Circular economy and environmental safety in a new social reality

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Abstract. The problem of ensuring environmental safety in our country in the conditions of increasing macroeconomic instability and risks in the sphere of national and world economy puts on the agenda the need to move to a new model of social and economic development – "circular economy" or "closed-loop economy". This model makes it possible to minimize the external negative effects on the part of economic entities and their impact on the environment and, conversely, the consequences of man-made externalities in the environment on the human. In this regard, the analysis and assessment of such a relationship between the economy and the environment, as well as the identification and assessment of these externalities, make it possible to formulate a number of recommendations to strengthen environmental safety and transition to a qualitatively new type of sustainable development.

1. Introduction

The urgency of the problem of analyzing and assessing the state of environmental safety in Russia is determined by the need to ensure sustainable social and economic development of the country in the conditions of increasing macroeconomic instability and uncertainty. The increasing multi-vector nature and diversification of social and economic development, which occurs under the influence of positive and negative exogenous and endogenous factors, has led to the formation of a new social reality, which is reflected in the change in the ratio of economic and environmental aspects in the life of a modern human. The study puts forward and substantiates the position on the need for a new theoretical and methodological approach to understanding the essence and nature of environmental safety in the conditions of the current new social reality. The phenomenon of ecological safety is defined as a qualitatively new state of the environment – the human habitat, in relation to which a human should increasingly become autotrophic, and his economic activity – autonomous. This process is associated with the formation and development of a circular economy (closed-loop economy) model, which most ensures the solution of these issues and the sustainable nature of development by minimizing or completely eliminating externalities and destructive effects on the environment.
2. Materials and methods
The methods of dialectical, historical-retrospective, program-target, structural-functional and hermeneutic analysis were used in the study. Based on existing legal sources, modern scientific publications and statistical data, a comprehensive assessment of transformational processes in the field of greening of the modern economy is given. By identifying various kinds of externalities (the term of A. Pigou, 1920) the need for a targeted study of the relationship of external effects on the part of all participants in the "nature – individual -society" system is substantiated. The subject of the study is environmental safety and its current state. The object of the study is the circular economy and its impact on the formation and strengthening of environmental safety in the Russian Federation.

3. Results and discussion
The concept of environmental safety has many definitions [1, p. 170; 2, p.114]. Probably, this is one of the most widely discussed issues in modern literature. Being an important element of social security in general, environmental safety concerns the attitude of society (personality) to nature and the influence of the natural environment on the human. Therefore, it is an important element of public policy in any country. Especially in those where there is an unfavorable ecological situation, and the ecological crisis appears in its most obvious and dangerous manifestations.

At the same time, the phenomenon of environmental safety is multidimensional in nature and therefore is the subject of research in many sciences: ecology, philosophy, law, psychology, history, geography, sociology, political science, organic chemistry, biology, etc. In our study, we are talking about environmental safety in the Russian Federation. Both official documents [3-6] and numerous studies are devoted to this problem. In the works of O.I. Bashlakova, E.V. Butova, D.N. Voronchikhina, O.A. Glushko, M.Yu. Zelenkov, V.V. Ilyushenko, K.Kh. Ippolitov, V.A. Kalamanov, V.A. Nikipelova, A.A. Oitsev, G.P. Serov, M.Yu. Sologubova, V.G. Feoktistov et al. modern authors study the problem of environmental safety in our country. Abroad, the problem of environmental safety is being studied by such authors as R. Allenby, J. Barnett, R.Braden, B. Buzan, E.Jonsson, P. Martinovsky, R. Ulman, O. Waever et al.

In our study, we start from the understanding of environmental safety as such a state of relations between human and environment, in which both sides do not have an influence on each other that is dangerous for them, do not create appropriate conditions for this and do not cause harm that could lead to destruction or dysfunction in these relations [7]. Thus, the identification and study of externalities – the external effects that nature and society have on each other at the personal, group and social levels, act as a criterion for assessing the current state of the relations under consideration and the basis for subsequent assessment of the quality of life of people.

Ensuring environmental safety is associated with the need to address the following issues:
- changing the structure of the modern Russian economy towards the development of waste-free technologies;
- changing the nature of public and personal consumption towards the prevention of environmental pollution;
- transition to an intensive closed-loop economy, which allows minimizing the consumption of natural resources and their deep processing and reuse;
- formation of a new type of economic consciousness based on ecological culture;
- strengthening the legal framework in the field of environmental policy of the state through the adoption of special legislative acts and toughening responsibility for environmental offenses (crimes);
- development of the environmental education system in the domestic education system;
- reorientation of the national economy of the country from a raw material model to high-tech production;
- reorganization of the economic management system at the federal, regional and local levels through the formation of special environmental services responsible for the state of environmental safety in the territory.
According to the Constitution of the Russian Federation, environmental safety (clause 38) implies "conservation and renewal of natural systems and maintenance of environmental quality at a level necessary for human life and sustainable economic development; elimination of environmental damage from economic activity in conditions of increasing economic activity and global climate change" [8]. But, since the Constitution is not a "directly applicable" law and contains only the most general provisions, it is necessary to detail them (up to the definition of specific sanctions, incentives, etc.) in specific legal and regulatory acts. In this regard, it should be recognized that the current environmental regulatory framework is still far from being perfect. The low level of legal responsibility for environmental offenses (crimes) is the ground for numerous man-made disasters in the Russian economy, the prosperity of the "shadow economy" (poaching, smuggling, etc.). This is because there is still no understanding at the national level of what the environmental hazard is and what the principles of environmental safety should be [9].

Ensuring environmental safety is impossible based on the former industrial (even neo-industrial) model of the economy for a number of reasons. First, industrialism is associated with an extensive approach to the processing and industrial use of natural resources, which becomes impossible. According to official data of the Ministry of Nature of the Russian Federation, the proven reserves of oil will last for 59 years, gas - for 103 years [10]. But the European Union intends to abandon Russian gas by 2035, and the transition to so-called "green energy" is gaining momentum in European countries. In other words, in 15 years Russian hydrocarbons will be unclaimed. Hopes for long-term consumption of Russian hydrocarbons by China are also very loose. Especially in the context of the statement by Chinese President Xi Jinping on the transition of Chinese energy to zero emissions in 2060, which is quite realistic [11]. Second, industrialism is "focused" on maximizing profits and, thus, does not seek to increase costs in environmental technologies, the creation of a "circular economy". It is cheaper and easier to fill up the planet with industrial waste than to incur burdensome costs for their prevention or disposal.

That is why, just as it is impossible to ensure environmental safety in the conditions of industrialism, it is also impossible to ensure sustainable rates of social and economic development in its conditions. Unfortunately, a significant part of the scientific community continues to talk "in different ways" about these "sustainable rates of development", although the new social reality (global economic crisis, global environmental crisis, multiculturalism crisis, global Covid pandemic, etc.) has long shown that there is nothing sustainable except delusions in the modern economy. Growing macroeconomic instability and uncertainty, steadily increasing risks only confirm this conclusion. Within the framework of the old paradigm of industrialism, any creativity and innovation turn into a farce, into a standing (the term of Zh. Baudrillard), in the appearance of changes for the better against the background of changes for the worse. But that's the way a human works: "when hell freezes". N. Wiener was right when he argued that "the world is not a pleasant little nest created for our protection, but a huge and mostly hostile environment" [12, p.214].

It was under the influence of the growth of risks and instability that economics half a century ago approached the understanding of the industrial paradigm and the creation of a new concept of social and economic development that would remove hostility and enhance human environmental safety. The concept of a "circular economy" or a closed-loop economy appeared in the 60s of the XX century in the conditions of deterioration of the general ecological situation on the planet. In 1972, in the report "Limits of Growth" of D. Meadows, a member of the Club of Rome, which brought together scientists, politicians and large entrepreneurs from various countries, the idea was formulated for the first time about the need to limit the pace of economic growth to achieve a certain stability of the economy, improve the ecological environment and save rapidly depleting natural resources. Over the past half century, the world has faced a full-scale global environmental crisis, but the development and, most importantly, the practical implementation of the "circular economy" concept is still far from over. The theoretical aspects of this model of economy are studied in the works of foreign authors K. Boulding, R. Winner, P. Gisellini, R. Lifset, G. Pauli, K. Sunstein, U. Stachel, J. Stroten, R. Thaler, K. Timmermans, D.Hurnweg, M. Elman, et al. Among the Russian researchers dealing with the problems
Unlike the traditional economic model, which includes five main stages—resource extraction, production, marketing, consumption, and waste—the "circular economy" model excludes the last (fifth) phase. In other words, the circular economy is an autotrophic model of economy, in which completely waste-free production is assumed. Waste management is aimed at their subsequent inclusion in a new production process and prevention of environmental contamination. This circumstance is an important condition for ensuring environmental safety. The process of production waste management consists of four successive phases: reuse, recycling, use for other purposes, burial (disposal) [13, p.10].

Nevertheless, despite all efforts, it is not yet possible to ensure a complete transition to a waste-free economy. The thing is that new technologies and necessary equipment are quite expensive, and business is in no hurry to incur additional costs for these purposes. This applies to Russia in the most direct way. Thus, in terms of emissions of harmful substances into the atmosphere, it is third in the world after the United States and China. According to the indicator of ecological cleanliness of production—74th place in the world [2, p.115]. The reasons for the lag of the Russian economy in the struggle for environmental safety and the transition to a "circular economy" are the following: first, the absence of an "Environmental Code", which would clearly spell out all the main responsibilities of economic entities in this matter; second, serious depreciation of fixed assets of enterprises and the entire economic infrastructure. By 2015, this depreciation reached 49.4%, by 2020 it decreased slightly to 37.8% [14].

Nevertheless, despite the optimistic estimates of official statistics, one should not forget about the so-called "cumulative effect". Just as it manifests in living organisms due to the preservation of elements in them that are difficult to remove or not removed at all (arsenic, mercury, etc.), this effect also manifests in the economy. Most often it is associated with pollution of the surrounding area. As it happened at the Chernobyl nuclear power plant (1986), or at the TPP-3 in Norilsk (2020) and in a number of other cases. Times are changing, and pollution, "exclusion zones" and dangerous consequences from such externalities persist for a long period. Radiation pollution or even diesel fuel pollution is of a prolonged nature, requires extraordinary funds and efforts, and, nevertheless, does not guarantee complete elimination. An example is the Aral Sea disaster (1960-2007). Which, because of free experiments on turning the Amu-Darya and Syr-Darya rivers for the development of artificial irrigation of lands in the Central Asian republics of the former USSR, simply disappeared from the map of the planet. It is pseudo-scientific not to see the cumulative effect and report on momentary miserable positives. Moreover, it also manifests in derivative (side) negative externalities: destruction of local fauna and flora; occurrence of dust storms; climate change in the territory; deterioration of the health of the local population, etc.

Such an effect can be compared with the marginal effect, indicating a certain increase in a specific indicator (in this case, depreciation, aging) resulting from a slight increase in some other variable. If we also take the aging of the population in the country as such variables, as well as the deterioration of external economic factors (sanctions, embargoes, sequestrums, etc.), then we get a very depressing picture. Unfortunately, there are practically no special studies on this subject in the modern scientific literature. But the reality is no better. For example, the deterioration of road infrastructure, electrical grid infrastructure, etc. in some regions of the country reaches 90% [15].

Another reason for the impossibility of a quick and effective transition from a traditional industrial economy to a "closed-loop economy" is the ideological dogmatism inherent in modern economic theory and the economic policy of the state based on its dogmas. In this regard, it is worth remembering that "continuous social homeostasis cannot be carried out on the basis of rigid assumptions about the perfect immutability of Marxism, just as it cannot be implemented on the basis of equally rigid assumptions based on the template ideas of free enterprise and profit as motivating forces of economic development" [12, p.286]. The prevailing ideology of a free-market economy and profit maximization inherent in representatives of "economic liberalism", which replaced Marxist
dogmas, has long ago turned into a dogma, aggressively planted in the minds of our people for almost thirty years. The result of such "aggressive economism" is obvious: the deceleration of social and economic development (instead of accelerating it), growing macroeconomic instability (instead of sustainable development), the preservation of the raw material orientation of the Russian economy (instead of switching to high-tech production), the rapid aging of fixed assets (instead of their reengineering and renovation), etc. Thus, according to the Ministry of Economic Development, by the end of 2020, under the conditions of a pandemic, the economy of the Russian Federation "fell" by 3.1% (against the expected 3.8%), domestic final demand decreased by 5%, import growth was 13.7%, export decreased by 5.1%. [16].

One can, of course, explain this by a decline in world oil prices or a drop in oil production, but it is unlikely that these explanations can mask the outright miscalculations of state authorities and top corporate management lobbying their own interests in these corridors.

4. Conclusion

Today, Russian society is practically at the "red line": either the economic ideology and economic policy of the country will be completely changed in the very near future, or the destructive processes of anti-ecological industrialism will become irreversible with all the consequences that follow from this.

1. In this regard, it is necessary to adopt a special federal law "On Economic Culture", the draft of which No. 90060840-3 has been "on the shelf" for more than a decade. It was rejected by the State Duma back in 2009 without any good reason. Although similar regional laws still exist in the Russian Federation (Arkhangelsk region, Kemerovo region, etc.).

2. It is necessary to adopt the "Environmental Code of the Russian Federation" as soon as possible, the absence of which does not allow to effectively ensure law enforcement practice and compliment disparate legislative (legal) acts and the provisions contained therein concerning environmental safety and environmental protection.

3. It is advisable at the level of secondary specialized and higher professional education to develop environmental education and expand the teaching of relevant subjects (disciplines) within it to form a new type of economic consciousness among future specialists, as an environmentally oriented and deterministic consciousness. Without this, we can hardly expect our country to transit to a "circular economy" model and overcome the environmental crisis.

4. It is time to stop the propaganda of unfounded optimistic unscientific ideas about the supposedly complete adaptation of the natural environment to the conditions of modern industrialism, about the imaginary correlation between different consequences of environmental incidents (catastrophes), about the absence of negative effects of radiation on the number of mammals or about the supposedly "special unique resilience of wildlife in the face of radiation influence" [17]. Measures are needed to develop an independent examination (audit) of such incidents and their interpretation in the media.

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