Some Economical Methods of Assessment of Ecological Products and Service

V B Vlasov¹, V Ya Mishchenko¹ and A I Makeev²

¹Department of Technology, Construction Management, Expertise and Property Management, Voronezh State Technical University, 14 Moskovskiy Avenue, Voronezh 394026, Russia

²Department of Building Materials, Voronezh State Technical University, 14 Moskovskiy Avenue, Voronezh 394026, Russia

E-mail: vla-valerij@yandex.ru

Abstract. In this work, authors try to lay the methodological foundation of cost assessment of ecological products and service, which were free in Russian Federation. Transferring more and more products and services to market appeal as market objects means more effective and rational using them with different market mechanisms complexes. Current economic practice does not provide effective using of nature recourses such as water for economical subjects, who control it, and for recourse’s consumers. On the basis of research in ten villages of Voronezh region authors reveal some significant reserves in improving effectiveness of the system. The essence of the method is necessity of meticulous research of all characters of resource’s demand and revealing its extreme utility. On the basis of research’s results were revealed that customer always wants to have more qualify product of service and pay higher price of them. In the job you can find specific example of using the method and some practical recommendations of its rational using. Authors suggest and substantiate the necessity of including the characters of ecological and economical effect and damage in the assessment of effectiveness of different vectors of development.

1. Introduction

One if the main trend of changeable social status is object expansion in our social life, which needs cost assessment, market approach to many things and processes essence. Previous status is probably related to the character of social and state own almost on all that surround us. General nationalization of economical, domestic, nature environment’s objects did not suppose their assessment in product form. The scope of provided products and services in the form of social goods was almost not limited. The scope extended to having all types of educational and medical services and nature resources using.

Some serious changings follow the transition to market relationship. Fixing own on most social life’s objects and requirement of effective economic activity identified the necessity of using market mechanisms in its assessment. Completely changed legislation, a rigid requirement to account costs, an assessment of the object status demand objective necessity of costs assessment and effective using social goods such as visiting nature reserves, monuments of culture and nature, a possibility to use qualitative water resources, when it is impossible to evaluate it in production form. Entering these
objects into market relationship scope, economical subjects, which control it in new economical scope in current system, cannot provide effective economic activity.

2. Estimation method based on marginal utility theory
A feature of using social good is that consuming it by one person do not effect on a magnificent for others. Analyzing the situation using the theory of extreme utility, it is possible to conclude that unlimited possibility of using social good for every extra person who uses it, extra consumption is zero. It means that for defining general readiness to pay for using social good, it is necessary to sum up readiness for all customers to pay for it. It means to sum up individual curve of demand.

Authors consider that the instrument to define the cost of social good is using the method of assessment extreme utility of the good.

2.1. A specific example of using the method
Water system as a communal establishment is given as an example. Water from all sources was almost free in the nearly past. Ineffective work of communal services gives minor proceeds and it lays low qualitative services. In this situation, the method can be used as a variant to analyze markets for management and design systems and establishment tariffs.

The degree of communal services from municipal system of water supply cause many censures. A system of payment for water supply for household in country side is imperfect, so the value of the accumulated sum for water submission cannot provide normal functioning of the system.

The mission that we set is if the system has a reserve for solving the current problem. Using the method of assessment some researches in ten localities of Voronezh region was made.

Was revealed an important factor that it is a desire to pay for water supply according to higher tariff subject to more qualitative service, and the negative moment is higher prepayment for connection to the system.

The curves of demand were counted by received information. In figure 1, we demonstrate the value of connections to the system, the revenue and the size of customer’s surplus on current tariff.

The modeled changing in customer’s surplus in the situation of increased value of connections increased the size of revenue and customer’s revenue on current tariff and doubled tariff, are shown in figures 2 and 3.

Analyses of the results of the research encouragingly admit a possibility to solve the water supply system’s problem. It is meant that it is important to concentrate the efforts on municipal companies of more qualitative service, increasing the value of customers and some changings in financial legislation. People rear that the cash they collect for laying aqueduct is not always fit actual outlay. It means that the cost of connecting should be included into the rate of monthly payment for using water, investing and guide it into improving and maintaining the quality of customer’s service.

![Figure 1. Tariff – number of customers.](image-url)
3. Analysis of traditional approaches to the assessment of environmental goods

We consider the situation of underestimation of social good, conditioned by the absence of economical mechanism and psychological inhibition in realistic assessment of customer and water resource.

We can find some methods of ecological product’s and service’s assessment in economical literature in case of solving social or economic problem. Methods are quite popular:

- the method including personal capital’s assessment;
- the method including real diseases cost assessment;
- the method with changing of performance;
- the method of preventive and softening cost assessment;
- the method of transport and track costs.

Some methods set a task to find cause-effect connection to measure the damage in different situations. Some methods connected to market’s analysis and market’s development factors. All methods are in demand in practice of assessment of ecological, nature and social goods’ influence.

However, in general, looking from the economical point, the factors cannot be fully the economic factors of social product’s and service’s assessment.

Without any doubt, common and synthesis character of all method’s assessment can be the character of supposed act’s effectiveness, classically matching the income and the cost. But right definition of economic value of ecological, social and nature good is very important. The assessment from economic effectiveness point can lead out the good a factor of competitor ability. Accounting of ecological factor of different levels vectors of development can finally increase of reduce economical effect of the vector. If the reduced assessment is chosen of economic, nature or social good, the accounting of ecological damage is wrong, the damage of the territory is not accounted, the reduce of
biodiversity, the vector cannot be economically attractive. Inversely - the vector of development including safety of nature, reducing the pollution, saving health and increasing the quality of life - increases economic effectiveness of the vector.

Establishment or characters of economic and ecological damage and economic and ecological effect using the definition of economic effectiveness of different vectors of development will let us make the vectors really effective of not effective, and make the ecological characters the factors of competitor ability.

4. Real valuation of natural resources is a fundamental factor in increasing the efficiency of social production

The main, central issue of solving the problems discussed is the real assessment of environmentally significant resources, including natural ones. The roots of the problem, in our opinion, are as follows. First of all, the realization of state ownership of natural resources in favor of the actual users of it by means of an unfair misappropriation of rent is exaggerated. The functions of state bodies in the regulation of natural resources as objects of ownership, and above all, the determination of their actual economic evaluation, are very blurred. As a result, the actual income from the use of these resources is much less. In addition, this state of affairs creates an economic environment for the extremely inefficient use of resources.

Another major problem that does not allow a real economic assessment of natural resources is the contradiction between the federal laws regulating the activities of users of natural resources, the laws of the constituent entities of the Russian Federation, other regulatory documents and the established environmental and economic practices of resource users, who, naturally, favor their own interests. In this regard, serious cadastral work is required with a thorough economic assessment of all natural resources, which should become the basis for their effective use.

In 2019, the Ministry of Natural Resources and Ecology for the first time considered the value of natural resources in the territory of the Russian Federation. As of the end of 2017, there were 9.04 billion tons of oil and 14.47 trillion cubic meters of natural gas in the territory of the Russian Federation. In rubles it is 39.6 and 11.3 trillion rubles, respectively. The Department estimated the reserves of iron ore at 808 billion rubles, diamonds at 505 billion, and gold at 480 billion. The total cost of all resources amounted to 55.2 trillion rubles [9].

It is imperative to make such an assessment regular. Russian statistics do not analyze natural resources as part of national wealth. Russia is a unique country. Only 2% of the world's population lives here, accounting for 40% of the world's natural resources. However, as shown by the results of a study of the World Bank [10], Russia is at the bottom of the list of countries with average per capita income. For example, we are 17 times poorer than the Swiss and 13 times than the Americans. At the same time, an average of $38,709 of the country's total wealth falls on every Russian. This impressive figure is provided, first of all, by the share of natural resources, which is $17,217 (a little less than half of the total amount) and by production capital of $15,593. For comparison, among the top ten countries, the share of natural resources is not more than 2% of wealth distributed per capita, production capital ranges from 11 to 30%. However, intangible assets in developed countries (technology, science, social institutions, human capital) range from 63 to 87%, while in Russia this figure does not exceed 15% [11].

The ratio of available natural resources to other assets of national wealth - engineering structures, equipment, transport, enterprises and other material values is very important. If we bear in mind that a significant part of fixed assets is worn out, and the objective dynamics has a predisposition to an increase in the value of natural resources, their value may be higher than the production part of national wealth. Despite the fact that there are prerequisites for an increase in the cost of natural resources, there is also anxiety about the decrease in their value as a result of degradation and depletion, including due to the depreciation of equipment and their operating mechanisms. An increase in losses over an increase in the value of natural resources would mean a loss of the natural basis for
the growth of national wealth. Unfortunately, today, the rate of use of natural resources exceeds their reproduction.

Another important factor determining the need to increase the role of the valuation of natural resources is the cost of labor in the industries and enterprises that exploit these resources. High capital and operating costs associated with the extraction and processing of natural raw materials, as well as high world prices for natural resources, suggest a high technical level of equipment maintenance, and, consequently, a high level of personnel wages. This is an objective factor in the transfer of resource-processing enterprises from state to private ownership. And here the state is faced with the enormous task of building such a system that would direct privatized resource and processing enterprises to work effectively solely through fair competition, the use of advanced equipment and technology, and the search for intensive factors of increasing productivity, especially considering the negative experience of previous privatizations. On the other hand, this system would assume the interest of mining and exploiting enterprises, which take advantage of their high competitiveness, to share their income with other sectors of the national economy. The task of the state is to create a favorable climate when it will be profitable for extractive industries to invest in the development of other industries.

5. Conclusion

Raw materials should be the most important lever for reforming our economy, and the determination of prices for natural resources is the most important factor in the implementation of market reforms. The current cost of consumed natural resources is much lower than their real economic estimate. This in turn leads to their irrational use and wastefulness of the economy as a whole.

In our opinion, it would be possible not only to set high prices, but to create a system of taxes and payments regulating the prices of natural resources in the domestic market below world prices, thereby creating a more favorable investment climate for other industries.

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