

# APPROACHES TO ECONOMIC VALUATION OF NATURAL RESOURCES

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Over the last years use of natural resources in the world has increased. It is due to fast production development, progress of science and technology and increase of population. It puts extra pressure on nature and this in turn creates problems with environmental management. Creation of environmental economics is connected with economic solution of world problems. It is possible to ensure sustainable development by carrying out economic valuation of natural assets. The basis of evaluation of natural resources is social environment, natural environment and economic environment.

Extracting natural resources and production and processing connected with natural resources, and consumption of natural resources is basis not only to human agricultural activity. It also causes various environmental and health problems.

The main conceptual principles of economic evaluation methods of natural resources are:

1. Natural resources as asset – in economics environment is considered as a complex asset that provides different services
2. Economic approaches
3. Standard Criteria to decision making

## **Natural resources as asset**

It is a very special asset that ensures not only our existence but also development of economics. When using any assets, we want to ensure that we achieve the highest level of utility and the least wear and tear.

Central problem that is being solved by environmental economics is shortcomings. The market shortcomings mean that the market is wasting resources. The market shortcomings are visible when the market does not use resources to create the best possible social welfare and at the same time ensure the resources are used effectively and the environment is protected.

Environmental economic issues are characterised by following aspects:

1. Environmental aspect – determines interdependence of production, power industry, transport and environment.
2. Exploitation aspect – coordinates capacity of production, power industry, transport and warehouses and shipping capacity;
3. Technology aspect – is used in production, power industry, logistics, technology processes in accordance with optimal measurements determined by the progress of science and technology;
4. Energy aspect – is economy of energy in various aspects of environment determined by definition of energy and the price increase;

5. Commercial aspect – describes economic efficiency. It consists of planning, management and legal documentation;

6. Economic aspect – determines all costs connected to several elements of environmental economic in order to form advantages of efficiency of the system.

The same problems affect all components of environmental economics. They are connected with creating costs and evaluation of efficiency of investment.

Environmental economics include Economy of utilisation of natural resources and environmental or natural assets. Utilisation of natural resources focuses on research of relationship of environment and social production. Its task is to research rules that are created by society using natural resources to provide for their needs. One of the most important indicators about natural resources and their economic valuation is natural assets.

Natural assets are formed by ecosystems (sea, forest, agricultural land etc.) that create and support ecosystem services and natural resources necessary for existence of human race. Ecosystem services include supply of food, regulation of water, air and climate, preservation of soil fertility, circulation of nutrients, aesthetic and cultural values of nature etc.

There are 3 types of natural assets: critical, constant and tradeable natural assets. When the natural assets decrease, access to resources and services that are important to human survival and quality of life also decreases.

Natural assets not always are replaceable with different forms of assets. Its decrease can significantly affect sustainability and development of agriculture. Currently in the world stores of natural assets are decreasing. Therefore economic evaluation of natural resources and their effective use has become more important. Environmental and natural axioms have to be combined in order to make progressive economic decisions about management of natural assets.

### **Economic approach**

Different economic approaches can be used when evaluating resources economically. It provides better understanding about connection between economic system and natural assets. Positive economics shows what is, what was and what will be. Normative economics answers the question what should be. Argument between these economics ensures continuous development and both approaches are important.

In order to evaluate dynamics of use of natural resources, positive economic approach is used. It helps determine whether use of resources has increased, decreased or has stayed on previous level. To determine whether the speed of utilisation of natural resources is acceptable or not and also to analyse possible ways of using natural resources, normative economic approach is used. Normative economic approach can be used in different contexts: to design desirable situations or to evaluate efficiency of the current situation.

### **Normative criteria for decision making**

If it is essential to find out whether the proposed actions are desirable, the first step should be determination of benefits and losses. If benefits are higher than losses then action is desirable.

This simple system is economic basis in decision making. It can be formulated as follows: if B is benefit from use of natural resources and C is costs then:

- $B > C$  action desirable;
- $B < C$  action to be rejected
- $B = C$  point of no losses

Also, if  $B/C > 1$  action is desirable.

All benefits and costs are evaluated taking into consideration their effect on development of humankind.

Benefits can be found on demand curve of goods or services. Demand curve shows the price people are ready to pay for quality goods. Analysis of benefits and costs is carried out. Basic rules of microeconomics are used to carry out more precise analysis. If market has complete competition mechanism: prices of resources are determined by market forces – balance of demand and supply.

### **Environmental valuation**

Environmental valuation is a series of techniques that economists use to assess the economic value of market and non-market goods, namely natural resources and resource services. It applies the welfare economics concepts of producer and consumer surplus to issues involving natural resources and the state of the environment.

Environmental valuation techniques can be broadly classified into two categories: revealed preference (RP) approaches and stated (or expressed) preference (SP) approaches. Revealed preference approaches make use of individuals' behaviour in actual or simulated markets to infer the value of an environmental good or service.

### **Conclusions**

- Effective use of natural resources promotes development of a country. Ineffective use of natural resources decreases potential of sustainable development of a country. Ineffective use of resources can also cause considerable losses to environment and economics.

- Prior to economic valuation of natural resources and using them in economics, it is essential to develop a united economic approach. It is necessary because evaluation methods should become a united system.

- When using natural assets, the aim is to achieve the highest benefit and the least wear and tear.

- Sustainable development is when there is balance between human social environment and economic environment.

- Not always nature assets can be substituted by different forms of assets. Decrease in nature assets can affect development and sustainability of economics.

### **Suggestions**

- To develop united system prior to approving economic evaluation and management plans of natural assets.
- To use not only positive economic approach but also normative economic approach when evaluating natural assets.
- To create future situations of use of natural resources and analyse them by using economic principles.
- When carrying out economic analysis of natural resources, take into consideration not only speed of development but also productivity.

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