

An Overview on Ecosystem Services

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Perspective

Ecosystem services refer to ecosystems' direct and indirect benefits to human well-being. We wanted to have a definition of ecosystem services readily available on our site because we frequently discuss them in our papers and presentations. The information below is taken directly from the TEEB Organization's Ecosystem Services Resource page; please visit their website for more information and references. Ecosystem Services are described as "the advantages individuals obtain from ecosystems" by the Millennium Ecosystem Assessment. Plants, animals, fungi, and microorganisms provide essential regulating services such as crop pollination, soil erosion prevention, and water purification, as well as a diverse range of cultural services such as recreation and a sense of place, in addition to providing services or goods such as food, wood, and other raw materials.

Ecosystems and the biodiversity that underlies them are still being destroyed and lost at an unprecedented rate, despite their ecological, cultural, and economic importance. One key reason for this is that the value (importance) of ecosystems to human wellbeing is still undervalued and underappreciated in day-to-day planning and decision-making; in other words, the advantages of their services are not, or only partially, represented in traditional market economics. Furthermore, the costs of economic development externalities (such as pollution and deforestation) are frequently overlooked, and inefficient tax and subsidy (incentive) systems encourage the over-exploitation and unsustainable use of natural resources and other ecosystem services at the expense of the poor and future generations.

Ecosystem services are natural system outputs, circumstances, or activities that directly or indirectly benefit humans or improve social wellbeing. People can profit from ecosystem services in a variety of ways, either directly or as inputs towards the production of other products and services. Pollination of crops by bees and other species, for example, contributes to food production and is thus classified as an ecosystem service. Another example is riparian buffers and wetlands, which help to reduce flooding in residential areas. Market activities do not fully reflect the advantages offered by ecosystem services since they are rarely bought and sold directly in marketplaces. Excessive depletion of natural capital (e.g., the biotic and abiotic components of ecosystems) and ecosystem services is thus promoted by unregulated markets. Humans have deteriorated the ability of Earth's ecosystems to maintain social wellbeing, according to the United Nations Millennium Ecosystem Assessment (2005), which analysed the impacts of ecosystem change.

Ecosystem services studies, as a result, encourage policymakers to consider the whole spectrum of benefits and costs associated with actions that affect those services. The majority of formal assessments of ecosystem services focus on the effects of changes to specific services in specific geographic locations on specific recipient groups; very few studies look at

ecosystem services from a broad viewpoint (e.g., all the services provided by wetlands across the planet).

Encourage research on ecosystems' ability and resilience to deliver goods and services in a sustainable way, as well as the development of tools and guidelines for practical applications and integrated ecosystem services assessments. To maintain and restore ecosystems and their services, emphasise the importance (value) of ecosystem services to governments, communities, and corporations; identify ecosystem service users/beneficiaries (stakeholders); and encourage partnerships and other incentive mechanisms. Communicate ecosystem services and values knowledge and applications to decision makers at all scales, as well as the general public, to build local and political support and persuade (potential) donors that the benefits of ecosystem conservation, restoration, and sustainable use usually outweigh the costs.

Many of the basic services that make life possible for people are provided by ecosystems. Plants purify the air and water, microbes degrade trash, bees pollinate flowers, and tree roots keep soil in place to avoid erosion. All of these processes work together to keep ecosystems clean, functional, and change-resistant. The benefit supplied by ecological processes that moderate natural events is known as a regulating service. Pollination, decomposition, water purification, erosion and flood management, and carbon storage and climate regulation are all examples of regulating services.

As the human population grows, so do the demands on ecosystems for resources and the consequences of our global imprint. Natural resources aren't indestructible or endlessly available. The environmental consequences of anthropogenic actions, which are processes or materials derived from human activities, are becoming more apparent – air and water quality are deteriorating, oceans are overfished, pests and diseases are spreading beyond historical boundaries, and deforestation is exacerbated flooding downstream. According to reports, anthropogenic activities have substantially changed or degraded around 40-50 percent of Earth's ice-free land surface, 66 percent of marine fisheries are either overexploited or near their limit, and atmospheric CO₂ has increased more than tenfold [1-5].

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