Importance of 'ecosystem services' for sustainable development

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Ecosystem services are the foundation of sustainable development; without them we'd have no food, shelter or wilderness 'escapes'. As **Drs Anna Straton** and **Leonie Pearson** explain, we need to better understand them, and how they contribute to our well-being, in order to achieve more sustainable progress.

'Ecosystem services' is the term given to the goods and services provided by natural and modified ecosystems that benefit, sustain and support the well-being of people. They include production of food and medicines, regulation of climate and disease, provision of productive soils and clean water, and landscape opportunities for recreation and spiritual benefits.

These services come from ecosystems made up of a combination of soil, animals, plants, water and air. Obviously the variety of these elements will differ across ecosystems, from undisturbed natural areas (such as tropical forests, or Australia's northern savanna) to highly modified agricultural landscapes. But all functional ecosystems include these essential components, which can be seen as the 'natural capital' or underlying assets that give rise to a 'flow' of ecosystem services.

If these assets are depleted, the ability or capacity of ecosystems to provide services is also, therefore, diminished. Ecosystem services underpin our well-being, including the production of most of our other living needs, and so are of significant value.

This value has been recognised by the United Nations. In 2000, the then Secretary-General, Kofi Annan, called for an assessment of the consequences of changes in the 'health' of ecosystems on human well-being. The resulting 'Millennium Ecosystem Assessment' (MA) was based on an understanding of the critical relationships between ecosystem services and the constituents of well-being, including security, basic material for a good life (for example, sufficient nutritious food), health and good social relations. The MA appraised ecosystems and ecosystem services across the world, developing knowledge of their current condition, trends, and options for restoring or maintaining ecosystems.

The bottom line of the assessment was a clear warning: 'Human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted.'

Herein lies the connection between ecosystem services and sustainable development: for anything to be 'sustainable', there is some quality or quantity that must be sustained through time. When it comes to sustainable development, what must be sustained is the potential for generations to meet their needs. Ecosystem services, as the key functions that underpin the potential for well-being, are thus integral to discussions of sustainable development.

One major challenge we face, however, is that ecosystem services often go unrecognised in economic markets, government policies and land management practices. This is because most of these services are difficult to see and measure, and so their contribution to economic and social well-being is rarely considered when management decisions are made. Some good progress is now being made in these necessary assessments and ways of 'accounting in' natural capital.

Collaborative research by CSIRO and the Myer Foundation in the Goulburn Broken catchment has provided insight into the type of ecosystem services that regional Australia requires for its prosperity and livelihoods. The key services that were identified relate to life-fulfilment, pollination, climate regulation, and maintenance of habitat, soil health, healthy waterways and waste absorption.

Further, the research identified a number of land uses that could not have been undertaken in the region without the contribution of ecosystem services, such as horticulture, grazing, housing and tourism.

Research is continuing on how to create markets for ecosystem services that may be able to help regulate resource use impacts on ecosystems.

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More information:
Millennium Ecosystem Assessment, www.millenniumassessment.org/en/index.aspx

CSIRO's Ecosystem Services Project, www.ecosystemservicesproject.org/html/aboutus/index.htm