WHAT DOES "ECONOMIC VALUE" OF MARINE ECOSYSTEM SERVICES MEAN?

Economic values of marine resources describe and quantify the benefits, to people, of marine ecosystems services. **Economic value** refers to the quantified net benefit that humans derive from a good or service, whether or not there is a market or monetary transaction for the goods and services. These values are described in monetary units (in any currency), however, they are not limited to the values reflected in monetary transactions. The production of oxygen and the value that people ascribe to biodiversity, for example, are not traded in the marketplace; however they still have benefit to people and can be measured, quantified, and converted to any currency.

Marine ecosystem service valuation refers to the process of quantifying the human benefits of marine ecosystems in monetary units. Economic value is typically calculated as the gross value of an activity or product, minus costs, such as the cost of boats, nets, and wages for a fishing fleet.

Economic value is usually split into two categories: **consumer surplus** and **producer surplus**. Consumer and producer surplus are net measures; they measure the difference between the benefits and the costs of a particular good or service. **Producer surplus** is the benefit received by businesses, firms, or individuals who sell or trade a good or service; it does not exist without a market. **Consumer surplus** is the benefit received by individuals who purchase or enjoy freely a good or service; it can exist whether there is a market or not. For example, fisheries resources offer benefits to those who harvest and sell seafood products (producers), as well as those who consume seafood products (consumers). For market transactions, the economic value to businesses or sellers is synonymous with **profit, value added**, or **rent**.

Non-market ecosystem services can only be measured in terms of consumer surplus, that is, the benefit people receive from using or consuming a nature-based good or service. Calculating consumer surplus benefits is often difficult because it requires knowing consumers' maximum willingness to pay for a good or service and, in the case of export products or benefits to tourists, they accrue to individuals distant from the natural resource. For these reasons, producer benefits alone are commonly used to estimate the value of export fisheries or tourism.

Other measures

Economic value needs to be distinguished from **economic activity** (also known as financial or exchange value), which is a measure of cash flows and is observed only in markets with monetary exchanges[1]. Economic activity measures all monetary transactions and does not subtract costs of production. While economic activity is often used to calculate economic value, it is not, in and of itself, a measure of human benefit.

Economic activity is, however, an important measure[2]. The number of formal-sector jobs and the likelihood of capital investment are closely related to economic activity, and this is of interest to the public servants and policy makers.

Gross Domestic Product (GDP) is a measure of total value-added from all productive activities and services within the country. GDP is calculated by subtracting all imports and other costs from gross revenue (plus taxes, minus subsidies). Some countries try to add non-market subsistence activities, but many non-market ecosystem services go uncounted. GDP does not measure consumer benefits or human wellbeing, although it is generally correlated with these things.

While marine ecosystem service valuation reports focus on measuring economic value, employment and economic activity related to those ecosystem services are also important.

Because they are different measures, figures describing economic activity should not be compared against economic value. Although both can be represented in dollars per year, they are different measurements of benefits.

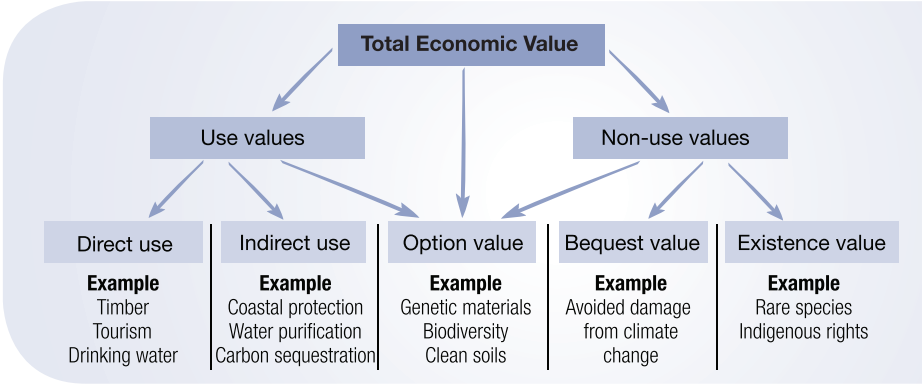
1 Analysis of economic activity often focuses on "multiplier effects", that is, the proportion of cash flows from one industry that spill over in to other industries due to inter-industry linkages.

2 The UN Statistics Division has recently published guidance for a System of Environmental-Economic Accounts (SEEA), which provides an accounting framework that is consistent and can be integrated with the structure, classifications, definitions and accounting rules of the SNA, thereby enabling the analysis of changes in natural capital, its contribution to the economy and the impacts of economic activities on it. It should be noted, however, that this system is restrictive in terms of the type of services and values that can be assessed.

Total Economic Value

The **Total Economic Value** of an ecosystem service aims to include all of the net benefits humans receive from that ecosystem service including direct use, indirect use, non-use "existence" values (Pearce and Turner, 1990). Total economic value includes all market and non-market values and therefore represents the full benefit humans receive from ecosystem functions, including marine ecosystems.

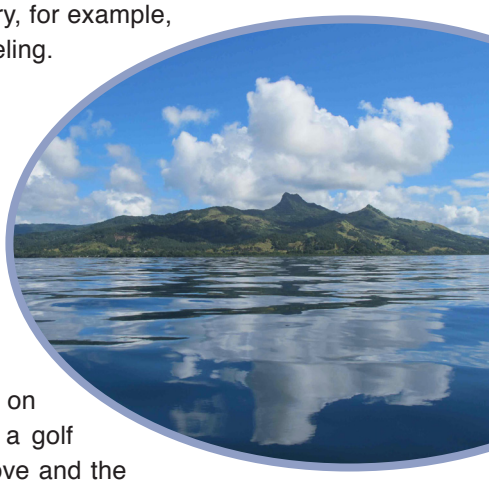
In practice, total economic value is nearly impossible to estimate because the data required to do so is rarely available. However, the goal of ecosystem service valuation is to get as close to TEV as possible. Economic valuation methods vary in applicability according to the type of ecosystem service, who is receiving the benefits, and the nature of the data related to that ecosystem system service.



Total Economic Value. Source: Valuing the Environment in Small Islands, Van Beukering et al. 2007.

Trade offs

In assessing and comparing ecosystem services, sometimes, there are trade-offs to be made between different ecosystem services. For example, mining a coral reef for building materials will, likely, diminish its value as a source of food from fishing. Other ecosystem services, on the other hand, can be complementary, for example, the coastal protection value of coral reefs and their tourism value from diving or snorkeling.



Benefits of valuation

Quantifying the benefits of ecosystems highlights the importance of wise use and supports sustainable management decisions. Ecosystem services are not usually visible in business transactions or national economic accounts. Despite the fact that more than 90% of Pacific Island territory is ocean, the human benefits from marine and coastal ecosystems are often overlooked. Determining the economic value of marine ecosystem services shows their importance to society.

Every time we make a decision that affects nature we are implicitly putting a value on the environment. For example, if we choose to clear a mangrove in order to build a golf course, a trade-off is made between the ecosystem services provided by the mangrove and the new development. If, however, the decision maker is not fully aware of the long-term benefits provided by the mangrove, the decision may make society worse off instead of better off. Economic valuation of ecosystem services provides better information to decision makers on what will be lost or gained by making a decision. Having access to reliable information on the values of ecosystem services helps facilitates more objective, transparent and informed decision-making.

FURTHER READING: www.macbio-pacific.info/marine-ecosystem-service-valuation/

macbio-pacific.info

MACBIO
Marine and Coastal Biodiversity Management in Pacific Island Countries

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