

Science for Environment Policy

Recognising connections between ecosystem services in decision-making

A recent study suggests that a shift to more sustainable development, based on ecosystem services, is needed to support human health and wellbeing. Focusing on ecosystem services provided by river catchments, this study recommends that more needs to be done on a practical level to support decision-makers, in a way that recognises the relationships between different types of ecosystem services.

Although people have always exploited the resources provided by ecosystems, such as food, fresh [water](#) and fuel, technological progress has allowed society to focus on even greater use of these 'provisioning' ecosystem services. However, less consideration has been given to the damaging impact that the demands for these provisioning services has on other types of ecosystem services, i.e. the 'supporting' services, which underpin all other ecosystem services, such as, water and nutrient cycling; the 'regulating' services, including regulation of clean water and flood control; and the 'cultural' services, such as recreation. For example, overfishing can negatively affect [biodiversity](#) and reduce the productive capacity of fisheries, but also recreational opportunities for fishing.

With a growing population placing even greater demands on ecosystem services, and potential climate change impacts, this narrow focus on exploiting provisioning services is unsustainable and does not support human health and wellbeing, says the study. Therefore, the 'Ecosystems Approach', which is based around the connections between ecosystems, all of the services they deliver and the benefits of these services to humans is one method now being adopted when making sustainable choices in planning and management decisions.

This study analyses how the ecosystem services approach can be used in catchments (drainage basins) to support sustainable and practical decision-making in water management, including better recognition of water's economic value. The Ecosystems Approach connects ecological, societal and economic values that should be considered when developing scenarios for future growth. It can be used to assess competing demands on all types of ecosystem services and can also integrate the diverse values of a variety of stakeholders interested in a particular ecosystem service.

Water systems provide a variety of services to people, but many water catchments have been degraded by human activities, including intensive farming, building dams and increasing urbanisation. The need to restore and manage freshwater ecosystems has led to sustainable development principles being incorporated into policy as well as into practical decision-making.

As an example, the study highlights how investing in green infrastructure¹, restoration of damaged uplands in a catchment area, has not only improved water purification (which reduces water treatment costs), but has also improved habitats for biodiversity. This has helped maintain carbon sequestered in vegetation and soils and enhanced the landscape for tourism, resulting in a number of benefits for different stakeholders.

However, the study identifies a lack of practical tools that can be used within this 'ecosystem services' framework to support planning and operational decisions that are based on all of the ecosystem services and groups of stakeholders who benefit from them. In addition, the study suggests more monitoring tools are needed to assess how decisions have affected ecosystems services and to feed this learning back into an adaptive method of management.

The study suggests that professional organisations and experts at all levels can play a part in transforming policy and operational decisions to a holistic approach that recognises the central role of ecosystem services.



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1. On Green Infrastructure see; http://ec.europa.eu/environment/nature/ecosystems/index_en.htm