

Ecosystem services – out of the wilderness?



A decade ago, the number of people conversant with the phrase “ecosystem services” would barely have filled an auditorium. But that’s changing faster than you can say “supply and demand”, as an array of environmental crises inspires more ambitious responses.

In a landmark announcement last December, former US Department of Agriculture (USDA) Secretary Ed Schafer announced a plan to create a new USDA Office of Ecosystem Services and Markets, to encourage American farmers to “grow” natural assets that provide such vital services as clean water and air, wildlife habitat, carbon storage, and scenic landscapes.

One month earlier, at a UN-sponsored meeting in Malaysia, government delegates embraced a plan for a new scientific consortium, modeled after the Nobel Prize-winning Intergovernmental Panel on Climate Change, to report on the state of ecosystem services. The hope is that the new group, the – prepare yourself – Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (ISPRES), will raise the public profile of our declining natural services.

“This really feels like a tipping point”, says Stanford University biologist Gretchen Daily, whose 1997 book, *Nature’s services*, helped build initial awareness of the concept (disclosure: Daily and I coauthored a sequel, published in 2002). “Suddenly, there’s a lot of change at the highest levels, supporting grassroots efforts.”

The new US administration is conspicuously more attuned to new ideas than its predecessor. Two of President Barack Obama’s new science advisors, Jane Lubchenco and John Holdren, are long-time believers in the power of markets to maintain ecosystem services. Yet, in terms of actual investments, no country approaches China. That government has already committed more than US\$100 billion to protect vast swaths of land, known as “ecological function zones”, throughout the country. Most of these are forested watersheds that support flood control by limiting soil erosion, while also helping to purify drinking water.

In hopes of preventing the kinds of catastrophic floods that in 1998 killed thousands of people living alongside the Yangtze River, China has also banned logging on roughly 30 million hectares of forest, and has required farmers to switch from growing crops to tending forests on some 60 million hectares of so-called “sloping lands”.

Elsewhere in the world, researchers have tracked close to 200 ecosystem services projects established in the past 10 years. Although most are run by governments, a few have drawn in private entrepreneurs. In Guyana, the London-based

Canopy Capital investment firm bought the rights to services – including rainfall production, water storage, and “weather moderation” – provided by a 1432-square mile patch of forest. The firm declined to publicize the terms of its agreement with Guyana, acknowledging only that it will fund a “significant” part of the US\$1.2 million research and conservation budget of the Iwokrama Forest Reserve. Also last year, Merrill Lynch, now owned by Bank of America, was reported to have invested US\$9 million in Sumatran rainforest conservation, with the announced goal of eventually selling carbon credits.

The pace of progress has slowed, not surprisingly, in the wake of the global recession. And at the same time, some long-standing questions persist about the viability of environmental markets. The most basic question is, to what extent will the fledgling markets be able to stem escalating environmental damage, considering that an estimated 60% of the world’s ecosystems are already under pressure from climate change, soil depletion, and invasive species?

Another unknown is how large-scale financial incentives can be expected to work without major new laws that would create financial value for environmental assets. Without such laws, Merrill Lynch’s current investment amounts to no more than creative public relations, especially since it follows intense criticism of the

bank’s plans to fund the construction of new coal plants.

Any new laws would require novel accounting conventions, which are being developed but are still far from being ready for prime-time. In separate efforts, European researchers, a team at the University of Vermont’s Gund Institute for Ecological Economics, and The Natural Capital Project (a collaboration between the Woods Institute for the Environment at Stanford University, The Nature Conservancy [TNC], and the World Wildlife Fund) are working on computer models to predict flows of ecosystem services in response to changes in land use.

Even with this major issue unsettled, and despite some major controversies over valuation and certification, the global market in “carbon credits” is gaining strength. But the new ecological accountants have even broader ambitions, hoping to eventually assess more elusive benefits, such as biodiversity and cultural values.

All this will take a lot more empirical data than is available today, cautions TNC Chief Scientist Peter Kareiva. “All of these projects are racing ahead of the science. We don’t quite have the tools yet to help governments do what I think they want to do.”

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