity product is accompanied by the *production of unclaimed wastes*" (are noted by us – S.A., A.O., B.A.) [15]. At the same time, the excess production of marketable products in accordance with the concept of maximum satisfaction of needs is actually the production of complex waste that requires the use of expensive special recycling technologies, the use of which is a negative factor in the economic development of state structures.

A formal paradox is formed in the organization of the life activity of societies of various levels, which consists in the economic, technological (production) and consumer (social) conditionality of the process of formation of unclaimed or excess (residual) quantities of substances of different composition, structure and conditions of formation at the stages of extraction, mineral, artificial and synthetic materials that are products of geochemical, chemical or biochemical processes, processing and consumption of commodity products for various purposes, which are united by the category "waste".

The existing paradigm of the production activity of economic entities is based on the primacy of the normative technical documentation (design documentation, technological processes and regulations, technical conditions, industry and technical standards) that regulates the production of items with specified quality parameters and functional consumer characteristics, in relation to the normative legal documentation that defines parameters of environmental safety of the production process, application of various products values and their recycling after depreciation. This aspect causes a certain delay in the development of modern legal provisions in the field of the ecological (sustainable) functioning of industrial production and the effective management of waste generated at different stages of activity of economic systems and societies of consumers of marketable products. Meanwhile, as stated in [16] "... at the first stage of social and economic development for the transition to sustainable development ..." it was assumed that "... the creation of the necessary legislative and legal framework for sustainable development must be completed ..." [16, P. 28].

Therefore, for the developing a methodology of regulation the modern distribution chain of waste of various chemical composition, structure, prehistory of formation, a systematic approach is needed. This approach must be combine the basic socially-oriented principles of supranational and state acts with realities the functioning of specific economic entities that support the life of social groups by creating jobs with guaranteed security conditions and adequate material, technical, technological and financial both baking. The good approach to solving this multifaceted problem is the concept of "greening the legislation" proposed in [13, P. 223], by which "... the inclusion of environmental and legal requirements in the content of regulatory legal acts of other branches of law (civil, administrative, criminal, financial, tax, etc.) ». Thus, "*greening regulations* (are noted by us – S.A., A.O., B.A.) represent the regulations of other branches of law that regulate ecological relations in conjunction with proper environmental standards" [13, P. 223].

4. Conclusions

The currently dominant concept of the development of the global economic community, focused on the maximum satisfaction of the constantly growing uncertain demand and excessive consumption of marketable products, while maintaining the traditional principles of developing a regulatory framework regulating the relationship of societies and individuals with ecosystem components at all levels of organization and functioning, stipulates permanent progressive growth of negative impact on the ecosphere of rapidly growing sizes of ineffective processing of raw materials, the availability of which is not particularly limited, and amortized unclaimed (unsold) products and social communities of waste products of all kinds. In this aspect, the implementation of the environmental imperative by "greening the legislation" in the sphere of commodity circulation is, in our opinion, effective and, in some cases, a non-alternative direction for the practical implementation of the sustainable development strategy for regional and world societies with a socially oriented innovation economy.

Formed on the basis of the "paradox of abundance" concept the economy does not take into account the progressively growing environmental damage not only to a particular region, but also to the global economy as a whole. In this aspect, the most significant is the preventive function of environmental enforcement, which aims not to minimize the adverse environmental impact of functioning economic entities, but to create a well-founded and controlled counteraction to the very process of the emergence of such economic entities with incomplete (imperfect) technological production cycle, creating the prerequisites for education significant quantities of material components, positioned as a "technologically unavoidable" or "technologically grounded" waste [14]. Practical implementation of the environmental imperative by "greening the legislation" is a multifaceted problem, including educational, organizational, technological, research, economic and other factors.

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