Improving manageability by sustainable development of territories based on expanding the possibilities of its measurement

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Abstract. The article deals with some aspects of sustainable development connected with improving its management. The author’s interpretation of this concept is given, the necessity of managing such development is substantiated, and the main tasks of management are formulated. Particular attention is paid to the consideration of various nomenclatures of indicators of sustainable development, including those established by international standard and to the identification of their advantages and weaknesses.

For many centuries, the mankind has adhered to the “resource” path of development, such its principles as “consumption for prosperity”, “biosphere for man”, “man is the king of nature”. The result was the depletion of resource potential, the degradation of the natural environment and the growth of global environmental problems. Therefore, the reasons why sustainable development is the subject of increased attention and, in some cases, the basis for the development of plans and programs are understandable and explainable.

Unfortunately, a single, generally accepted interpretation of this concept has not yet been developed. A number of authors believe that sustainable development is a stable development (and in some cases it is added that it does not destroy the natural basis) [1,2,3]. Others believe that sustainable development means positive changes in the dynamics of indicators, since stability in itself does not mean positive changes (the system may also have a stably unsteady position). There is also an interpretation saying that sustainable development means stable quality improvement if it does not lead to the destruction of the natural mechanism of environmental regulation and its global change [4,5].

But the most common (although not generally accepted) is the concept of sustainable development proposed by the international community (UNO). Namely, “sustainable development is understood as such development that allows satisfying the needs of current generations without harming the opportunities left to future generations to meet their own needs ”[6]. Such a concept implies a controlled growth in the production and exploitation of natural resources, controlled processes of human life. The condition of manageability and controllability is extremely important, since sustainable development is far from being stably unchanged, on the contrary, its pace can slow down or accelerate.
Let us now consider how we can implement this management.

The concept of sustainable development includes the concept of territory, that is, speaking of sustainable development, we believe in advance that we are talking about some very specific territory - a district, city, region, country - where, of course, there are governing bodies. Thus, we have an object of management – a territory, and therefore, society, and the subject of management - a body that directly implementing the management. It should be bear in mind that today the quality of life is the main competitive advantage of a country. In other words, the quality of life today has become the most important product, since it meets the basic needs of people. The results of scientific research allow to conclude that the society is the manufacturer of this product and an increase in the quality of life is possible only with the sustainable development of society (territory).

By analogy with the enterprise one can draw up a diagram of the interaction of the subject and governing object (figure1).

As we see, the society, like an enterprise, uses various resources (financial, material, personnel) to produce the quality of life. For this, the governing bodies implement the necessary actions under the relevant programs. The informational basis for the development of programs is the evaluation results, which include such stages as measurements, observations, monitoring, information analysis, planning. Actions can be aimed not only at changing the situation on the territory itself, but also at changing the input conditions, that is, the availability of resources.

In management, strategic, aimed at developing a mission, policy, development concept, and operational, aimed at designing development programs, can be distinguished.

In addition, the territory (society) cannot exist on its own, it is necessarily located in some environment that determines the conditions of life. The quality of life affects this environment. It is transformed under this influence and forms the needs of society, making an impact on society (territory). By influencing, among other things, by various disturbing impacts - risks. They must be taken into account without fail.
Based on this scheme, one can propose the author’s interpretation of sustainable development, which is based, firstly, on the well-known definition of the stability of a system, as its ability to maintain equilibrium under disturbing impact (or immediately after the termination of such influence), and secondly, on the main goal of society as a producer (production of quality of life). In our opinion, sustainable development means the ability of society to produce an increasing quality of life (or at least not reducing), regardless of fluctuations in input resources and disturbing impacts. In other words, the sustainable development means that the quality of life is directly proportional to time.

It should be noted that a number of authors propose assessing the degree of sustainability of development by measuring the quality of life. This method is not entirely correct, since the stability assessment in this case will not be complex. For example, we cannot comprehensively assess the sustainability of an enterprise, only by measuring the quality of the goods it produces.

It would be logical to assume that society is interested in such a sustainable development, the pace of which, if not accelerated, then at least not slowed down. In other words, society is interested in such a management in which indicators of sustainable development will increase (or at least not decrease) over time (figure 2).

Figure 2. The task of sustainable development management.

Therefore, we can formulate the problem of sustainable development management. It is necessary to implement appropriate actions so that society for a certain period of time passes from state A to state B, in which the sustainability indicator will be higher. In this case, status indicator B can be determined in advance; it will be the target value. In this case, we understand the sustainability indicator as the result of the total assessment of the measured development indicators.

Thus, the first task of improving the quality of sustainable development management is to find ways to regulate and evaluate indicators. It should be noted that at present, many regions have development programs that provide the corresponding nomenclature of indicators. However, these programs are mostly focused on solving purely local specific problems, which is reflected in the nomenclatures. That is, the nomenclatures of different regions may not be comparable with each other. This is especially true for our country with its extreme variety of climatic, geographical, economic conditions. But there is no single (basic) nomenclature of indicators that could serve as a basis for comparing different regions.

Moreover, as a rule, these indicators are considered separately, not comprehensively. The connections between them and mutual influence are not taken into account, that is, a systematic approach is not applied. In addition, often these indicators do not take into account international practice, in particular the UNO 17 sustainable development goals.

As we see, the need to develop a unified approach to assessing the sustainability of regional development exists. In our opinion, we can use the existing regulatory framework [7], which sets out the requirements for the indicators used, which should be adequate, accurate, objective, comparable, unambiguous and reliable.

If we analyze international methods from these positions [8, 9], then the indicators used in them in some cases do not have accuracy and unambiguity, since they are descriptive and most of them do not provide exact numbers, and in some cases the measurements are expensive. In addition, the procedures
for verifying information that should ensure compliance with the requirements for its reliability, timeliness and regularity are not yet very clear.

As for domestic methods [10], some of them do not meet the requirement of adequacy. For example, there are no indicators reflecting the improvement of the environmental situation. In addition, these indicators cannot be considered objective, since there is a clear skew. The number of indicators in one category is several times greater than the number of indicators in others. More attention in one category leads to the fact that the information is distorted.

In order to achieve the set goals, it is necessary that all parties concerned uniformly understand the meaning and objectives of development described in a formal way (through uniform indicators). And for this it is necessary to develop standardization in the direction of sustainable development.

Besides, a necessary prerequisite for the transition to sustainable development is the application of a systematic approach to management, that is, the consideration of a region as a single socio-economic system. And this approach just provides the use of standards at various levels in management [11]. To date, the International Organization for Standardization has published more than 22 thousand standards and other documents designed to ensure the achievement of sustainable development goals [12].

The international technical committee (TC) 268 “Sustainable Cities and Territorial sustainable development (until 13.06.2016 it was called “Sustainable Development of Communities”) is working out the standards of sustainable development. In our country national TC 115 has been created for these purposes, which is “mirror-like” in relation to international.

Using the standards developed by TC 115 [13], it is possible to quantify the degree of sustainability of the development of a particular urban area. Such a formalized approach is especially convenient when comparing territories or communities of different countries that differ in traditions, way of life, and life values.

The undoubted positive aspects of this approach is that it meets most of the requirements for indicators considered by us. However, the proposed list of indicators is not without drawbacks. Namely, it has a significant predominance of criteria in one category. In addition, part of the indicators is allocated to a separate category “Institutional Development”, which is not included in the components of sustainable development.

Nevertheless, it is possible to form a unified approach to measurements on the basis of these standards. This makes it easier to assess the sustainability of development to compile various ratings. Using this approach, one can:

- apply the baseline of the nomenclature of measured indicators;
- assess the level of the territories developments sustainability based on monitoring development parameters;
- increase management efficiency through the establishment of regional targets;
- evaluate the effectiveness of the governing bodies.

Currently, the international community, based on the practice of applying standards, is in the process of revising the indicator system taking into account the views of all concerned. In particular, TC 268 has worked out development indicators by issuing standards which describe indicators for “smart” and sustainable cities.

In addition, it turned out that some auxiliary indicators should become the main ones, and some of the main ones, on the contrary, should be auxiliary. But the main criterion in the analysis of experience is the fact that the indicators established in the standard should be measurable and included in the reporting system.

According to the working group of TC 115, it is necessary to conduct an examination on the possibility of using indicators established in international standards in Russian realities. In this case, one should take into account a number of features typical for the territory of our country, its population and the environmental situation (air, water quality, elimination of landfills, etc.). In particular, special attention should be paid to supporting indicators, as their improvement will contribute to a more
comprehensive assessment of the quality of urban services. In addition, indicators can be refined in accordance with the development goals of the region.

Thus, international and national standards will determine the regulatory framework based on which sustainable development management can be implemented (figure 3).

![Diagram of sustainable development management](image)

**Figure 3.** The role of standards in sustainable development management.

The second main task in sustainable development management is to determine the effectiveness of management. Obviously, you can reach the goal in different ways and you need to choose the most optimal one.

Due to the lack of space, we will limit ourselves to a brief summary of our developed methodology, which is based on quality management methods and has been successfully applied at the enterprise level. This makes it possible to apply it at higher levels of management.

According to our methodology, it is first necessary to determine the integral measure of stability as the arithmetic mean of the sum of the values of the indicators. It is important to note that each indicator is assigned a specific weight by expert means. Further, in a similar way, the average indicator for solving the tasks is determined.

After which there is a comparison, which allows to judge the effectiveness of management. For example, we can firmly be confident in the sustainability of development, if the ratio of the integral indicator of stability and the indicator of solving the tasks lies in the range from 0.8 to 1.2. If this ratio is below 0.4 or above 1.6, then the development is clearly unstable. In this case, either the tasks are carried out with extreme exertion of forces, which will inevitably affect the socio-economic situation, or vice versa, stability due to the fulfillment of tasks is absolute.
In conclusion, it is worth noting that the management of sustainable development of territories is an urgent requirement of the time, because only then we get a guarantee of sustainable growth and the corresponding continuous improvement in the quality of life. Practice shows that this problem is most effectively solved using standards. Today, standardization is already beginning to apply to the processes of managing the development of territories included in the “production” of quality of life. But I would like this situation to become widespread practice and the standards would be applied by all authorities.

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