

Creating markets to pay for public good offer promise, peril

November 3 2011



Experts from Arizona State University, University of Alaska and University of Minnesota warn that some payment mechanisms to support ecosystems services may be environmentally harmful. Credit: James Elser/ASU

Over the past 50 years, 60 percent of all ecosystem services have declined as a direct result of the conversion of land to the production of foods, fuels and fibers.

"This should come as no surprise," say seven of the world's leading [environmental scientists](#), who met to collectively to study the pitfalls of utilizing markets to induce people to take account of the environmental costs of their behavior and solutions. "We are getting what we pay for."

Their report, "Paying for Ecosystems Service: Promise and Peril," was published in the Nov. 4 issue of the journal *Science*.

Society pays for the products of agriculture, [aquaculture](#) and forestry, and has developed well-functioning markets for these products, these experts say. However, markets for important [ecosystem services](#) such as

watershed protection, habitat provision, pest and disease regulation, climate regulation and storm buffering are nearly nonexistent.

"The problem is that many ecosystem services are public goods," says Ann Kinzig, lead author, professor in Arizona State University's School of Life Sciences and chief research strategist with ASU's Global Institute of Sustainability. "Some lie outside the control of any one government, and the science for others is still only poorly understood. There is no one-size payment mechanism that fits all cases."

However, bad payments mechanisms can be worse than no payment mechanisms at all, the study's authors warn, pointing to the lessons learned from four decades of agricultural subsidies. Subsidies encouraged the overuse of fertilizers and pesticides, two of the main reasons for the growing number of dead zones in the world's oceans.

A similar lesson can be found in the first generation of cap-and-trade systems, they say. The first U.S. markets for [sulfur dioxide](#) emission rights collapsed because of faulty design: They failed to take into account the interactions between multiple pollutants across state boundaries.

The scientists' report is timely given the growing enthusiasm for the use of Payments for Ecosystem Services (PES) schemes that allow governments and non-governmental organizations to pay for environmental public goods. For example, carbon sequestration is being paid for through the United Nations' Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries or REDD scheme. The scheme pays countries to not cut down their forests, which in turn puts the breaks on loss of biodiversity, in addition to curbing carbon emissions.

Many existing schemes fall short, the scientists find.

- Some schemes ignore uncertainties in the science.
- Some generate markets that are too "thin" (involve too few trades) for prices to track environmental conditions.
- Some focus on one service only, creating perverse incentives for other services.
- Many channel income support to particular groups of landholders, rather than signaling the scarcity of ecosystem services.

The authors note too that while ecosystem services that are produced on private lands can benefit from carefully designed payment schemes, many ecosystem services are produced on public lands or seas, or on land and sea areas beyond national jurisdiction.

For such services, different measures of the importance of ecosystem services are needed, they say. The scientists assert that governments need to generate measures that have the same form and status as the measures used to reckon such things as the Gross National Product (GNP). These measures should track changes in the value of publicly owned environmental assets in the same way that society currently tracks changes in the value of buildings, financial stocks or infrastructure.

"Paying for what we need demands that we understand what we collectively lose when we allow the world's ecosystems to degrade," say the authors. "To pay for the services we want, we need to know how much they are worth, how they are produced and by whom. Then we need to design payment mechanisms that will work. Our study indicates how." The study's authors include Kinzig, Charles Perrings, Terry Chapin III, Steve Polasky, Dave Tilman, V. Kerry Smith and B.L. Turner II, experts in economics, business, urban planning and ecology at Arizona State University, University of Alaska and University of Minnesota. The study was supported by the Global Land Project of the International Geosphere Biosphere Programme and the International

Human Dimensions of Global Environmental Change Programme, both part of the International Council of Science.

Provided by Arizona State University

Citation: Creating markets to pay for public good offer promise, peril (2011, November 3)
retrieved 26 April 2024 from <https://phys.org/news/2011-11-good-peril.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.