Investment Ensuring Process of Rational Environmental Management as Factor of a Sustainable Development of the Territory

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Abstract. Territorial sustainable development considerably affects ecological aspects of man – nature interaction. Each strategic development plan is to address environmental management processes. Planning the development of a region requires specifying a system of measures concerning protection of water, air and land resources. A special place belongs to investment support of the developed measures in the field of environmental protection for the purpose of natural resources’ conservation and reproduction.

1. Introduction
The research of peculiarities of environmental management process investment support as a factor of sustainable development of territory is currently gaining a considerable scientific interest. A balanced type of such investment has a significant impact on the sustainable functioning and development of territories that are parts of a region.

A particular place, according to the author, belongs to the comparative assessment of reduction rate of main indicators characterizing the impact of economic activity on the environment and increase rate of investment into fixed assets which are aimed at environmental protection and rational use of natural resources.

Such assessment is an essential component in creation of sustainable development strategic plans, as its results reflect the degree of efficacy of the Russian society’s response to environmental challenges, taking into account man – nature interaction at the present stage of global development.

2. Topicality of the issue, scientific actuality given with brief literature review
In the context of the given research, the level of investment support of environmental management process as a factor of sustainable development of territory is considered. The theoretical and practical parts of the research are closely connected with an increased activity of regional authorities in the field of analytical support of evaluation process of investment support sufficiency for environmental management in order to develop strategic plans for sustainable development of territory.

Issues of environmental management basics development are studied in works of many Russian scientists, among which the most prominent are G.N. Chernyatina [1], Y.I. Martynov, O.V. Vagina [2], A.P. Kupryushin [3], A.G. Mourov [4], M.A. Kugotova [5], E.G. Aksenova [6], L.V. Makolova [7], S.A. Andryuschenko [8], Y.B. Emelin, S.I. Kozhurin [9] and N.Y. Selischeva [10].
The problem of investment support of environmental management process are researched by such scholars as T.S. Legotina [11], A.G. Airapetova [12], S.I. Nosov [13], E.O. Venetsev [13], L.N. Khushainova [14], E.V. Mariin [15], V.I. Tatarenko [16], L.A. Savelieva, V.V. Gassiy, E.S. Ilyushkina, O.P. Burmatova [17], T.V. Sumskaya, S.P. Zemtsov [18], V.L. Baburin and V.M. Kidyaeva. These authors have made a great contribution to the creation and development of environmental management theory and practice, but methodological issues in the field of assessing investment support sufficiency for environmental management processes remain insufficiently studied and require further research.

3. Aim setting
The aim of the research is to determine a sufficient level of environmental management investment security indicators with the help of which sufficient conditions for nature preservation and improvement of nature’s capacity to meet human needs are formed.

4. Theoretical part
In this part, the most effective appears to be an integrated assessment of environmental management indicators’ adequacy, as well as their comparative analysis with the nation-wide rates.

A method of assessing environmental management indicators’ adequacy is proposed by the authors. The method includes the following stages:

– specifying indicators which reflect the process of environmental management of territory (Table 1);

– developing balance of environmental management investment support for sustainable development (Table 1);

– conducting typology of territories according to the rate of environmental management investment provision sufficiency [19].

Environmental management touches upon issues of optimizing economic activity impact on the environment, as well as amount of investment allocated to its protection and reproduction of natural resources. This opinion influences the selection of territorial environmental management indicators presented in Table 1.

In order to carry out the typology of territories according to the rate of environmental management processes’ investment provision sufficiency, it is necessary to calculate the growth rate of each of the indicators given in the balance sheet. After that, the territories can be divided into three types: with over sufficient (OS), sufficient (S) or insufficient (IS) investment support of environmental management processes. In the future, the typological results are to be used in creation of strategic development plans in the field of environmental protection.

5. Practical importance
Tomsk region of the Russian Federation possesses an extensive natural potential [20, 21]. However, in the process of carrying out its economic activities, the region can sometimes use its natural resources inefficiently, which leads to a gradual slowdown in the process of reproduction of local nature. Thus, a well-timed analysis of environmental pollution indicators (Table. 1) becomes absolutely indispensable, together with the search for additional investment sources for environmental management processes’ implementation.
Table 1. Indicators and environmental management investment security sufficiency in the context of Tomsk region’s sustainable development.

| Indicators characterizing impact of economic activity on the environment | Indicators of investment aimed at environmental protection and reproduction of natural resources |
|---|---|
| 2013 | 2017 |
| 2013 | 2017 |
| Natural water bodies’ water abstraction for economic purposes, mln m$^3$ | 509,7 | 399,5 |
| Recycling and consistent water utilization, mln m$^3$ | 759,4 | 790,1 |
| Polluted waste water discharge, mln m$^3$ | 26,6 | 22,8 |
| Emissions of pollutants into the air, thousand tons | 306,1 | 263,0 |
| Generation of industrial and household waste, thousand tons | 1014 | 366,1 |
| Investment in protection and rational use of water resources, thousand rubles | 8695 | 184630 |
| Investment in air protection, thousand rubles | 1631075 | 792057 |
| Investment in land protection, thousand rubles | 215090 | 161403 |

In order to determine sufficiency of environmental management processes’ investment support in Tomsk region, it is necessary to calculate growth rates of the indicators presented in the Table 1 (Table 2).

Table 2. Growth rates of environmental management processes’ investment support indicators on the territory of Tomsk region.

| Indicators characterizing impact of economic activity on the environment | Growth rate, % |
|---|---|
| Natural water bodies’ water abstraction for economic purposes, mln m$^3$ | 78 |
| Recycling and consistent water utilization, mln m$^3$ | 96 |
| Polluted waste water discharge, mln m$^3$ | 86 |
| Emissions of pollutants into the air, thousand tons | 86 |
| Generation of industrial and household waste, thousand tons | 115 |
| Indicators of investment aimed at environmental protection | Growth rate, % |
| | 2123 |
| Investment in protection and rational use of water resources, thousand rubles | 49 |
| Investment in air protection, thousand rubles | 75 |
| Investment in land protection, thousand rubles | 75 |
According to the calculations’ results environmental management investment support type (over sufficient (OS), sufficient (S) or insufficient (IS)) of Tomsk region is determined (Table 3).

**Table 3.** Typology of territories according to the type of environmental management processes’ investment support.

| Growth rate of Group 1 indicators / Growth rate of Group 2 indicators | More than 100 % | 100 % | Less than 100 % |
|---------------------------------------------------------------------|-----------------|------|-----------------|
| More than 100 %                                                     | OS              | OS   | S               |
| 100%                                                                | OS              | S    | IS              |
| Less than 100 %                                                     | S               | IS   | IS              |

Using the data from Tables 2 and 3, it can be concluded that in 2017 Tomsk region had:
- over sufficient type of environmental management processes’ investment support in the field of water protection;
- sufficient type of environmental management processes’ investment support in the field of air protection;
- insufficient type of environmental management processes’ investment support in the field of land protection.

On the basis of the obtained results it is possible to compile strategic goals of environmental protection (water, air and land) processes’ development.

### 6. Conclusion

In the context of rational use of water resources, Tomsk region possesses opportunities to increase the quantitative and qualitative use of investments. As for air protection, it is recommended to support the same activities, but with an increase in investment. The situation with the protection of land resources is more complex. Therefore, it is necessary to attract additional investments, develop a municipal program for land protection, and in the absence of the possibility of additional investment inflow, optimize the already implemented measures.

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