

“Green” Investments—Between Necessity and Constraints

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Abstract— The economic consequences of environmental pollution affect negatively, in a large extent, the activity of economic agents. Perception of necessity to adjust to environmental constraints and transition to sustainable development have led to the adoption of environmentally-friendly behaviour and promotion of socially responsible policies. The authors manage to identify the limitations, contradictions and obstacles to the implementation of the green economy approach towards a transition to sustainable development based on the analysis of transition strategies, general orientations and tools for green investment. Solving some problems, green economy can exacerbate other ones. The near absence of consideration of specific circumstances and development trends of various territories (for example, demographic, natural, economic conditions) can lead to the formation of new threats and reduce stability of the socio-economic system as a whole. The article provides some contradictions of the current direction of economic development towards a transition to sustainable development and conditions to resolve them.

Keywords: “green” economy, analysis, management, sustainable development, migration

I. INTRODUCTION

The last decades have been influenced by the growing concern regarding the human impact on the environment. Those concerns have led the scientists to the development of new ways to evaluate environmental management. Government bodies, together with international institutions, are gradually developing tools to reduce the harmful anthropogenic impact on ecosystems. These tools are aimed at shifting towards a new development model which does not affect the environment.

The main obstacle to achieving this goal is the high cost of the transition from a high-carbon emission economy to a low-carbon one. Today, there is a lot of discussion regarding the best way to achieve the goal: a tax on the production of carbon-containing products, price increase in carbon trading, etc. However, promotion of environmentally friendly

investments, also known as green investments seems to be the most significant tool.

Green investment is the base of “green” economy. The analysis of their characteristics, trends, and role in the development of modern socio-economic system will help to determine the contradictions and limitations of the proposed solutions. The study is aimed at identifying constraints for the transition to sustainable development based on the analysis of green investments.

There is no universally accepted definition of green investment. This term is a fairly broad concept that includes investment projects and tools that promote the introduction of renewable energy sources, environmentally friendly technologies, etc., as a result of which the load on the environment will be minimized.

The need for transition to green investment is due to various factors, of which four groups are distinguished [1]:

- Financial factor (repayment rate, risk, diversification, long-term risk consideration, internalization of externalities);
- Additional financial factors (environmental, scientific, religious, ethnic, political);
- Reputational factor (investor and company reputation, marketing tool, pressure from the media);
- Legality and fiduciary duty (domestic laws and regulations, international agreements, voluntary industry codes).

With regard to stimulating green investments, it can be concluded that the financial factor plays a key role, the other three groups are difficult to position in terms of monetary comparability. In addition, support for financial results depends on the scope of the investing company. According to research conducted by Brookings Institution [2], the main barriers to the development of green investment are:

- Absence of new, promising technologies;
- High cost of carbon substitution mechanisms;
- Low demand for the environmental factor in the share of the entire investment project;
- Preference for traditional resources to environmentally oriented.

In a study conducted by the World Bank, they concluded that the main obstacles to the development of green investments are [3]:

- Volatile carbon price is not attractive to investors;
- Subsidies for fossil fuels, due to underpricing of the of fossil fuels cost and cost of traditional technologies;
- High up-front costs and long payback periods, that depend on pricing mechanisms or subventions;
- Technological risk, especially if financing is not supported by the state or venture capital;
- Commercial risks due to low credit ratings and the need to provide collaterals to cover own financial needs.

In addition to these main obstacles, there are others that have less impact, such as: high transaction costs, gaps in knowledge and trust, insufficient international participation, residual value of existing assets that will need to be replaced, high costs of integrating clean energy sources into the system, political and regulatory risks, vague intellectual property rights, inadequate domestic financial tools, etc.

On the way to sustainable development, the main direction today is the green economy, an element of which is green investment. A feature of green investment is the increase in the environmental sustainability of the economic development of the territory. Such development should replace traditional economic growth and indirectly affect the improvement of living standards.

The development of green investment is facilitated by the awareness of the need to ensure a favorable environmental quality at the territorial and global level. A lot of factors hinder their development, which in one way or another ultimately affects the economic efficiency and cost-effectiveness of projects. In the following part of the article we will concentrate on the obstacles to more active dissemination of green investment and its use for the transition to sustainable development.

II. MATERIALS AND METHODS (MODEL)

The ambiguous interpretation of the concept of sustainable development causes differences in approaches to its implementation. Let's consider main mechanisms to achieving the goals of sustainable development.

The most widespread idea is the so-called "green economy", according to which, under the threat of economic and administrative sanctions, environmental quality standards and quotas for the extraction of natural resources are set. This approach means that economic development retains its former extensive nature, and its costs are borne

by economic growth. This approach was the basis for the formation of national strategies for sustainable development of almost all economically advanced countries that are ready to pay for the preservation of the environment, but are not ready for qualitative changes in economic activity and consumption standards in the name of sustainable development. About 30-year experience of such an economy operation shows that it is quite capable of solving local problems, but it does not cope well with solving environmental problems at the regional and especially global level. Therefore, various modifications of the "green" economy are proposed that enhance its environmental focus [4].

Another approach to solving the problem of sustainable development is technological transformation, which implies a transition to energy and resource-saving, low-waste production technologies, and strict pollution control. According to the authors of the book "Factor Four: Doubling Wealth—Halving Resource Use", this area is recognized as the most promising for the present moment.

There is a third approach to solving the problem of sustainable development - the transition from quantitative growth to qualitative development, which implies a significant sociocultural transformation. This approach is the most fundamental and allows to solve the problem of sustainable development completely, but it can hardly be implemented in the near future if there are huge economic imbalances between regions of the Earth, political and military tensions, and one-sided understanding of globalization. Meanwhile, it is Russia, due to its still high environmental and intellectual potential, that could become one of the world leaders on the path to sustainable development, which means, first and foremost, a revision of the basic system of public values

The question of a possible refinement or even substantial modernization of the strategy for sustainable socio-ecological development, including the influence of crisis processes, has become the subject of a more intensive analysis of scientists after the global financial and economic crisis of 2008-2009, which, according to many experts, relates to systemic crises [5]. As an update of the socio-economic development model and the mechanisms for its implementation, the formation of a green economy is considered to be based on the principles of environmental safety, resource efficiency and social justice.

The interrelationship between the financial and economic crisis and the sustainable development strategy implementation has attracted the attention of a number of researchers who have put forward the proposition that this issue forms a new research field in science that is of interest to a wide range of specialists [6]. The author of the study connects the negative impact of the financial and economic crisis conditions with a shift from environmental issues with society, politicians and business. The positive impact of the crisis is distinguished among representatives of the capitalist system transformation concept, the green growth concept and the green industrial revolution concept associated with the sixth Kondratiev wave [7].

The threat of environmental degradation and depletion of principal natural resource stocks, an increase in the frequency of weather irregularities and climate change, price

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volatility in world commodity markets, and aggravation of social inequality are among the socio-ecological challenges that accompany globalization. The main channels for the green economy to affect the economic growth are: firstly, the stimulating effect due to investments, including the development of green infrastructure (of the water supply, sewage, alternative-fuel public transport), which expand employment and reduce unemployment, and, secondly, innovative activity, also at the companies level, supported by the creation of a favorable competitive environment and regulatory methods [8].

Green growth is interpreted by scientists and politicians as a new engine of growth for the world economy [9], which is formed on the basis of consistently implemented structural and institutional reforms and is able to solve a number of acute problems and accumulated in the world economy contradictions, which the global crisis of 2008-2009 has deepened. However, the green economy does not solve all the contradictions of the economic system.

In the context of the ongoing crisis, the contradiction between the principle of economic efficiency of investment projects, the regulatory framework governing territory (or the institutional environment as a whole), which directly or indirectly affect the assessment of project effectiveness, as well as the existing system of the international division of labor, is exacerbating. The main specialization of one or another territory is connected with features and restrictions, management system, etc. In times of crisis, green investments can solve some of the economic problems, on the one hand, but on the other hand, increasing international competition, the struggle for sales markets, risks of lowering the foreign trade balance, etc. reduce the ability to take into account the interests of all stakeholders.

The experience of the Netherlands as one of the most advanced countries in this field [5], has provided us with an explanation of its environmental policy [10] success. It is a close link between the environmental policy goals and the business cycles, which can be found not only in mainstreaming problems of economic feasibility and thereby the transition to a weak sustainability strategy, but also in the application of indicators. They illustrate certain progress in solving environmental problems while avoiding indicators that reflect the long-term objectives.

This confirms the tendency to toughen international competition and the possible promotion of various approaches for economically viable comparison (and exchange) of social, environmental and economic potentials.

In Western theory and practice of sustainable development, ideas of strict, weak and critical forms of sustainability are formed, indicators and management rules are developed to ensure their implementation, the link between the theoretical provisions of the sustainable development concept, a resource economy and other economic areas is established. At the same time, a number of shortcomings and limitations are recognized (measurement and evaluation problems, different interpretations of the possibilities for replacing capital, insufficient operation of the proposed restrictions [11, 12]), which do not make it possible to solve the problems of the transition to sustainable development of the territory on the fundamental level. First of all, problems are associated with the exploitation of the

social and / or environmental and economic potential of other territories, of less "developed" regions. Considering the problem from the research customer's perspective, risks and obvious negative consequences for states with underdeveloped market economies are not taken into account or ignored. In other words, the promoted Western theoretical concepts, institutions, technologies, etc. may be or already are instruments of competition, elements of the unfair behavior of social systems. In these conditions, for the transition to sustainable development, it is necessary to develop systems for the formation of managerial decisions that take into account the interests of all relevant stakeholders.

A peculiar synthesis of existing approaches makes it possible to develop "green" economy, but does not provide fundamental, qualitative changes for the transition to sustainable development. Such synthesis can give significant results for a certain territory, but it tolerates exploitation of social groups and other territories, and often the natural environment. At the same time, it is important to combine and distribute efforts for complex problem solving. At the international level, in the context of the environmental and economic component of sustainable development, unification efforts are carried out on the basis of global climate change issues (in particular, the idea of global warming, which has its supporters and opponents). In the context of international security and economic cooperation, the idea of taking into account the interests of all parties during the process of decision-making is being actively promoted (primarily by the Russian Federation). In this case, the basis for taking into account interests is the subjective presentation of decision makers. In this regard, the formation of a scientific base for combining and distributing efforts, taking into account the interests of various parties, the conditions for exclusion or a steady trend of a permanent decline in the exploitation of social groups, territories and the natural environment both at the regional and global levels is an urgent scientific problem, to solve which determination of benchmarks and dependencies is involved to ensure the trend of increasing stability. The development of ideas on critical sustainability, both environmental and socio-economic interaction of different territories, can serve as such guidelines. In the following part we will consider conditions for spread of the green economy, necessary for transition to sustainable development.

III. RESULTS AND DISCUSSION

One of the principles of the green economy is associated with negative attitude towards extensive economic growth. The need for economic growth is generally associated with the goal of improving the quality of life, a financial system with a positive interest rate on loans, population growth, etc. The most prosperous countries have reduced the pressure of these factors on managerial decision-making. Under these conditions, alongside with the responsible behavior of decision-makers, an active environmental position can be and is implemented in practice. However, these countries are not close systems due to the dominant ideology and economic policy. In this regard, with growing territorial problems, as well as with the participation of various stakeholders, there are active migration processes from countries with high population growth and low living standards (the population of the South seeks to the North).

These trends, significantly changing the structure of the population, without adapting patterns of behavior, affect the primary acceptable conditions for the development of the green economy. As a result, the actual situation of inequality, the resolution of which was posed in the framework of the sustainable development transition, prevents both the rapid development of the green economy and the ability to ensure the transition to sustainable development by means of green investments only.

Green investments and incentives for their development are the driving force behind the formation of the green economy. Incentives may include both restrictions and principles for the formation of managerial decisions, as well as various instruments to increase the green sector funding. Issues arising in the subject area of sustainable development go beyond the framework of the green economy. Actions and the establishment of the green economy are necessary, but are not sufficient for the transition to sustainable development. The tools of the green economy are in general not enough to transition to sustainable development.

Today, the problem of social dynamics on the planet is largely connected and depends on existing mechanisms of the distribution of goods and resources (institutions and technologies, credit and banking, existing infrastructure, military and political establishments and unions to protect the existing order, etc.). Meeting the needs of growing population can be achieved by accelerating scientific and technological progress, biosphere-compatible technologies and culture. Moreover, such a development strategy carries risks for certain territories and social groups.

Material support for a growing population requires economic growth. The extensive measures reduce ecological and economic sustainability of the territory. The intensive measures such as qualitative development, technological improvement, and increase in labor productivity free the population and increase the social burden on the economic system. Under these conditions, an imperfect redistribution of resources system can reduce the standard of living in the territory. Such processes will provoke an increase in social tension, and in the context of global competition they can be used by parties concerned. A functional change in the role and possibilities of overpopulation can cause further risks or the inability to ensure sustainable development without changing the culture and management system. Currently, the world is on the verge of new technical discoveries that have both positive and negative sides. The way out of the "modernization trap" is to be found by various territories. At the same time, the trends and phenomena of social dynamics in various territories are fraught with the risk of their use in the framework of competitive confrontation and are mainly a controllable factor.

Accordingly, within the framework of the green economy, two main strategies for sustainability are possible:

- The growth of the closed economy and the territory's nature in general, division into closed territories of prosperity (the "green" economy and sustainable areas) and disadvantaged territories;
- Development and implementation of mechanisms for ideological change in behavior patterns

(consumption, definition of objectives, restriction, distribution patterns).

Traditional economic growth tends to offset environmental improvements that have happened due to ecological modernization. This happens if the increase in eco-efficiency lags behind the pace of economic growth, when environmental innovations limit their impact only to niche markets and (or) the decisions made affect the symptoms, and not the causes of environmental problems [13]. Based on this argument, it is concluded that the fundamental problem of the updated, but still essentially traditional, approaches to sustainable development is the existence of lags between the occurrence of environmental damage and their neutralization [14].

Correspondence of the increase in eco-efficiency to the pace of economic growth solves environmental challenges to stop increasing environmental pressure. However, economic growth is necessary to solve social problems such as poverty, income growth, maintaining living standards with the population growth, as well as economic problems such as, for example, inflation, cost-effectiveness of projects based on the factors of the particular territory (institutional environment, resource endowment and etc.), the domestic credit system. In almost all economically developed countries, these problems are mostly solved or are not so acute, and green investment is a natural solution to social problems. In countries that have not reached a certain level of economic development, especially in the context of systemic crisis of the capitalist system and lack of financial resources with the presence of part or all of the above-mentioned socio-economic problems, it is necessary to increase green investments and, under certain conditions, to ensure environmental sustainability.

However, the solution of socio-economic problems in the context of increased competition between social groups and territories, exacerbation of existing problems due to the transformation of the economy with green investments makes it difficult to ensure social and economic stability. The increase in territorial imbalances in the standard of living will stimulate migration processes. The closure of more developed economic systems that ensure their stability with the help of green investments can lead to their decay (entropy and the second law of thermodynamics). The openness of these systems exposes their resilience to risk.

As a result, for countries with different levels of economy the following conditions can serve as limitations to the sustainable development transition:

- Green growth must be consistent with economic growth;
- Economic growth due to green investments should correspond to (or exceed) population growth (natural growth consistent with the rate of migration flows) in the territories.

The first condition is the minimum (critical) requirement to ensure the environmental sustainability of the territory.

The second condition is the rule of critical socio-economic sustainability.

IV. CONCLUSION

Thus, just as well as it is necessary to take into account non-economic factors to ensure the sustainability of the economy [15], it is also necessary to take into account the social and economic aspects of the issue for environmentally sustainable economic development. Positive outcomes for one of the sustainable development components in certain conditions can harm the stability of the system as a whole [16]. The contradictions of demography, living standards and restrictions of economic growth can not be resolved by means of the "green" economy only [17]. Ensuring a balance of economic, environmental and social components of sustainable development involves search for new solutions based on social justice, with due regard for the technological and economic constraints of underdeveloped countries. Transformation of behaviors and the development of environmentally compatible technologies can serve as the direction in the search for such solutions, and distribution of responsibility at the international level can help to overcome the limitations including the application of the "user-pays" principle.

The totality of crisis phenomena that have developed today (the economic systemic crisis, climate change, environmental problems, social inequality) affects social dynamics and pushes large numbers of people to relocation. Under these conditions, features of the demographic development of the North (fertility decline and population ageing) and the South (population growth and rejuvenation) contribute to an increase in migration flows. Such movements jeopardize the stability of the territory. The methodological basis for assessing the negative consequences of anthropogenic impact disadvantages and the distribution of responsibility in the territories is an additional factor for the tension growth. The international distribution of labor in the context of underestimating the external effects and ignoring the "user-pays" principle act as an additional restriction on the development of underdeveloped territories. At the same time, without being fundamentally changed in production technologies the model of consumption growth multiplies environmental threats. The development of management systems to ensure the fulfillment of critical sustainability conditions is one of the main tasks for the transition to sustainable development.

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