

# Annales Universitatis Paedagogicae Cracoviensis

Studia Geographica III (2012)

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## **Evaluation of natural resources as a component of business greening**

Greening of business is a popular phenomenon all over the world. Application of wasteless technological processes, economical use of raw materials obtained from the natural environment, and the use of materials produced from wastes and non-polluting raw materials is to a businessman a confirmation of production quality. It also allows an enterprise to gain a reputation of being pro-environmental, to simplify interactions with partner companies, especially foreign ones, and to increase sales due to an increase in demand.

Due to existing contradictions between business and environment, business activity is characterized basically by the irrational use of resources and a high degree of environmental contamination. Innovative strategies, like ecobusiness and ecomarketing, are necessary. The concept of ecobusiness in the most general sense unites various kinds of activities: introduction of technologies and methods directed at reducing damage done by enterprises; development of greening technologies, as well as consulting and other services regarding ecological issues. It is assumed that companies which, realizing the benefits of the environmental component of business, implemented it into their strategy before others, should get real advantages. The decisions concerning environmental problems can often objectively promote occurrence of new possibilities and getting new benefits for the enterprises:

- additional opportunities for the development of business activity;
- increase of competitive advantage: the companies that made capital investments in non-polluting technologies before their competitors become leaders first and foremost on the home market;
- the countries that made capital investments in non-polluting technologies before other countries become leaders on the world market;
- protection of advanced environmentally focused businesses from foreign competition;
- benefits in competitive struggle for markets due to the use of slogans proclaiming environmental compatibility of the goods.
- It can be observed that the enterprises undertake actions aimed at decreasing the negative influence on the environment in three cases:

- firstly, when the owners and the management of companies become more environmentally conscious and begin to take into consideration the influence of their business and production on the natural environment;
- secondly, when legal norms, effectively controlled by the state, become stricter, so that it is economically favorable for the enterprises to comply with them;
- thirdly, when certain public groups important for the company start to consider environmental compatibility of the product, its manufacturing, use and recycling in the decision-making process of buying and investing, etc., that is, when environmentally responsible behavior creates distinct competitive advantages for business.

Thus, the appropriate state policy brings economic benefits to the companies that green their business. It is, in fact, promotion of administrative bodies that have noncommercial character. Thereof, sustainable development is incompatible with the underestimation of natural resources. It is obvious that if natural resources are involved in economic circulation, they should be evaluated like any other goods. Necessity of the estimation of natural resources is brought about by the following reasons:

- the need for the exact account of real costs and benefits from the projects intended for realization, and the importance of considering all environmental consequences of these projects, which promotes the realization of actions favorable for sustainable development of society;
- the need to introduce adequate price regulation of environmental activity directed at stimulating the rational use of natural resources by means of establishing taxation rates reflecting their real costs.

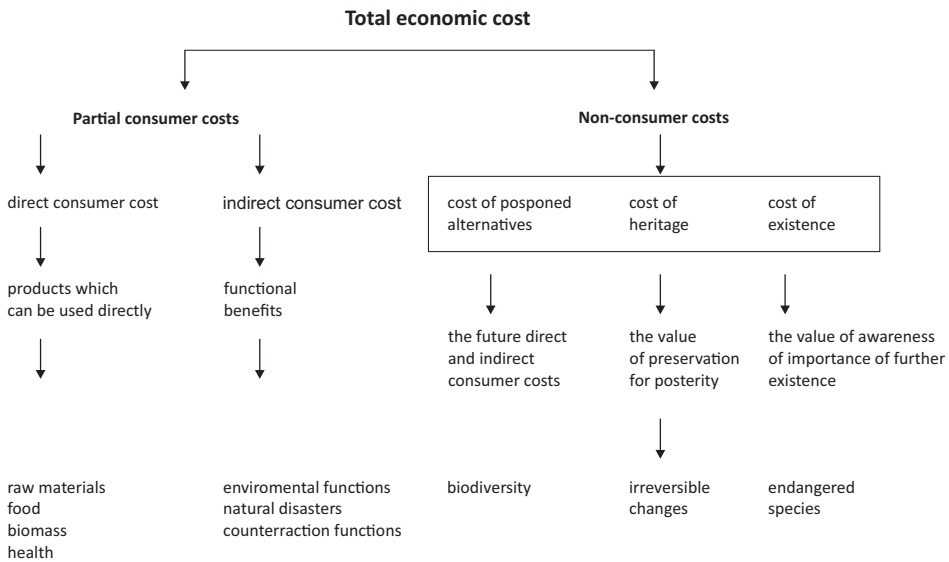
There exist different lines of thought concerning the estimation of resources. Let us consider some of the market methods of estimation.

The methods in question estimate resources as the element of public welfare. In market economy, the price is always used as the indicator of usefulness of certain goods. However, the prices of the goods can be influenced by state regulation or subsidizing goods and services. There is also no market that takes into account all useful properties available. Therefore, to estimate natural resources, it is necessary to correct the existing prices for more accurate reflection of social values, as well as to consider their unestimated consumer properties. Such an approach enables estimating the general economic cost of natural resources.

The scheme demonstrated below (Fig. 1) shows that the general value of natural resources includes the value of each concrete consumer and non-consumer cost (when individuals do not benefit directly from the use of the resource, but appreciate its importance for future generations). It is necessary to remember about the existence of the value of postponed alternative, when the consumer estimates the possibility of resource use in the future. Non-consumer costs are estimated as an approximated value of consumers' desire to pay for the preservation of natural resources for themselves and future generations. The analysis of the scheme from left to right shows the decrease in consumer's perception of resource cost. The approaches to the estimation methods considered will be defined further on.

Direct consumer costs can be estimated by means of any method, including the method of rent estimation. However, the presence of unconsidered components of the general economic value of the resource is reflected in the underestimated rent.

Indirect consumer costs, except from rent estimation, can be estimated by means of polls in order to define the readiness to pay. The method can be applied to the estimation of the cost of postponed alternative, cost of heritage and existence cost. The ways of evaluating the desire to pay will be discussed in the following paragraph. Studying the preference of consumers, and on this basis constructing the curves of demand for the investigated resource, is enough to estimate non-consumer costs of a given resource (Fig. 2).

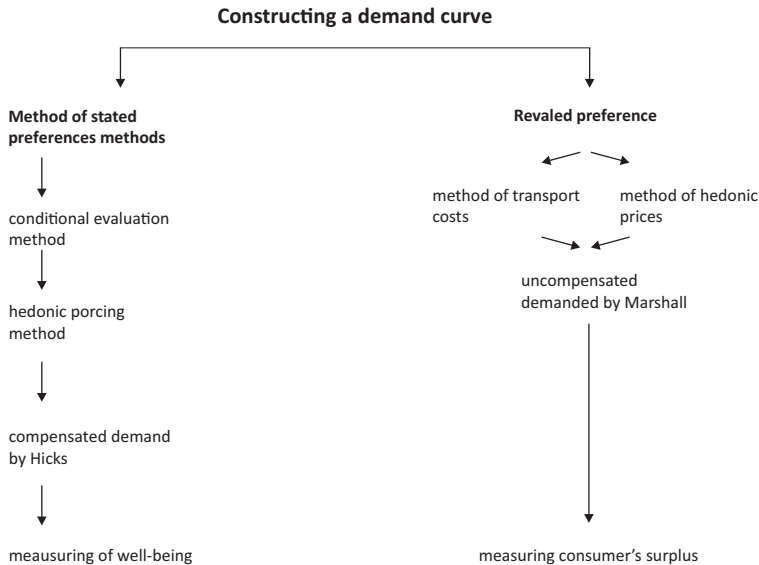


Decline of perceptibility of cost for individuals

**Fig. 1.** Classification of economic costs of natural resources according to the Organization for Economic Cooperation and Development

As we can see, the method of conditional estimation is applied to the study of preferences of people for the purpose of constructing the demand (compensated in the sense of Hicks) for hypothetical change of environment or its separate elements (for example, quality of air, etc.). The polls reveal respondents' desire to pay for avoiding this change. After estimating various answers of the respondents, analysts calculate the average, and then multiply the received value by the number of people taking the poll. The estimated size of natural resources takes into account non-consumer costs. The described method is very sensitive to the procedure of conducting polls. The respondents should understand the questions well and estimate correctly that part of the budget which they agree to spend on the estimated natural resources. The methods of indirect estimation are applied in the following cases:

- environmental consequences do not have a direct influence on the products sold on the market;
- it is impossible to observe the preferences of people directly;
- the fraction of population included in the sample is representative, well-informed, and shows interest in the discussed issue.



**Fig. 2.** Classification of methods of constructing natural resources demand curve

The basic methods of indirect estimation involve calculating transport expenses and the hedonic prices for natural resources. These methods reveal consumers' preferences and allow to construct the function of non-compensated demand for the resource. One of such methods is called the method of cost value estimation.

The method of defining transport expenses is applied to the estimation of recreational value of natural resources. For example, the degree of rest in a region with a given quality of environment is defined by taking into account the costs incurred by its visitors. This method can be applied if:

- the object is accessible during a certain season;
- there is no payment for using the estimated resource, or it is very low;
- visitors incur considerable expenses on the trips to natural objects.

After the poll, the total number of trips for a certain price within a year is calculated. On the basis of this information, the hypothetical curve of demand for the natural object is constructed. Although this method has some drawbacks, it can be used for development of culture of active use of recreational objects.

The application of the hedonic pricing method is justified by the fact that a consumer purchasing certain goods considers their environmental and ecological characteristics. For example, purchasing a real estate, a consumer will prefer a house located in an environmentally advantageous district. These reasons will also influence the amount of money paid for the house. The estimations are based on the research of real estate market in the estimated and reference areas differing in their environmental characteristics.

The method can be applied in the following cases:

- the real estate market is actively developing;
- the quality of environment, according to the public opinion, is one of the factors defining the cost of a real estate;
- the information about transactions on the real estate market is available.

The application of the discussed methods requires remembering that they only enable receiving approximated values of natural resources. To increase the accuracy of estimations, it is possible to apply several methods but one should be aware that the results would differ from each other. However, even a rough estimation is valuable. Applying various methods and gradually increasing the accuracy of estimations, it is possible to come nearer to the accurate estimation of natural resources.

In order to confirm environmental friendliness of production, eco-branding is widely used all around the world. Ecological labeling of production is carried out in addition to its certification, which confirms compliance with standards. The document received as a result of this procedure should provide the resource user with the guarantee that the enterprise meets all requirements, and that efforts of environment protection, labor protection and improvement of production quality have been undertaken.

The formalized system of labels can be supplemented with ecological statements published in mass media and/or put on the product (or package), and with a set of graphic symbols.

Among the general set of signs, two subgroups can be distinguished.

The first subgroup (see Fig. 3) informs about the environmental friendliness of the goods, safety of their production or they specific qualities influencing life, health, consumers and environment. There is a variety of ecological signs, e.g., “White Swan” (Scandinavian countries), “Blue Angel” (Germany), “Environmental Choice” (Canada), a green and blue flower – the stylized image of a dandelion – the badge of ecological compliance accepted in the EU countries. The sign of Japanese Association for Environmental Protection informs that the product minimally pollutes and destroys the environment. A similar sign exists in Russia.

		
<p>“White Swan”</p>	<p>“Blue Angel”</p>	<p>Japanese eco-sign</p>
		
<p>“Environmental Choice”</p>	<p>EU “Environmental Choice”</p>	<p>Russian “Life Leaf”</p>

Fig. 3. Ecolabels on the environment friendly goods

The second subgroup of ecological signs informs about non-polluting ways of utilization of the goods or the packaging. The packaging, for example, may have the information that it has been produced from secondary raw materials. The term “ecologically safe production” is used in such cases.

One of the most widespread signs that have recently gained transnational character is the “Green Point” sign. For the first time, this sign gained recognition in Germany in 1991, when more than 70 companies agreed with the municipal recycling enterprises that the goods marked by “Green Point” should be processed without application of the technologies harming the environment. Packaging with this sign indicates that its return, reception and secondary processing is guaranteed.

In the USA, the sign “Recycling” for marking products made from secondary raw materials is used similarly.

However, for all these signs to be effective, they should be known by the consumers. To receive an answer to the question whether the customers are familiar with ecolabels, two groups of customers in Irkutsk have been interviewed: students and people over the age of 35.

The Russian “Life Leaf” was known to 25 percent of respondents, “European Flower” to 16 percent, “White Swan” to 7 percent, and 44 percent did not recognize any of the signs.

The next question was the following: “What statement about a product can make you pay extra price for it?”. The following versions of the answers occurred the most often: “Does not contain any preservatives or other synthetic components”, “Made of non-polluting raw materials”, “Made with the use of Baikal water”. But only 1 percent (only students) chose the option “Made with resource saving technologies”. It shows that majority of people worry about their own health, but not about the purity of environment.

Nonetheless, the importance of Baikal brand was confirmed.

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