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By Brook Restoration Ecosystem Services Assessment Report

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Executive Summary

TBC

Glossary

Assessment: The analysis and review of information for the purpose of providing interested parties with objective and factual differentiation between possible actions.

Assets: Tangible or intangible resources.

Beneficiary: A person or group who is affected by an ecosystem service in one way or another.

Benefits: The positive aspect of an outcome or service, including the improvement in environmental protection or environmental quality, which will flow from it, but also including other improvements – for example, in cost savings, social benefits, such as health, convenience, or general welfare.

Benefit transfer: The method of transferring benefit estimates from past valuation studies to the present study that is deemed comparable. The validity of the approach depends on the degree of similarity between the various studies, e.g. the environmental good or service being valued, the characteristics of the population and the robustness of the previous benefit estimates.

Biodiversity / Biological diversity: The variety of life in all forms, levels and combinations. The term biodiversity includes genetic diversity, species diversity, and ecosystem diversity.

Biophysical structure: The organisation of an ecosystem as a result of the interaction between the abiotic, physical environment and the biotic communities, in particular vegetation.

Capital: Assets (physical or intellectual) owned by individuals or organisations or that are available for the purpose of manufacturing goods or providing services.

Conservation status of a natural habitat: The sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species.

Conservation status of a species: The sum of the influences acting on a species that may affect the long-term distribution and abundance of its populations.

Contingent valuation: Determination of willingness to pay for a specified environmental resource or a change in the resource, through the use of a structured questionnaire. Respondents are invited to answer yes/no to suggested prices (dichotomous choice or payment ladder) or provide a willingness to pay number themselves (open ended).

Consumer surplus: Consumer surplus is the difference between what a person would be willing to pay and what he actually has to pay to buy a certain amount of a good or service. Consumer surplus can arise when expanded supply is associated with a fall in price. It can also arise when the output price is regulated by government and set below the demand price. It is defined as the area below the demand curve up to the total quantity consumed, minus total expenditure on the good or service.

Costs: Section 56 of the Environment Act defines costs as including 'costs to any person and costs to the environment'. The costs of a project are the opportunity costs – the full value of any resource in its best alternative use. This may be estimated by the financial expenses incurred by an operator or proponent in meeting the requirements placed upon them by the authorising body. Similarly, the cost of a programme or policy can be measured by those it will affect. Costs also include any environmental, human health or other social impacts, which are detrimental in nature. Costs include any capital and recurrent expenditure, administrative costs, monitoring and enforcement costs, and research and development costs.

Cultural service: An ecosystem service that when combined with human or cultural capital contributes to an intellectual or cognitive benefit.

Demand curve: The demand curve is the graphical representation of the demand function. The demand function relates price and quantity demanded. It tells how many units of a good will be purchased at different prices. In general, at higher prices, less will be purchased, so demand curves slope downward. The market demand function is calculated by adding up all of the individual consumers' demand functions.

Demand function: The demand function is the mathematical function that relates price and quantity demanded for goods or services. It tells how many units of a good will be purchased at different prices. The market demand function is calculated by adding together all of the individual consumers' demand functions.

Discount rate: The rate used to reduce future benefits and costs to their present time equivalent.

Ecological function: The capacity or potential of an ecosystem to provide a service as a result of its inherent properties or the processes it supports.

Economic appraisal: Appraisal which seeks to quantify and, where possible, estimate the welfare impacts from the costs and benefits of a project or policy.

Economic value: The monetary measure of the welfare associated with the change in the provision of some good. It is not to be confused with monetary value, unless the latter is explicitly designed to measure the change in welfare, nor with financial value, which may reflect market value or an accounting convention. The terms 'economic value' and 'welfare change' can in this context be used interchangeably.

Economic efficiency: The allocation of goods to their highest relative economic value.

Ecosystem: Defined at the most basic level as a natural unit of living things (animals, plants and micro-organisms) and their physical environment.

Ecosystem assessment: A qualitative and / or quantitative appraisal of the state and trends of services provided by an 'ecosystem' and other human 'capital'.

Ecosystem degradation: A persistent reduction in the capacity to provide ecosystem services.

Ecosystem service: Services provided by the natural environment that benefit people. The beneficial outcomes, for the natural environment, or for people, that result from ecosystem functions. Some examples of ecosystem services are support of the food chain, harvesting of animals or plants, clean water, or scenic views. In order for an ecosystem to provide services to humans, some interaction with, or at least some appreciation by, humans is required.

Energy inputs: Subsidies added to ecosystems such as fertilisers, fossil fuel, or labour that are required to turn ecosystem functions into ecosystem services and benefits.

Environmental service: The contribution which ecosystems directly make to human well-being; an end-product of nature.

Externality: An externality exists when the actions of one individual affect the wellbeing of other individuals without any compensation taking place. For example, the discharge of a combined sewer overflow (CSO) will be a negative externality to informal recreational users of a river corridor, to the extent that it will lead to an aesthetic degradation of the river, for which they will not receive any financial compensation. You can also have positive externalities, for example, an industry which uses a better waste treatment process will improve the quality of the river in which it discharges.

Functional trait: A characteristic or attribute of a species or group that determines its response to external factors (response trait) or the impact it has on other parts of the ecosystem (effects trait).

Gross value added: Gross value added is the difference between output and intermediate consumption for any given sector/industry. That is the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used up in production.

Hedonic pricing: The hedonic pricing method is used to estimate economic values for ecosystem or environmental services that directly affect market prices. It is most commonly applied to variations in housing prices that reflect the value of local environmental attributes.

Intermediate service: A service that is not directly consumed / used by people but supports or underpins the output of other services.

Marketed service: A service in which a transaction between buyer and seller can be identified and who interaction can be used to estimate the value of the good or service.

Millennium Ecosystem Assessment: The Millennium Ecosystem Assessment (MA) is a research program that focuses on ecosystem changes over the course of decades and projecting `those changes into the future. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably. The program was launched with support from the United Nations.

Multiplier: The second round effects on the level of economic activity (output, income or employment) associated with a policy intervention (e.g. where the employees of a new project spend their earnings and so increase consumer demand). Commonly estimated multipliers are income, local, long run, short run and supply. The size of the multiplier depends on the time period over which it is measured, and the geographical area considered.

Natural capital: The collective of natural ecosystems and (physical, chemical and biological) assets from which society derives a wide range of services (see ecosystem services).

Non-market (public) good or service: A service for which no formal market exists and which is often exploited freely by beneficiaries because there is no regulation or control.

Non-use values: Non-use values are values that are not associated with actual use, or even the option to use a good or service. They are made up of (a) altruistic (value derived from the knowledge that something exists for others to use), (b) existence (value derived from knowing that something exists) and (c) bequest (knowing that future generations will have the option to enjoy something) values.

Option value: Option value has been defined as the satisfaction that an individual derives from ensuring that a resource is available for the future if the future provision of the resource is in doubt.

Present value: The current value of one or a stream of future payments/sums, i.e. the discounted value of future costs and benefits. The term 'net present value' (NPV) is the difference between the discounted present value of benefits and the discounted present value of costs.

Producer surplus: The difference between the price for which a producer would be willing to provide a good or service and the actual price at which the good or service is sold.

Provisioning service: An ecosystem service that, when combined with an element of built capital or labour, contributes to a product.

Quasi-option value: Quasi-option value is linked to the potential benefit of waiting for improved information prior to giving up the option to conserve a resource for the future. In a sense it is the value of retaining flexibility (and avoiding irreversible loss) in case better information becomes available at a later date.

Regulating service: An ecosystem service that affects the ambient (background) environment of people and the population in ways that affect their health, safety and security, or which substitutes for work that they would have to do to control or manage the ambient environment.

Retail price index: The Retail Price Index is a domestic indicator of inflation in the United Kingdom. It measures the average change from month to month in the prices of goods and services purchased in the UK.

Safe minimum standards (SMS): The minimum level of natural capital required to prevent ecosystem collapse and the loss of ecosystem integrity.

Service providing unit: The population or extent of a given species / community / habitat and their natural characteristics necessary to deliver an ecosystem service at the desired level.

Supporting service: An ecosystem component that is not directly consumed but which contributes to the output of others which can be regarded as an end-product of nature.

Total economic value: Total economic value of an environmental resource is made up of (i) use values and (ii) non-use values. Use values are composed of (a) direct use values, (b) indirect use values and (c) option values, whilst non-use values are made up of (a) altruistic, (b) existence values and (c) bequest values.

Travel cost method: The travel cost method is used to estimate economic use values associated with ecosystems or sites that are used for recreation. The basic premise of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the "price" of access to the site. Thus, peoples' willingness to pay to visit the site can be estimated based on the number of trips that they make at different travel costs. This is analogous to estimating peoples' willingness to pay for a marketed good based on the quantity demanded at different prices.

Valuation: The process whereby the importance or preference of a product or service is expressed.

Value transfer: Value transfer is a process by which economic valuation evidence that has been generated in one context, i.e. from a previously undertaken primary valuation study, is applied in another context for which valuation evidence is required.

Well-being: A context and situation dependent state comprising basic material for a good life, freedom and choice, health and bodily well-being, good social relations, security, peace of mind, and spiritual experience.

Willingness-to-pay (WTP): 'Willingness to pay' for the continued provision of an environmental good or service or for the avoidance of deterioration of that good or service or for a change in the good or service.

1 Introduction

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7.4 Conclusions and Recommendations

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8 References

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Appendix A: TBC