ENSURING ENVIRONMENTAL SECURITY STRATEGIES IN SOCIAL AND ECONOMIC DEVELOPMENT ON THE PLATFORM OF RESPONSIBLE CONSUMPTION SYSTEM

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Abstract. The optimal formation and selection strategies for ensuring environmental safety is a key topical aspect of the first half of the XXI century. In conditions of limited economic resources and a disturbed ecological balance, is especially important to take into account inter-sectoral externalities that determine the choice of optimal mechanisms, both stimulating and restraining positive and negative external effects from institutional approach standpoint. The article provides an overview of the existing and substantiation of the author's directions for the strategy of ensuring environmental safety in regional socio-economic systems, taking into account inter-sectoral externalities. The article analyzes the possibility of forming a platform for the system of responsible education in ensuring the ecological balance for present and future generations, aimed at using optimal strategies that allow to gently, without creating tension, regulate the responsible consumption of all types of resources. It is assumed that on the platform of responsible education system, the formation of a personality is carried out, based on: 1) awareness of equal access right of every person to a favorable environment; 2) understanding and accepting responsible resource use; 3) the obligation to adopt the institution of "soft environmental tax mechanisms"; 4) a responsible approach to cross-sectoral positive and negative externalities.

1 Introduction

Ensuring environmental safety strategies in regional socio-economic systems are formed taking into account inter-sectoral externalities over several millennia. Overt and subtle health problems became apparent environmental problems and imbalances. Violation of the ecological balance immediately manifests itself in a negative impact on human health, groups of people, the population of the territory. The ecological balance was disturbed by people in ancient civilizations, which is proved by the works of philosophers and doctors of 6th – 4th centuries Roman era. BC. Questions about pollution in the environment by the mining industry were raised in the writings of Aristotle, Lucretius, Ovid, Plutarch. Irreparable harm from mercury, sulfur to the environment is described by Pliny as early as the 1st century BC [1].

The study shows that from the depths of time, the problems of environmental pollution, affecting the health of the population and the bio-system [2].

Of course, the level of environment well-being determines the possibilities for sustainable development of the regional economy. At present, ensuring environmental safety involves large-scale, long-term and costly programs that include the institutional directions of government influence in the system of general economic security. All the effects of state power on the national and world economy are based on strategies that will ensure environmental safety. It is advisable to form strategies for ensuring environmental safety in the system of financial impacts (incentives and disincentives) on facts, events, processes taking place in socio-economic systems. To ensure environmental safety, it is necessary: 1) to reduce the risks of environmental destruction; 2) improve the quality of population's life, both the country and the planet as a whole; 3) reduce the risk of natural resources depletion; 4) ensure environmental safety for future generations. Also, in the process of strategizing, it is important to take into account externalities that have uncompensated negative and positive impacts on nature, individuals, economic objects, etc., which directly or indirectly affect the income and expenses of third parties.

2 Discussions

It is obvious that in the race for "dynamic profit", "income effects", "economies of scale", an extraordinary growth in the achievements of the industry took place, which caused destructive and, at times, irreparable harm to the ecological balance. The disregard for the means of environmental safety in the general industrialization in

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the XX century determined the beginning of a "new" intensive wasteful attitude of society towards environmental balance. Undoubtedly, the violation of the ecological balance caused a significant number of disasters, anomalies, a sharp deterioration in the health of mankind, an increase in the mortality rate, including infant mortality, an increase in chronic diseases of newborn babies, genetic abnormalities [3].

It is worth noting that the main directions of ensuring environmental safety were set in the following international acts: 1) Rio Declaration on Environment and Development (UN Conference on Environment and Development, 3-14 June 1992)) [4]; 2) Johannesburg Declaration on Sustainable Development (World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002) [5]. Russia also determined the directions of state policy in the field of ensuring environmental safety until 2030 [6]. However, to date, no unified strategy has been developed, which fully made it possible to ensure environmental safety and maintain an environmental balance. It is possible to highlight the key problems that need to be solved in ensuring environmental safety.

1. The first problem in ensuring environmental safety in socio-economic development is compensation payments, which are established by states to compensate for environmental damage. Consequently, the negative impacts on the ecological balance are compensated by payments that have the economic essence of monetary compensation for environmental pollution. It is obvious that the applied environmental payments to compensate for environmental damage have the essence of selling a favorable environment. However, the sale of a favorable ecology can only be carried out by the exclusive right-holder of the “environment” as a “product”, which does not correspond to the normative essence, making such a transaction illegal. However, any sale of the right to compensate for "pollution" of the environment to a buyer is a government function, which must be financed from tax revenues. Currently, the essence of the tax is determined taking into account the relationship and interdependence of the economic, economic and political and legal aspects of the state's life [7, 8].

2. The second problem is the lack of mechanisms to regulate responsible consumption. Obviously, the strategy needs to establish mechanisms that protect the environment from any negative impact from the institutional approach standpoint, which forms the understanding that a person himself is also a part of the ecological system. As part of the ecological system, a person requires protection from any negative impacts, including unnecessary consumption and consumption of resources that are transformed in the production process. It must be borne in mind that any production carries the negative consequences of resources depletion, including human resources [9].

However, the “Product” produced by the business from all types of resources is aimed at its “target” or “random” consumer. It is obvious that the “Product” for the target consumer is a vital need that provides and creates the necessary conditions for human existence, satisfying his primary and basic needs. Consequently, the “Target Product” for the “Target Consumer” is a universal law for the development of the socio-economic system in conditions of ensuring environmental safety.

However, research shows that excess production - "excess supply" creates excess consumption - "excess demand." We can also say that excess consumption - "excess demand" initiates excess production - "excess supply". That is, the sum does not change from the permutation of the terms, but the sum is - "irresponsible overexpenditure of resource consumption" (Figure 1).

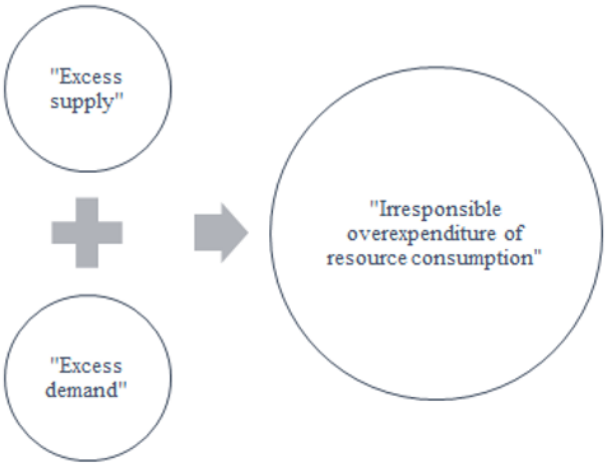

Fig. 1. Irresponsible overexpenditure of resource consumption.

Consequently, strategies for ensuring environmental safety in socio-economic development should be aimed at studying the concepts of “target supply” and “target demand”, as well as “excess supply” and “excess demand”.

However, it is obvious that having only a strictly “planned target product” in the “target limited supply”, anxiety will appear in society, since each “individual” is inclined to make “reserves” for the security of the near future. At present, in a developed civilized society, a person does not need to stockpile, since the age-old chain of industrial growth and scientific advances has made it possible to provide his daily needs through retail chains. However, the desire for strict adherence to "targeted limited consumption" will lead to the emergence of anxiety and panic, which is unacceptable in a civilized society. Therefore, it is important to find the line between “target supply and demand” and “excess supply and demand”, as well as explore the characteristics of “target consumer and producer” and “casual consumer and producer”. Also an important problem in responsible consumption and ensuring environmental safety is the question of the concept of "strategic supply reserves" and "strategic supply reserves". Of course, all strategies for ensuring environmental safety should be resolved within the framework of the scientific and educational process, which will allow each member of society to instill the foundations of responsible consumption to maintain an ecological balance, which implies the genesis of the system of responsible education.

3. The third problem is the lack of a common understanding of responsible consumption’s government

regulators in ensuring the environmental safety of socio-economic development [10]. Therefore, it is necessary to build a system of responsible education to form the foundations of responsible consumption of the present and future generations in the context of ensuring environmental safety. The question of the ontology of the "soft environmental tax" remains open, which should be aimed at strategies for ensuring environmental safety.

3 Materials and methods

The study used the methods of deduction, induction, analysis and synthesis, logic and analogy, as well as the method of a systems approach.

4 Research part

Obviously, in the process of substantiating strategies for ensuring environmental safety, it is advisable to return to the market laws of supply and demand for responsible education systems. Research shows that the law of supply and demand operates according to a system of wasteful psychological influence on a person. The law of supply and demand justifies the market price that is set at the equilibrium point between supply and demand. Consequently, lowering the price of the "Product" increases demand, that is, the consumer's willingness to buy. In the process of reducing the price of products, goods, services, work, an increase in sales occurs, often at prices below the cost price. In such a situation, the consumer, losing the sense of responsible consumption, realizing that he does not need this item of sale - the "Product", deliberately buys at a low price, but does not consume it.

Consequently, the law of "irresponsible consumption" appears, which is empirically proved by the wasteful attitude to resources, namely:

firstly, it is obvious that resources are spent on the "Product", including natural (land), labor (human), capital (material and non-material) - "unplanned consumption of resources";

secondly, of course, if the "Product" has an expiration date, then the question arises about its disposal, that is, waste processing, which is always an industry that pollutes the environment - "unplanned environmental pollution";

thirdly, it is obvious that the purchase of an unused "Product", despite its reduced price, requires additional financial resources that are not planned by the consumer, increasing his expenses, which must be replenished for real needs - "an unplanned increase in consumer spending";

fourthly, of course, a decrease in the price that does not cover the resources spent on the "Product" by an entrepreneur reduces the efficiency of resource consumption - "inefficient resource consumption";

fifthly, it is obvious that, getting into the world of abundance, a person cannot resist growing needs without an appropriate cognitive stress-resistant consumer card - "lack of responsible resource-saving education";

sixth, of course, in unfavorable living conditions, a person is forced first of all to think about the issues of food and survival, rather than about the environmental friendliness of the products he uses, which reflects the failure to meet the indicators of sustainable development - "lack of equal access to resources";

seventh, a priori in society sometimes the issue of correct sorting of garbage is not raised at all and the topic of ecology is not worked out, respectively, the person does not think about the consequences of disturbing the ecological balance and does not know all the consequences not only from destructive actions, but from the "butterfly effect" - "lack of a responsible education system and university complexes".

It is obvious that an unprincipled wasteful attitude to the ecological balance is gradually manifested not only in the entrepreneurial sphere, but also in the process of consumer life of all mankind (Figure 2).

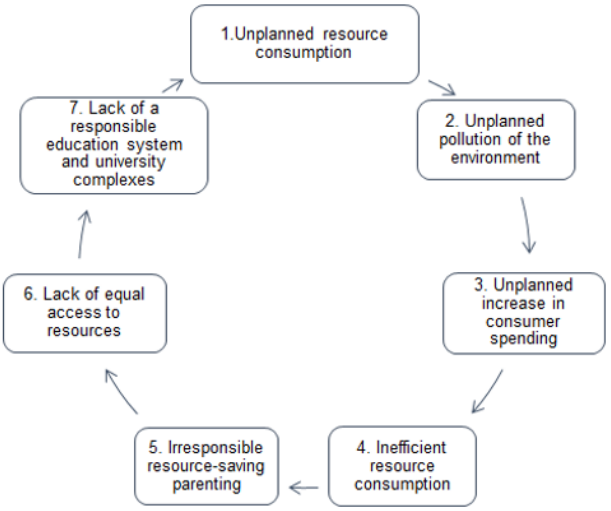

Fig. 2. A phased cyclical process of wasteful attitude in the life of society.

Violating the ecological balance, rendering a negative direct flow of force (F), it is necessary to take into account that, according to I. Newton's law, the force of action is equal to the force of reaction (inequality 1).

$$Feb = -Feb, \quad (1)$$

where Feb- is the force of impact on the ecological balance.

The consequences of a wasteful attitude to the bio-system, upsetting the ecological balance, as a reciprocal force of reaction, are manifested in the most unpredictable and destructive forms.

It is obvious that it is possible to apply optimal strategies that allow to smoothly, without creating tension, regulate the responsible consumption of all types of resources. The study shows that in economic theory there are already legislative levers that set the minimum and maximum permissible price limits for products - a price barrier. However, state regulation is carried out mainly: 1) in relation to agricultural products produced by farmers, where the state sets a minimum price - the "floor price", below which large processing

plants are prohibited from purchasing agricultural products for processing; 2) in relation to essential goods, such as bread, where a maximum price is set for some varieties - the “ceiling price”, which allows vulnerable segments of the population to gain access to products to ensure food security. Figure 3 shows the supply and demand graph showing the price of the “floor” and “ceiling” in government regulation.

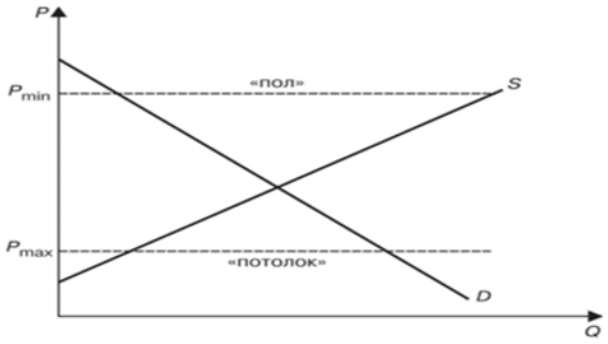

Fig. 3. Prices of "floor" and "ceiling" of supply and demand from the position of responsible consumption state regulation (P - price; Q - quantity of "Product"; S - "demand schedule"; D "supply schedule"; Pmin - regulated minimum price "Floor price"; Pmax - adjustable maximum price "ceiling price").

An analysis of the possibilities of using the “floor” and “ceiling” prices of supply and demand in the strategy of responsible consumption state regulation shows the need to apply an institutional approach that will take into account all the nuances in socio-economic development. Consequently, the issues of responsible consumption state regulation, which has a direct impact on the growth of negative intersectoral externalities in the context of ensuring environmental safety, shows that this problem has not lost its relevance, but has become the most important for humanity in the 21st century. Of course, it can be argued that the dictum of Immanuel Kant becomes especially relevant: "Do so that the maxim of your will can at the same time have the force of the principle of universal legislation" [11]. However, in order for humanity in its needs and actions to be based on the principles of universal legislation, it is necessary in the process of personality formation to instill responsible resource use to ensure ecological balance.

5 Effective part

Of course, the question of strategies for ensuring environmental safety in socio-economic development arises precisely on the platform of the responsible education system. In the education system, even in elementary school, it is necessary to lay, firstly, at the level of consciousness, a careful attitude towards the surrounding bio-system and its colossal importance for the existence and life of a person, and secondly, at the level of formation in the cognitive map of material responsibility threat [12].

In the process in the education system personality formation, the concept of the right of every person to a favorable environment, which passes through responsible resource consumption and the institution of tax mechanisms, should be laid. The right to a safe environment in Russia is established in the Constitution of the Russian Federation, in article 42 [13]. However, such rights are currently being violated. Ecosystem management and balance presupposes unacceptable impacts on the environment, including the excess of a certain level of resource extraction, heat, radiation, environmental pollution, which determines the negative consequences for all living organisms, both in a specific area and for the entire ecosystem. In such conditions, it is necessary to justify externalities that will allow to establish a framework for responsible consumption [14].

It is important to note that in the process of consumption, not only negative, but also positive externalities are distinguished, which ensure socio-economic development. Therefore, in the system of responsible education to ensure the ecological balance, it is necessary:

1) the allocation of negative externalities, that is, external effects that reduce the welfare of third parties (with heavy traffic, the use of natural, water and earth resources in the production process, air, water, land pollution, waste accumulation occurs);

2) the allocation of positive externalities, that is, external effects that increase the welfare of third parties (investment of an economic entity in drainage facilities, which allows to streamline the flow of water, road construction, construction of lightning rods);

3) construction of criteria for temporal externalities (temporal, historical) - sustainable development of the modern population, without reducing the resource capabilities of the following generations:

- the imposition of negative external restrictions by the modern population on the future generation: reduction of oil and gas reserves, mineral resources, depletion of agricultural land - determine significant energy and food difficulties in the future;

- the transfer of positive temporal externalities lies in the technological development of scientific achievements, namely: the use of solar, water, wind energy, magnetic;

4) construction of criteria for cross-sectoral externalities, where the resource-processing and nature-exploiting industries cause significant damage to other sectors of the economy: 1) the extraction of iron ore at the metallurgical complex leads to the retirement of chernozem lands from agricultural circulation; 2) the energy complex during the creation of the Hydroelectric Power Plant on the Volga caused the flooding of about 7 million hectares of agricultural land, and then significantly reduced the volume and possibilities of fish production;

5) construction of criteria for global externalities, manifested in transboundary pollution of neighboring states (emissions of chemical compounds, pollution of rivers, air, changes in the world ocean level, sharp fluctuations in climate change);

6) construction of criteria for interregional externalities in transboundary pollution of neighboring regions (emissions of chemical compounds, pollution of rivers, air): regions located in the upper reaches of the

country's rivers create additional costs for water purification of the "lower" regions;

7) construction of criteria for local externalities caused within the scope of research (economic entities, population, natural objects, resources, and so on).

Therefore, it is necessary to form a technological map that determines the main parameters of the strategy for ensuring environmental safety in socio-economic development, reflecting the factors of the subject area for the system of responsible education.

1. Factor. Revealing the segments of responsible consumption of negative impacts in the subject area legislative regulation: emissions of pollutants and other substances into the atmospheric air; discharges of pollutants, other substances and microorganisms into surface water bodies, underground water bodies and catchment areas; pollution of subsoil, soil; placement of production and consumption waste; environmental pollution by noise, heat, electromagnetic, ionizing and other types of physical influences; other types of negative impact on the environment.

2. Factor. Justification of the levels of environmental pollution. Construction of indicators and indicators that determine the limits of negative impact. The legislation defines the standards and limits of permissible emissions and discharges, and also sets the standards for the limits of permissible concentrations. The essence of these indicators and indicators is associated with a common goal, namely the construction of restrictions, early identification, which will ensure the safety of the environment.

3. Factor. Justification of the cost of payments for environmental pollution as an environmental tax is possible in four directions: regulatory definition - not exceeding the established norm; limited definition - limit exceeding the norms, within the established limits; over-limit definition - significantly exceeding the limited limits, is in the nature of a fine; patent definition - imputed payment based on preliminary calculations for the future.

4. Factor. Justification of the geography of responsible consumption and environmental tax involves the study of the regional aspect, types and forms of existence of economic activity of the subject. It is obvious that in protected, resort, and tourist zones, the coefficient that adjusts the cost of offsetting payments as an environmental tax should grow significantly. Here, the priority of population resettlement in individual subjects, as well as the socio-economic rise of outsider regions, can be considered. Consequently, the question arises about the coefficient regional adjustment of these payments.

5. Factor. Justification of the types of coefficient adjustment that will stimulate or restrain the development of any industry activity.

6. Factor. Rationale for cross-sectoral interactions and priorities that do not have clearly defined boundaries and characteristics. Externalities (externalities), i.e. benefits, costs that are not accounted for in the current standard market mechanism of income pricing and market distribution. One such example is the transport industry, which has a significant negative impact on a healthy environment. Disputes and proposals on the possibility of replacing the transport tax with an environmental tax can serve as confirmation.

7. Factor. Providing an institutional extended approach to substantiating tax incentives in the system of ensuring environmental safety.

6 Conclusion

The study shows that at present, in many countries, including Russia, there are no mechanisms for responsible consumption in ensuring environmental safety, and the economic essence of monetary compensation for environmental pollution is applied.

Strategies for ensuring environmental safety in socio-economic development on the platform of the system of responsible education have the following priority areas: 1) determining the criteria for building an ecological balance at the world, macro, meso, micro levels, ensuring a unified concept of environmental safety; 2) substantiation of the essence of state regulated payments aimed at ensuring environmental safety, taking into account technological requirements; 3) substantiation of market mechanisms regulating responsible consumption while maintaining the ecological balance; 4) substantiation of the system of responsible education, which allows to instill the foundations of responsible consumption in conditions of ensuring environmental safety.

On the platform of responsible education, it is necessary to form an understanding of the integrated responsibility for the presentation and disclosure of all factors in (non-financial) business reporting, which represents environmental and social guarantees, confirmed by auditors. Non-financial business reporting is part of the consolidated reporting of sustainable development (GRI - Global Reporting Initiative). It is obvious that the implementation of the state environmental policy by economic entities should be reflected in the indicators of public annual financial statements. Management and statistical information generated on the basis of sub-reporting, which represents environmental and social guarantees, will allow the formation of a system of tax mechanisms for managing and ensuring the balance of the ecosystem. It is also necessary to conduct environmental and economic assessments of possible events that will result from the facts of economic life. Qualitative and quantitative accounting of the economic consequences of imbalance in the natural ecosystem involves research: loss of biodiversity; depletion, devastation and pollution of terrestrial territories, as well as water areas and atmosphere; quantitative assessments of the consequences associated with the restoration of public health in territories with a disturbed ecosystem balance from the facts of economic activities of economic entities.

Currently, the classification of impacts on the ecosystem distinguishes four types of damage from negative environmental impacts: environmental (damage to water and terrestrial biological resources, atmosphere,

land resources); economic (financial losses from lack of resources and lack of technologies for the depth of processing, increased costs to eliminate environmental damage); socio-economic (risks of morbidity, deterioration of health, decrease in the working capacity of the active population, an increase in cases of temporary disability paid for by the organization and the federal budget); social (lack of doctors in polyclinics and hospitals, limited number of beds in hospitals, increased costs of medical services for the population, reduced life expectancy and quality of life).

Obviously, in order to solve these problems, the state must apply strategies that reduce the risks of disrupting the balance of the ecosystem. Ensuring the ecological balance is one of the important functions of the state and the world community. Accordingly, the budget formed to implement the functions of the state is based on tax revenues, which may include a “soft environmental tax”.

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