

Transformative Investments in Sustainable Economic Development: Infrastructure Aspect

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Abstract. The article is devoted to the study of the role of infrastructure in the sustainable development of the economy, the investment of which makes it possible to ensure the achievement of social and environmental results along with economic ones. This type of investment has great potential in solving global problems of mankind, providing a positive impact on the economies of various countries. Mobilizing investment in infrastructure that catalyzes the improvement of environmental, social and political processes in economic systems stimulates the development of industries and often must precede this. The relevance of transformative investments is growing in the face of a lack of resources of governments of various states to address the priority problems of overcoming poverty, social inequality and reducing social tensions in this regard. Despite the fact that transformative investment is a relatively new topic, which is reflected in various discussions at the global level, the implementation of this form of investment to achieve the UN sustainable development goals in order to ensure a decent standard and quality of life for the population contributes to the creation of favorable conditions for interaction between countries.

1 Introduction

The second half of the twentieth century saw the increasing contradiction between the growth of the well-being of some countries and the deepening of poverty in others. The processes of globalization have intensified the mobility of people, expanded the opportunities for the exchange of goods and capital, scientific and technological progress has led to the improvement of communications, as a result, preconditions have been created for the formation of new opportunities for ensuring sustainable development of the world economy in general and developing countries in particular. However, at the same time, the changes that have taken place have further exacerbated the problems of poverty, unemployment and social disintegration, increased the differentiation of regions, both in our country and throughout the world.

To address the issues of eliminating threats to human well-being and ensuring the development of countries with economies in transition and developing countries, the heads of state at the world meeting in Copenhagen, in March 1995, adopted the Declaration on Social Development. The main idea of the Declaration was the right of society to

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development, while “the importance of social development and the well-being of people” [1] is the main priority in the 21st century. Emphasizing the importance of social development, the Declaration affirmed the comprehensiveness of this process, which encompasses the economic, social, political and cultural dimensions. The development process should be aimed at a constant increase in the well-being of the entire population, to promote its active, free participation in this process.

Thus, the prevailing preconditions in society have led to the formation of the concept of sustainable development, which covers three most relevant aspects: social, environmental and economic.

The economic component of the concept is based on the understanding of the need to correlate the income received with the resource opportunities for economic growth. Thus, J. Hicks, in defining income, laid the economic basis for the concept of sustainable development. He believed that “in practical life, the definition of the level of income is aimed at showing people how much they can consume without making themselves poorer” [2]. This point of view allows us to understand economic efficiency, first of all, from the standpoint of limited resources and consider further development, taking into account the provision of future generations.

The social component is primarily aimed at maintaining social stability, preserving cultural potential, preventing and reducing destructive conflicts and preserving cultural capital. Equitable distribution of opportunities to achieve dignified well-being for all people is of major importance.

The ecological component of the concept is based on the creation of conditions for the survival of a person as a biological being, therefore, sustainable development is impossible without preserving the environment, which contributes to the satisfaction of the most important human needs in ensuring his life.

Based on the concept of sustainable development, infrastructural aspects are of particular importance, since they allow ensuring the effective functioning and development of the country and its regions. Developed infrastructure is one of the key factors in the development of territories, which determines its competitiveness [3]. Infrastructure, according to A. A. Govorin [4], can be understood as a system of “general conditions for ensuring social reproduction” and a set of various rational interrelationships (technical and technological, organizational, economic, informational, social, etc.), which make it possible to provide effective services for “the functioning of the structure-forming industries and the life support of the population.”

The need to invest in infrastructure is presented in the works of the author of the “big push” P. Rosenstein-Rodan [5,6], in which he substantiated the need to mobilize investment resources in infrastructure, which is a kind of impetus for the development of industries and precede them. At the same time, in order to ensure sustainable development of the regions, the aforementioned author drew attention to the fact that less developed ones need larger investments in infrastructure, compared to more developed ones. And the future trends in investment in infrastructure of emerging market and developing countries, according to the work of Qureshi Zia [7], will account for three quarters of the total investment. According to this author, it is very important to create sustainable infrastructure based on new, sustainable approaches, as there is a close relationship between infrastructure, economic growth and economic development.

In this context, the authors believe that transformative investments, which make it possible to activate investment processes in the economic space of the regions, have a fairly large impact on the development of infrastructure, especially social [8].

Transformative investments (and also impact - investments, investments of influence, etc.), which are understood as investments aimed at creating a positive, measurable impact

[9], are aimed at maximizing the social, economic and environmental value created by investment objects [10].

Key areas of transformative investment support infrastructure development and are in line with the UN Sustainable Development Goals, based on a 2015 resolution aimed at transforming the world and ensuring sustainable development [11].

The tasks set by the UN are considered in the 2015-2030 time frame. Building on the ideas of the Declaration on Social Development, transformative investments are also aimed at ensuring equitable distribution of benefits, achieving dignified well-being for all people, and respecting the rights of future generations.

2 Materials and methods

In the proposed work, the authors use a standard methodology containing the following elements: development of a research algorithm, conduct of content analysis, choice of research methods, assessment of parameters and substantiation of influencing factors on the subject of research. The main research methods used in this work are synthesis and analysis methods, comparative analysis of investment assessment methods, methods of tabular and graphical visualization of research results, which made it possible to form a comprehensive view of the research object.

To assess the infrastructure, the results of studies of various organizations and authors can be used, however, comparison of the results is hampered by the fact that there are no clear criteria for what exactly needs to be attributed to infrastructure facilities. Often, when assessing, researchers use those assets for which there is statistical information. In the work of A. Lantsov [12], the criteria of the World Bank are presented, which make it possible to justify the objects that must be classified as infrastructural and their main characteristics. However, most authors, in his opinion, single out two types of infrastructure - industrial and social. The industrial infrastructure, with reference to Nils-Hansen, includes roads, bridges, water supply and irrigation systems, waterways, airports, urban public transport, etc., and the social infrastructure - facilities that allow the provision of educational services, medical care, law enforcement, and so on [12]. The relationship between infrastructure industries and innovative development according to A.M. Dyachuk and D.P. Ustich can be reflected in a number of indices that make it possible to form a ranking of countries. These include indices: GCI (The Global Competitiveness Index), IMD (The IMD World Competitiveness Year book), GII (The Global Innovation Index), and others [13].

When assessing infrastructure by industry, it is advisable to use the analytics of the Infra One group of companies, which has been calculating infrastructure since 2018 [14]. The integral indicator, called the "development index", includes calculations of the transport, energy, social, utilities and telecommunications infrastructure sectors. To assess investments in infrastructure development, you can also use the OECD (Organization for Economic Co-operation and Development) methodology. This organization published a 2017 Technical note on estimates of infrastructure investment needs [15] which contains requirements for assessing infrastructure investment needs. Especially difficult is the assessment of social effects, while there is still no generally accepted methodology [16]. SDG indicators based on the metrics created (169 metrics for 17 goals were created) can be used as a possible tool, while they are used by three quarters of transforming investors.

3 Results and discussion

Transformative investments are often associated with the Sustainable Development Goals (SDGs), which were adopted at the UN in 2015 [11]. This was preceded by the principles

developed in 2000, presented in the United Nations Millennium Declaration [17]. For 15 years of the implementation of the goals presented in the document (which are also called the "Millennium Development Goals"), many, primarily developing countries, have achieved positive results in the process of socio-economic development [18].

Priority of the UN Sustainable Development Goals for 2016-2030 are more focused on solving social problems, because 10 goals have priority in the social sphere, 5 goals in the environmental sphere and 3 goals in the sphere of economy. Despite the fact that the Russian Federation, from 2000 to 2015 made significant progress in socio-economic development, adaptation of global sustainable development goals to Russian conditions can become the basis for qualitative changes in the country's development. Without disputing the importance of all SDGs, for the purposes of the research carried out in this article, we consider it necessary to focus on the ninth SDG "Building resilient infrastructure, promoting inclusive and sustainable industrialization and innovation." The Strategy for the Spatial Development of the Russian Federation for the period up to 2025, adopted in 2019, defines one of the most important areas of spatial development as "the elimination of infrastructure restrictions of federal significance, an increase in the availability and quality of the main transport, energy, information and telecommunications infrastructure" [3].

The creation and development of sustainable infrastructure requires the development of an action program and investment of investment resources, which means developing an increased role for both public-private partnerships and the creation of a transformative investment mechanism that takes into account all the effects of infrastructure development: social, political, economic and environmental. The concern of the world community about the development of high-quality infrastructure leads to an awareness of international cooperation and the creation of a program of collective action at the country level (for example, the G20, G7, BRICS summits), the need to assess investment in it. As part of the G20 summit held in Russia, the G20 was created Global Infrastructure Hub (GIH), which assesses the need for investment resources for infrastructure development and its current state.

To date, the assessment is carried out in 56 countries and 7 sectors of infrastructure (telecommunications, water supply, transport (airports, sea and river ports, railways and roads, energy). On a global scale, the need for current investment (for 2015–2030) is 79 trillion dollars while needed are 94 trillion dollars [19]. According to these estimates, Russia needs investments in the amount of 1.8 trillion dollars (1.9%), the gap is 727 billion dollars.

The dynamics of investments by country (total amount) and across Russia, reflecting the current and projected state, as well as investment needs, is presented in Table 1.

Table 1. Dynamics of investments in infrastructure for the period 2010-2040

Indicators	2010	2015	2020	2025	2030	2035	2040
1. Investments, trillion \$							
Current trends (Russia), trn \$	42.36	35.59	39.23	40.83	43.23	45.37	48.43
Investment need (Russia), trillion \$	42.36	35.59	61.28	67.27	74.08	80.62	88.09
Current trends (World), trillion \$	2088.48	2285.59	2710.64	2979.49	3260.30	3543.75	3812.63
Investment need (world), trillion \$	2088.8	2285.59	3156.56	3518.27	3892.16	4268.95	4631.58
2. Share of Russia, %							
Current trends (Russia)	2.03	1.56	1.45	1.37	1.33	1.28	1.27
Investment need (Russia)	2.03	1.56	1.94	1.91	1.90	1.89	1.90

The general dynamics of investments by years in the context of world investments, including in Russia, is shown in Fig. 1.

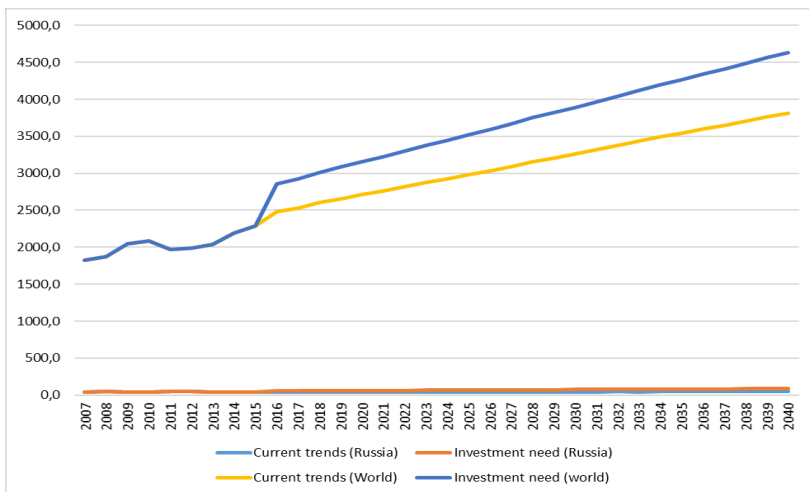


Fig.1. Dynamics of demand and current state of investments for 2010-2040 in the whole world and the Russian Federation

According to the OECD methodology for infrastructure development for the period 2016-2030, the world needs 6.3 trillion. dollars. An assessment of the required investments according to the above-mentioned document prepared by the OECD [15] is presented in Table 2.

Table 2. Distribution of average annual investments in infrastructure by its elements for the period 2016–2030, trillion US dollars

Assessors	Annual infrastructure investment needs	Infrastructure elements			
		Energy supply and consumption	Transport	Water supply and sewerage	Telecommunications
OECD	6.3	2.1	2.7	0.9	0.6
Bhattacharya	7.9	3.9	2	0.9	1
McKinsey	3.3	1	1.2	0.5	0.6
NCE	6.4	3.3	1	1.5	0.5

The data presented in Table 2 indicate the predominant role of energy and transport in total infrastructure investment. Analyzing the received data. According to Z. Qureshi [7], the estimated investments in their total amount, amounting to 93 trillion. dollars (for 2015-2030), exceed the cost of the entire global infrastructure by almost two times. According to the scientist, the cost of the world infrastructure in the current period is estimated at about 50 trillion dollars. An investment of such significant sums should lead to a significant transformation in the world and the solution of many global problems in the field of the environment and service industries.

The significant scatter of data on required investments (from 3.3 to 7.9 trillion dollars) is due to the different methodology used by analysts, as well as the composition and volume of incoming statistics.

It should be noted that this table does not contain an element of social infrastructure (health care, education, etc.), housing and utilities are not reflected, there are also no water

supply and heat supply facilities, therefore, in our opinion, this estimate is underestimated and investment requirements will be higher.

According to the Russian group of companies, Infra One, which has been assessing the infrastructure of the regions of Russia since 2018, the minimum necessary investments that can cover the infrastructure needs, according to the 2019 assessment of the country, amount to 2.6 trillion rubles, while economic growth requires an amount of about 5.5 trillion rubles [20]. In dollar terms, it can be seen that the investment appraisal by this group of companies is much more modest than the Global Infrastructure Hub (GIH) estimate.

In the early work of the authors [21], an analysis of transformative investment instruments in terms of social impact (initiatives), mapped by region, was carried out, where it is indicated that the GSG (Global Steering Group for Impact Investment), created in 2015, acts as a driving force for political initiatives. The OECD has so far identified 590 community initiatives to support impact investment. The recognition of the role of transformative investments as a tool of positive impact, including the development of infrastructure, led to the creation of a global platform for transforming investors (Global Impact Investment Network), the functioning of which allows accelerating the development of this industry (Russia is represented in the GIIN by the Our Future Foundation). The Global Alliance for Sustainable Investment - GSIA (Global Sustainable Investment Alliance) was also created and operates, the goal of which is to increase influence and ensure transparency of impact investments. According to the assessment of the Association of Impact Investors [22], the volume of the global impact investment market as of 2019 amounted to 502 billion dollars, covering 1,340 organizations by the number of participants.

In Russia, an active role in the development of infrastructure and its investment belongs to VEB of Russia – a state development corporation that finances economic development projects. According to the VEB Chairman I. I. Shuvalov, presented in the bank's non-financial report [22], the infrastructure should be developed using private investment, using Public Private Partnership (PPP). VEB plans to bring this agenda to the level of BRICS.

3 Conclusions

1. The growing gap between countries in the level of development has led to the need to address the problems of their uneven development. In the twentieth century, the gap between developed and developing countries widened, which led to an increase in social disintegration.

2. The concept of sustainable development developed by the world community makes it possible not only to equalize the well-being of people living in different countries, but also to strengthen economic development by prioritizing social aspects. Выработанная мировым сообществом концепция устойчивого развития дает возможность не только выровнять благосостояние людей, проживающих в разных странах, но и усилить экономическое развитие приоритетностью социальных аспектов.

3. The location of Russia between the major centers of economic development in Europe and Asia creates favorable preconditions for using the possibilities of a connecting link between them, to ensure balanced development of the country as a whole and all its regions. The implementation of these opportunities, first of all, should be based on large-scale construction and modernization of trunk infrastructure facilities. In the last decade, a significant emphasis has been placed on the development of infrastructure in the field of transport, energy, communications, road construction.

4. Russia's movement in the vector of global development trends creates favorable conditions for accelerated, high-quality socio-economic development based on further strengthening of social priorities.

5. The implementation of the tasks set in accordance with the UN goals for the development of infrastructure in Russia and around the world requires priority investment, interaction between the private and public sectors. In this regard, transformative investment mobilizes private investment, provides new approaches to solving pressing infrastructure problems and is inherently an innovative way of investing, providing not only economic benefits from their implementation, but also social and environmental ones.

References

1. Copenhagen Declaration on Social Development, <https://www.un.org/ru/>
2. J.R. Hicks, *Value and Capital* (1988)
3. Strategy of spatial development of the Russian Federation for the period up to 2025, <http://www.economy.gov.ru/>
4. A.A. Govorin, *Infrastructure of Modern Entrepreneurship: Problems of Theory and Practice* (1999)
5. P.N. Rosenstein-Rodan, *The Economic Journal*, **53(210/211)** (1943)
6. P.N. Rosenstein-Rodan, *Notes on the Theory of the Big Push. Economic Development for Latin America* (1961)
7. Z. Qureshi, *Bulletin of International Organizations*, **12(2)** (2017)
8. G.M. Kwon, *Regional Issues of Economic Transformation*, **12(110)** (2019)
9. T. Lyons, D. Kikal, *Social Entrepreneurship. Mission - to make the world a better place* (2012)
10. E. Bagg-Levin, *Social Transforming Investments. How we change the world and make money* (2017)
11. Resolution by the UN General Assembly "Transforming our world: the 2030 agenda for sustainable development." Adopted on 25 September 2015, a Resolution adopted by the General Assembly, <https://undocs.org/>
12. A.E. Lantsov, *Bulletin of UMO*, **3** (2013)
13. A.M. Djachuk, D.P. Ustich, *Regional economy and management: electronic scientific J.*, **4(52)** (2017)
14. Russian Infrastructure Development Index (2019), <https://infraone-research.ru/>
15. Technical note on estimates of infrastructure investment needs. Background note to the report Investing in Climate, Investing in Growth, OECD 2017, <https://www.oecd.org/>
16. .E.B. Dvoryadkina, G.M. Kwon, *J. of Economics, Law and Sociology*, **2** (2020)
17. United Nations Millennium Declaration. Approved by General Assembly Resolution 55/2 of September 8, 2000, <http://docs.cntd.ru/>
18. Millennium Development Goals Report 2015, <https://www.un.org/>
19. Website of the Global Infrastructure Center (GIH). URL: <https://outlook.gihub.org/>
20. Analytical review "Investments in infrastructure", <https://infraone.ru/>
21. E.G. Animitsa, E.B. Dvoryadkina, G.M. Kwon, *Bulletin of Belgorod University of Cooperation, Economics and Law*, **4(83)** (2020)
22. The website of the Association of impact investors, <http://impact-investor.org/>