TERRITORIAL HIERARCHY OF SUSTAINABLE DEVELOPMENT GOALS AND RISK MANAGEMENT

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Abstract

The problem of achieving the sustainable development goals is considered from the perspective of the territorial hierarchy. The necessity of applying a risk-based approach in the implementation of plans for the socio-economic development of territorial entities has been identified. The results of identification and monitoring of key risks of economic development on the example of urban settlements are presented. The interrelation of key risks and significant goals of sustainable development of the research object is revealed.

Keywords: sustainable development goals, territorial hierarchy, small towns, key risks, socio-economic development, expert assessments

I. Introduction

The 2030 United Nations Sustainable Development Goals are a call for action to improve the well-being and protection of the entire planet. The Sustainable Development Goals (SDGs) include 17 areas, including measures to eliminate poverty, increase economic growth, and address a range of issues in the fields of education, health, social protection, and employment, as well as combating climate change and protecting the environment [1].

The international practice of implementing the Sustainable Development Goals demonstrates different rates and successes in achieving them. To assess the extent to which various countries have achieved the SDGs, a special SDG Index (Sustainable Development Goals Index) has been developed, which allows us to determine the status of participating countries in achieving the Sustainable Development Goals. By the end of 2021, none of the countries has demonstrated the achievement of all 17 goals. The leaders of this trend in the world are the Scandinavian countries – Finland, Sweden and Denmark. Russia was ranked 46th in this ranking [2].

II. The SDGs and the territorial hierarchy

It should be noted that the Sustainable Development Goals are formulated by the UN for the global level, i.e. for the world as a whole. Achieving these goals will allow us to talk about global sustainability. In order to justify effective measures to achieve the SDGs, it is necessary to take into account the level of the territorial hierarchy: planet, continent, country, region and settlements. Depending on the hierarchy level, the importance of relevant goals will vary. At the planetary level, all goals will be significant, but at lower levels, the significance may vary.

A hierarchical pyramid of levels at which the achievement of the Sustainable Development Goals can be considered and evaluated is shown in Figure 1.

In addition, it should be borne in mind that the significance of the goals of different objects at the same hierarchy level may also differ. For example, the importance of some goals varies between

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developed and developing countries, and also the importance of goals may vary depending on the region of the same country.

Taking into account these specifics (both at different levels of the pyramid and within the same level) will reduce the number of the most significant goals, since goals such as "no poverty", "zero hunger" or "life below water" may be irrelevant for some countries or regions, while ensuring health and well-being or "clean water and sanitation" may be relevant SDGs for most countries and regions.

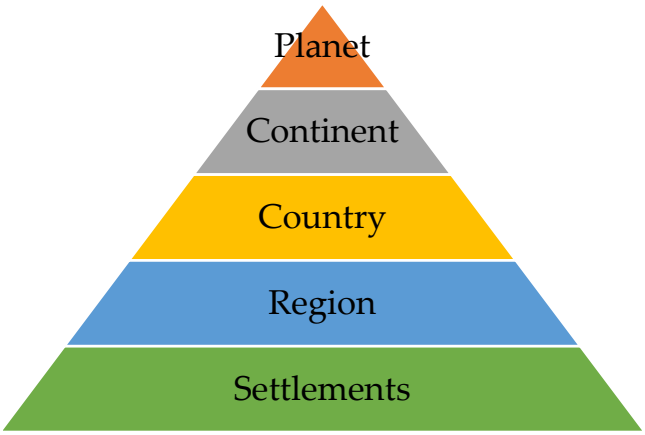

Fig. 1: *Territorial hierarchy pyramid of SDG achievement*

In the Russian Federation, the average percentage of the development of SDGs for May 2022 was 39%, and the average percentage of undeveloped goals was 57%. The top priority goals of sustainable development in Russia are "industry, innovation and infrastructure", "decent work and economic growth" and "good health and well-being". Research shows that measures for goals such as "responsible consumption and production" and "climate action" have been developed to a lesser extent [2].

As the concept of sustainable development spreads and strengthens at the global level, there is not only a transformation of the structure and principles of functioning of the global economy, but also a transformation of approaches to managing national development. The need to achieve the Sustainable Development Goals requires governments to integrate long-term global development goals into the national agenda, which leads to their implementation in sectoral and regional development strategies [3]. Depending on the extent to which the Sustainable Development Goals are adhered to in the region, the situation of the region is determined, taking into account the application of the principles of environmental, social and corporate governance. For example, currently the regions of the Russian Federation have varying degrees of achievement of the SDGs, based on the priorities of their sustainable development.

Being developed at the global level, the SDGs take into account differences in the socio-economic situation of countries around the world, and therefore can be adapted to specific country regions with significant differences in socio-economic development. This thesis is reflected in studies that develop the problem of integrating sustainable development goals in relation to either one of the factors (environmental or social) that have a significant impact on the processes taking place in the territories today, or to a combination of both factors [4].

The problems of sustainable development are certainly relevant at all levels of the hierarchy, but they need to be studied in terms of their adaptation to improve the effectiveness of relevant activities.

III. Sustainable development and risk management

The performed analysis shows that the achievement of the Sustainable Development Goals correlates to a certain extent with the risk management methodology. However, this combination is most consistently applied not at the territorial levels, but at the level of companies and corporations.

The risk management process of a company's sustainable development is based on the fact that organizations are created and operate to achieve their goals when faced with uncertainty factors. The task of the organization's management is to make managerial decisions regarding the levels of uncertainty that the organization considers acceptable in achieving its goals.

Risk management, including the risks of sustainable development, allows the management of companies, optimally using limited resources, to effectively respond to uncertainties and related risks and use new opportunities, since the impact of events is positive, negative or mixed [5].

Currently, the sustainable development of companies, organizations, and management structures is based on compliance with the following three basic principles:

- responsible attitude to the environment (E – Environment);
- high social responsibility (S – Social);
- high quality corporate governance (G – Governance).

In accordance with the abbreviation ESG ("ecology", "social policy", "corporate governance"), usually the concept of sustainable development of companies and corporations is currently understood as the ESG concept. An important step in the implementation of this concept is the improvement of risk management subsystems, their transformation within the framework of the concept of sustainable development. Such a transformation requires solving a whole range of tasks, and the concept of sustainable development in this case is a kind of driver in modeling infrastructure and risk management processes [6].

Researches have shown that a risk-based approach to achieving the SDGs at various territorial levels is applied to a lesser extent than for corporations and companies.

IV. SDGs for small towns and risk management

Plans for the socio-economic development of regions and administrative entities are formed to a certain extent, taking into account the SDGs for the considered level of the territorial hierarchy. The analysis shows that the following goals are often relevant for the level of administrative subjects of the Russian Federation (small towns, urban and rural settlements, etc.): Goal 3 SDG UN – Good health and well-being; Goal 9 SDG UN – Industry, innovation and infrastructure; Goal 11 SDG UN – Sustainable cities and communities. Taking these goals into account when forming socio-economic development plans should also consider emerging risks of various nature [7].

The author's previous research [8] on the problems of socio-economic development of an urban settlement (Razvilka Village, Moscow region) made it possible to identify a group of critical risks. The research included a survey of the population, a SWOT analysis, and an expert assessment of the possibility and impact of risk realization. In total, 8 risk groups were identified in five areas: transport (T), healthcare (H), infrastructure (I), offenses (C) and administration (A). A risk map was built based on expert assessments (Fig.2).

At the time of the study (2022), the following were identified as the most critical risks threatening the economic development of the village:

- risks of transport collapse (T1);
- risks of infrastructure overload due to a significant growth in housing construction (I1);
- risks of an increase in the number and severity of diseases among the village population (H1).

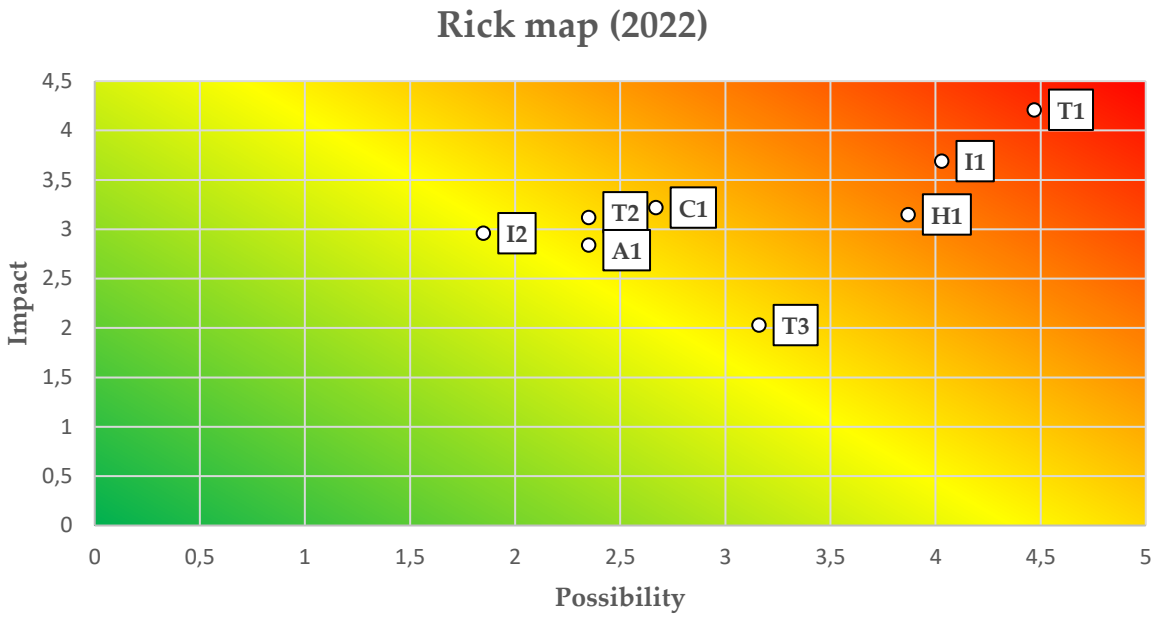

Fig.2: *Risk map of the economic development of the Razvilka Village (2022)*

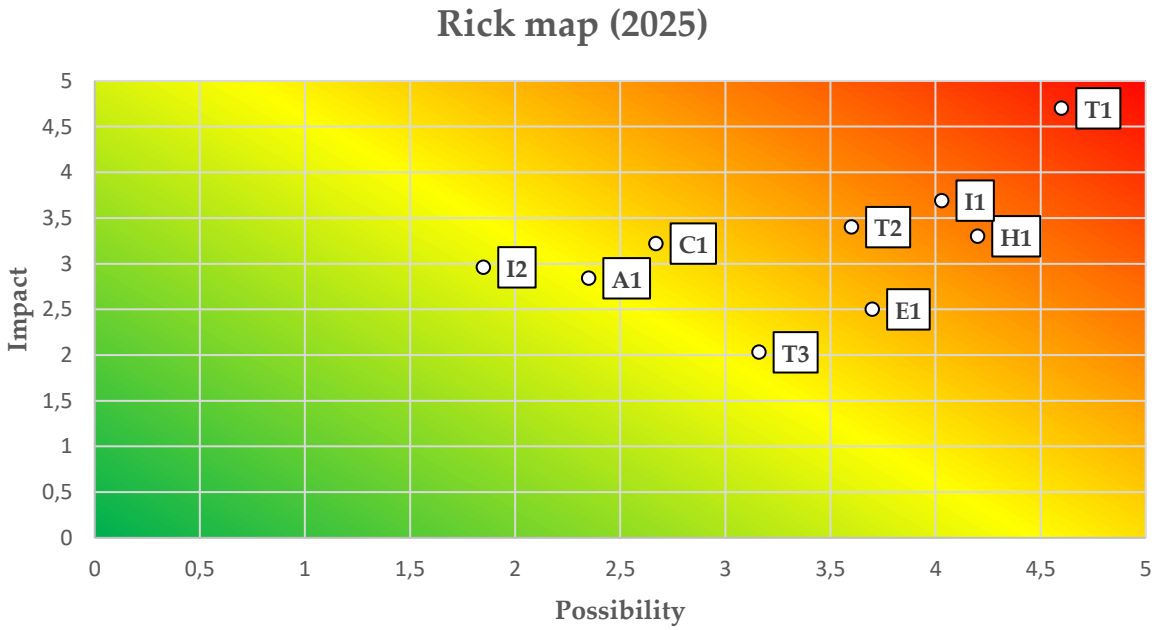

Fig.3: *Risk map of the economic development of the Razvilka Village (2025)*

The listed risks largely coincide with the three previously identified Sustainable Development Goals at the level of local administrative entities (villages, small towns). These studies show that the analysis of the risks of socio-economic development and the justification of measures to reduce them are harmoniously combined with the solution of tasks for the implementation of the Sustainable Development Goals.

Significant changes in the field of economic development took place in the considered research object in a 3-year period between 2022 and 2025. Several residential complexes were built and put into operation, and the social sphere (kindergartens, schools) received some development. At the

same time, plans for the construction of a medical center have not been implemented, and problems in the field of transport have not been solved [9].

The analysis showed that currently all the previously identified risk groups are present, and, in addition, risks in the field of ecology and sanitation (E1) have been added to the number of critical ones (Fig. 3) [10]. This suggests that the socio-economic development plans of the village should take into account Goal 15 SDG UN – Life on land.

In general, it can be noted that the previously identified risks of the economic development of the village are still relevant, and the importance of some of them (risks of reducing the quality of healthcare, risks of transport collapse) has not only not decreased, but has increased to a certain extent, and in addition, new significant risks have been added. This requires further monitoring of risks and the participation of the local administration in the development and implementation of measures to reduce them and take them into account in the formation and implementation of socio-economic development plans.

V. Conclusion

As a result of the study, the relationship between the importance of the SDGs and the territorial hierarchy of research objects was revealed, and the correspondence between the critical risks of socio-economic development and the SDGs was shown using the example of a certain urban settlement. It is concluded that critical risk management measures can contribute to achieving the SDGs for the considered level of the territorial hierarchy.

The results obtained in the study allow us to determine the directions of further research in the field of sustainable development of small towns and villages. Based on the analysis of statistical data, it is necessary to identify the degree of significance (rating) of the sustainable Development Goals for the considered level of the territorial hierarchy. It is also necessary to analyze the relationship between the Sustainable Development Goals for the considered level (using the example of several small towns or villages) using cognitive maps, expert assessments, and the analytic hierarchy process (AHP). Further, it is advisable to develop methods for quantifying the results of a coordinated reduction of key risks and the degree of achievement of the SDGs for the considered research objects. The results obtained will make it possible to increase the effectiveness of measures to achieve the Sustainable Development Goals.

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