

New Business Models for Biodiversity Conservation

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New financing mechanisms for tropical forest conservation, based on payments for ecosystem services, often involve the development of new business models. Suppliers of ecosystem services may include existing land users (e.g., farmers, foresters, tourism operators) or new business ventures (e.g., carbon accountants and traders, conservation bankers). Developing viable business models for biodiversity conservation is a major challenge, due to: the complexity of biodiversity itself (i.e., genes, species, and ecosystems, many still undocumented); the various linkages between business and biodiversity (which may be an economic input, output, competing resource use, or victim of pollution); insufficient consensus on biodiversity conservation priorities and performance indicators applicable at the enterprise level; weak or missing property rights, liability regimes, and/or incentive measures to penalize biodiversity loss and reward conservation effort; and concerns about potential adverse social impacts. This study presents a synthesis of experience across a range of sectors to develop more sustainable business models for biodiversity conservation, identifies key success factors, and outlines a new approach to building a biodiversity business that combines policy innovation, business development assistance, and financial support.

KEYWORDS *ecosystem services, conservation finance, biodiversity business*

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INTRODUCTION: ECOSYSTEM SERVICES ARE EVERYWHERE

The Millennium Ecosystem Assessment (MA)—the most comprehensive global analysis to date of life on earth—concluded that some two thirds of all ecosystem services are in decline (Millennium Ecosystem Assessment, 2005). In addition to thousands of endangered species and threatened ecosystems around the planet, the MA highlighted the deterioration of many natural ecosystem services such as the supply of fresh water, food, fiber, and a stable climate.

Much remains to be done to increase public awareness of the economic importance of ecosystem services and the impacts of their loss. A related question is how best to maintain and enhance essential ecosystem services in support of human development. While in some cases, legal limits on the use of certain natural resources (e.g., protected areas) or mandatory technologies (e.g., low-impact extraction methods) may be appropriate, a more powerful approach in many situations is to enlist businesses to maintain and supply ecosystem services, through intelligent use of markets and market-based instruments. Such instruments can stimulate the constant improvements and innovation that traditional regulations rarely encourage, while also helping to integrate environmental protection and economic growth.

The concept of ecosystem services builds on economic interpretations of environmental value, particularly the notion of “indirect use value” derived from the role of natural ecosystems in supporting and protecting economic activity and property (Pagiola, von Ritter, & Bishop, 2004). This simple insight is the basis of many new ecosystem enterprises. While markets for ecosystem services may sound exotic, examples are not hard to find. Nature-based tourism is perhaps the best known example of how private enterprise depends directly on the health of the surrounding ecosystems. In such cases, business owners and managers need little persuasion to invest in the conservation and sustainable management of natural resources.

One of the main drivers of increasing attention to ecosystem services by businesses in a range of sectors is the growing environmental concern of more affluent consumers, who increasingly insist on products and services that are demonstrably sustainable. Demand for organic food, sustainably harvested timber and ecotourism, for example, has been growing at double-digit rates in recent years, underpinning the rapid expansion of many eco-branded businesses (See <http://www.ecotourism.org>; <http://www.ifoam.org>; <http://www.unece.org>). Moreover, such companies often capture only a small part of consumer demand for conservation. Surveys suggest that people are willing to pay for the conservation of ecosystems even in foreign countries they have no intention of visiting, although mechanisms to convert this willingness-to-pay into real cash flow are generally limited to charity (Kramer & Mercer, 1997).

More and more businesses are realizing that there is a competitive advantage to be gained and, in some cases, profits to be earned, from the conservation of ecosystem services. Typically, companies first seek to distinguish themselves from competitors and win favor with consumers by supporting environmental causes. This might include the association of business product and services with “natural” environments in advertising campaigns, reporting of business impacts on ecosystems or contributions to conservation activities, or subscribing to voluntary schemes that certify business compliance with certain environmental performance standards.

Such initiatives may be seen as little more than window dressing or, more optimistically, as the beginning of a radical business transformation. The jury is still out but recent experience around the world suggests that the conservation of biodiversity and the sustainable supply of ecosystem services could become a significant business opportunity (Daily & Ellison, 2002; Ferraro & Kiss, 2002; Gutman, 2003; Jenkins, Scherr, & Inbar, 2004; Landell-Mills & Porras, 2002; Mantua, Merlo, Sekot, & Welcker, 2001; Pagiola, Bishop, & Landell-Mills, 2002; Scherr, White, & Khare, 2004; Swingland, 2002). New business models are being developed to deliver environmental benefits, including many intangible but valuable ecosystem services that can no longer be taken for granted due to increasing pressure on natural resources. Farsighted business leaders increasingly see opportunities in ecosystem markets and are investing accordingly (see, for example: Goldman Sachs, 2004; Nestlé, 2007; Groupe Danone, n.d.).

In parallel with rising consumer expectations, other drivers of business investment in ecosystems include changing regulatory requirements and tax incentives, as well as growing demands from investors, shareholders, local communities and/or NGOs. The influence of nonregulatory, informal drivers should not be under-estimated. In many situations, a strong case for investing in ecosystems can be identified, based not only on business cost reductions or increased sales, but more generally on the need to protect firms’:

- “License to operate”—companies that can demonstrate high environmental standards throughout their operations may be granted preferential access to resources and may also be favored by prospective investors, insurers and business partners;
- Relations with stakeholders—environmental investments can improve staff morale and help to recruit and retain employees, while also improving relations with surrounding communities and government regulators;
- Sensitivity to emerging environmental regulations—companies that invest in ecosystems learn quickly how to integrate conservation in their operations and are well-placed to meet new regulatory requirements or to advise governments on cost-effective, business-friendly options for environmental protection.

WHY MAKE MARKETS FOR ECOSYSTEM SERVICES?

The market is one of the most powerful human institutions and the basis of much of the improvement in aggregate human well-being that has occurred in recent generations. At the same time, market-based economic growth is a major driver of ecosystem degradation, as natural resources are consumed and waste is generated by human economies. Moreover, because the market treats many ecosystem services as free gifts of nature, belonging to no one, the costs and benefits of ecosystem management are often shared inequitably.

There are thus several reasons for mobilizing markets to conserve ecosystems: first, to capitalize on the strengths of business and the potential of markets to create value from conservation, in certain circumstances; second, to address existing weaknesses in markets that have resulted in underinvestment in the environment and widespread loss of ecosystem services; and third, to ensure fair shares in the costs and benefits of ecosystem management. Making the best of these opportunities requires a dramatic change in the way we think about business and the environment. In particular, it requires a willingness to adopt a more nuanced and pragmatic view of business, markets, and economics than is typical of many environmentalists. The challenge (and opportunity) is to make business and markets the allies of ecosystem conservation, rather than treating them mainly as enemies or cash cows.

Beyond “Tax and Spend”

Some people seem to believe that the main role of business in ecosystem conservation is to pay for it—i.e., providing cash, through taxes or charity, for conservation activities carried out by governments, NGOs, or community organizations (Steiner, 2005). In this view, business is there to pick up the bill and should not expect direct benefits from supporting conservation.

There is no doubt that taxes raise large sums that can be used to provide public goods and services, including ecosystem services. In practice, however, most tax revenue is simply redistributed (e.g., from workers to pensioners). What money remains is often spread thinly to provide essential public services. In most countries, and certainly at a global level, the share of public spending allocated to ecosystem conservation is trivial (Pearce, 2005). Charitable gifts for ecosystem conservation and management are not well documented, although recent data from the United States suggest that private giving is roughly comparable to public spending on wildlife conservation (Giving USA, 2006; McKinney, Ris, Rorer, & Williams, 2005; Karel Mayrand, Dionne, Paquin, & Pageot-LeBel, 2003).

A more fundamental problem with this “tax-and-spend” approach is that it fails to address the main threats to ecosystems. So long as producers

and consumers continue with business as usual (albeit at a reduced pace due to the burden of tax and charitable donations), conservation efforts will continue to struggle against the adverse impacts of economic activity.

Beyond “Just Say No”

Another conventional view of what the private sector should do is to reduce or refrain from environmentally harmful activities. This may be achieved through mechanisms such as environmental assessments and reporting, mitigation requirements for large investments, land-use planning and zoning, restrictions on technology, mandatory emissions standards, or voluntary commitments to reduce waste and avoid damage to habitat. In this view, business is creating the problem and the solution is to force business to stop doing harm.

Many companies spend a great deal on controlling and reducing environmental damage (Organisation for Economic Co-operation and Development [OECD], 2007; Pearce & Palmer, 2001). Yet this approach, like tax-and-spend, also involves swimming against the tide. So long as environmentally harmful activities are less costly or more profitable than eco-friendly practices, people will be tempted to cheat or make only token contributions to environmental protection, while continuing to devote most of their effort to “business-as-usual.” As a result, governments (and some NGOs) are obliged to spend considerable effort on monitoring the environmental impacts of business, exposing poor performance and/or enforcing regulations.

Taxes and charity, regulation and litigation—all have their place in the conservation tool kit. However, it is increasingly clear that ecosystem conservation would benefit from complementary, market-based approaches that make sustainability profitable in its own right.

Evidence from around the world suggests that market-based instruments can achieve some environmental objectives at lower economic cost than conventional approaches, such as uniform pollution standards or technology mandates (European Environment Agency, 2005; Huber, Ruitenbeek, & Seroa da Motta, 1998; Stavins, 2003; Tietenberg, 2002). Other advantages of market-based approaches include greater flexibility and innovation, more sensitivity to consumer preferences, better access to investment capital; and, in some cases, reduced enforcement costs due to better alignment between private and public interests.

HOW TO MAKE MARKETS FOR ECOSYSTEM SERVICES

Growing awareness of the limitations of conventional approaches to ecosystem management has led to a search for new ways to align private and public interests. This can be seen as part of wider efforts to enlist the private sector

in the provision of public goods through public-private partnerships and the use of economic incentives.

Market-based approaches to ecosystem management are not only of interest to businesses and environmentalists. Such approaches can contribute to other global objectives, notably the reduction of poverty and inequality, especially in developing countries.

Increasingly, the demand for ecosystem services arises in or near urban areas, where more and more of the world's people live. Billions of urban residents need water, energy, food and fiber, recreation, and other goods and services. Increasingly, urban consumers demand environmentally friendly products. Meanwhile, the supply of ecosystem goods and services comes mainly from rural areas. Because urban populations tend to be better off, on average, than rural residents, at an aggregate level we can expect ecosystem service markets to involve transfers from richer to poorer. The potential of eco-enterprise to improve social equity may be even greater where the supply of ecosystem services is linked to the export of goods and services produced in developing countries to consumers in rich countries. Unfortunately, many consumers remain confused about the relative social and environmental costs and benefits of goods produced locally or imported from abroad (MacGregor & Vorley, 2006).

At the same time, there are concerns that ecosystem service markets could adversely affect the poor (Friends of the Earth International, 2005). Efforts to build such markets must ensure that the very poor are not displaced from their jobs or cut off from natural resources they previously exploited. Complementary measures may be needed to enable poorer groups to participate as suppliers of ecosystem services (Grieg-Gran, Porras, & Wunder, 2005).

The challenge is to change the perceptions of business, governments, NGOs, and consumers and to accelerate the transition from seeing ecosystem management as purely a business cost or nonprofit government and charitable activity, to developing the supply of ecosystem services as profitable business opportunities. There are three main approaches:

- providing information to help producers, consumers, and investors discriminate on the basis of social and environmental performance;
- creating or strengthening property rights and liability regimes to reflect the values of ecosystem services; and
- making direct payments to producers of ecosystem services (both public and private).

CERTIFICATION—HELPING CONSUMERS AND INVESTORS MAKE MORE INFORMED CHOICES

One of the best established market-based mechanisms for ecosystem management is the use of eco-labeling and certification schemes to distinguish

products and services by their social and environmental performance. The premise of such schemes is that consumers will prefer to buy or even pay more for certified goods and services. While this is not always the case, a number of certification schemes have gained wide consumer recognition and a growing share of sales in some markets. These trends can be expected to continue, with demand for a range of certified goods and services growing at a higher rate than for “conventional” products.

Independent certification of environmental and social performance has proved to be a highly adaptable tool for recognizing and encouraging the adoption of environmental and social best practices in a range of business sectors, including agriculture, forestry, tourism, and even financial services, as described below. The broader impacts of certification on social and environmental performance at the sector or national level are less clear.

Agriculture

Major food and agriculture companies are increasingly interested in promoting more sustainable agricultural practices, partly in response to pressure groups but more fundamentally in order to secure their supply chains and consumer markets. Various labels and certification standards are used to distinguish farms that adopt environmentally preferred production practices from those practicing conventional agriculture, such as “bird friendly,” “shade-grown,” “conservation,” “sustainable,” and “organic.” The different forms of agricultural certification are well entrenched and growing, both in terms of consumer demand and producer response, particularly in developed countries (Figure 1). In contrast, there is relatively little demand for certified goods and only modest participation of producers in many developing countries.

Organic agriculture is by far the leading form of certified agriculture. A recent survey by the International Federation of Organic Agricultural Movements (IFOAM; Willer & Minou Youssefi, 2006) found more than 31 million ha of farmland under organic management worldwide. In 2005, the market value of organic products worldwide reached 25.5 billion Euros, with the largest share of organic products being marketed in Europe and North America. IFOAM notes that the typical buyer of organic products is:

- an urban resident, usually living in a big city;
- a discerning consumer generally;
- relatively well-educated;
- relatively better-off.

Urbanization, improved access to information, higher education, and rising incomes are all attributes of economic development generally. So as economies grow, we may expect rising demand for organic foods in more countries around the world.

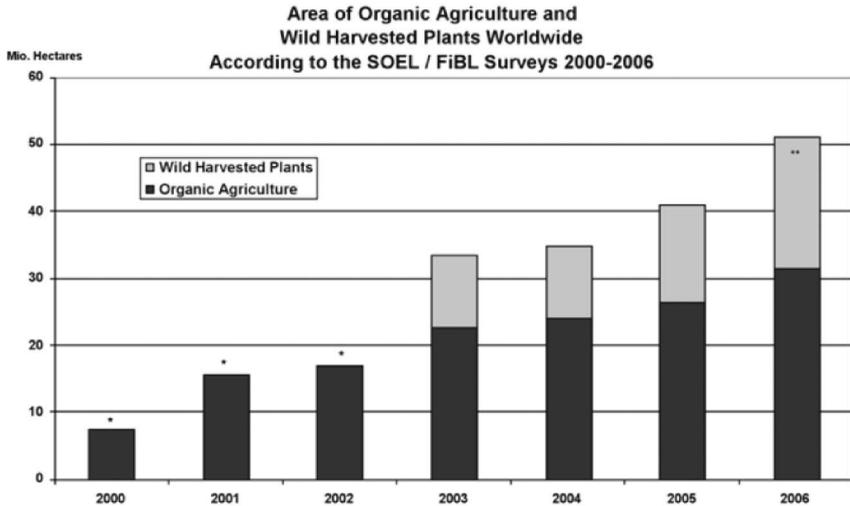


FIGURE 1 New business models for biodiversity conservation.

Source: Willer, Helga and Minou Youssefi (2006) *The World of Organic Agriculture: Statistics and Emerging Trends 2006*. International Federation of Organic Agriculture Movements, Bonn, Germany, & Research Institute of Organic Agriculture, Frick, Switzerland.

Large food and agriculture companies are increasingly involved in promoting and buying certified produce. At the same time, there are concerns about the proliferation of certification systems and labels, and their potential to confuse consumers. Other concerns include the complexity of implementing certification systems and, in the case of organic certification, the duration and cost of getting through the transition period before a farm can be certified organic. These can be significant barriers to the adoption of agricultural certification, especially for small-scale producers in developing countries.

Forestry

In the forest sector as in agriculture, claims about the sustainability of resource management are increasingly tested and validated through certification by independent organizations. Examples include regional and national standards developed by the Forest Stewardship Council (FSC), as well as various national standards recognized by the Programme for the Endorsement of Forest Certification Schemes (PEFC) in Europe, the United States, Canada, Australia, Brazil, and Chile. The area of certified forests has expanded rapidly in recent years (Figure 2).

Forest certification is widespread in temperate and boreal forests in Northern America and Western Europe. The major markets for certified timber are likewise in developed economies, notably the United Kingdom,

Certified forest area worldwide, 1998-2006

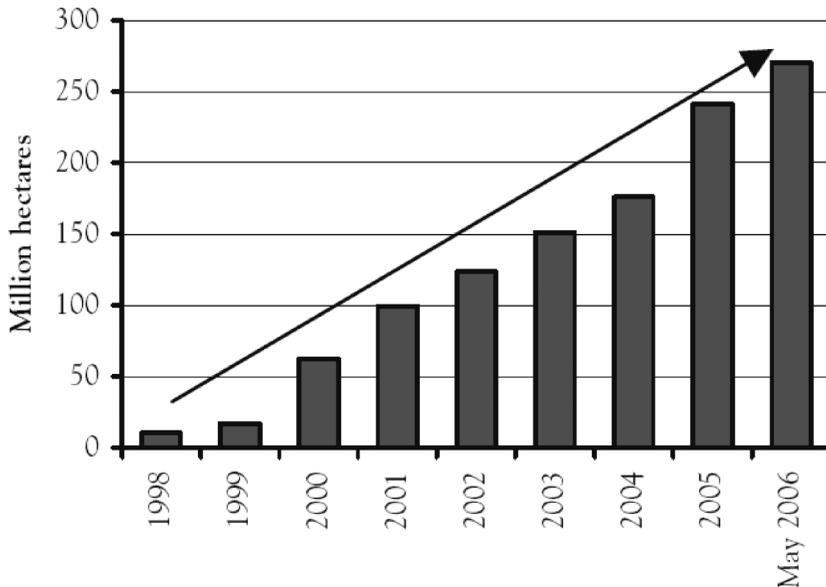


FIGURE 2 Certified forest area worldwide, 1998–2006.

Source: UNECE (2006) *Forest Products Annual Market Review: 2005-06*. Geneva Timber and Forest Study Paper 21. UN Economic Commission for Europe/FAO, New York and Geneva.

Germany, and the Netherlands; followed by the United States, Japan, and France (Tropenbos International, n.d.). As of January 2002, only 8% of the total certified forest area by all schemes was in the tropics, mostly for plantations in Central and South America, with barely any certified forests in Africa (Tropenbos International). While the pace of forest certification in the tropics is accelerating, there is little evidence that certification has led to major changes in forest management practices at sector or national levels.

As with organic agriculture, a major challenge for small-scale forest producers wishing to access high-value markets is the significant costs of achieving a higher standard of production, as well as the costs of the certification process itself, in a market context driven by increasing competition from relatively inexpensive plantation timber.

Tourism

Recreational use of forests and other ecosystems is growing rapidly due to the expansion of domestic and international tourism (Figure 3). In an effort to manage the growing pressures on ecosystems arising from increasing

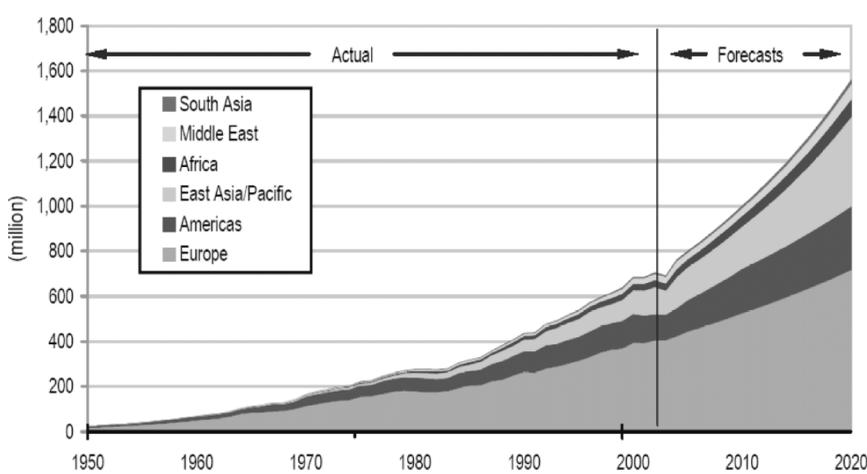


FIGURE 3 International Tourist Arrivals, 1950-2020 (World Tourism Organization, 2006).

number of tourists, and also to increase the value derived from nature-based tourism, several tourism guidelines, certification, and accreditation schemes have been (or are being) developed.

The UN World Tourism Organization published a Code of Ethics in 1999 (“Ethics in Tourism,” n.d.), while the Final Report of the World Ecotourism Summit, held in Quebec in 2002, recommended the development of guidelines on certification schemes for ecotourism (World Ecotourism Summit, 2002). The Convention on Biological Diversity (2004), in a partnership with the tourism industry, has developed “Guidelines on Biodiversity and Tourism Development.” Similarly, the Tour Operators’ Initiative for Sustainable Development (n.d.) is developing environmental guidelines for hotels, resorts, and tourist attractions located in or near biodiversity hotspots. Guidelines on “Sustainable Hotel Siting, Design and Construction” have also been adopted by many large hotel chains (Conservational International, 2007). Finally, the long-awaited Sustainable Tourism Stewardship Council (2009) may offer a route to harmonization of approaches.

Financial Services

Tools similar to certification are being developed to help public and private investors compare companies or investment portfolios in terms of their social and environmental impact. NGOs, government agencies, and private companies have worked together to raise awareness of ecosystem risks and opportunities in the investment community, to identify and share best practice, and to develop common standards for corporate environmental management and reporting.

The launch of the Equator Principles in 2003, for example, raised the profile of environmental issues within the finance sector (The Equator Principles, n.d.). A number of international banks have developed policies to reduce environmental risks, while some leading financial firms have identified biodiversity and ecosystem services as emerging issues that could significantly affect the value of their (and their customers') investments. For example, Insight Investment—a major UK fund manager—worked together with UK conservation NGO Fauna & Flora International to develop a tool to benchmark companies in the extractive and utility sectors with respect to biodiversity impacts, risk assessment procedures, and company efforts to manage such risks (Insight Investment, 2006).

TRADEABLE PERMITS: USING THE MARKET TO MANAGE ENVIRONMENTAL LIABILITIES

One powerful market-based approach to ecosystem management involves creating new rights (or liabilities) affecting the use of natural resources, and then allowing business to trade these rights or liabilities. Experience suggests that such an approach can significantly reduce the cost of protecting the environment and/or maximize the value of resource use (Stavins, 2003; Tietenberg, 2002).

Perhaps the best-known example of tradeable environmental rights is the growing trade in carbon credits, based on government-allocated emission allowances and/or the purchase of voluntary carbon offsets by both organizations and individuals. The global carbon trade was worth over US\$30 billion in 2006 and is likely to become far bigger in the coming years (Capoor & Ambrosi, 2007).

Similar approaches have been developed for the conservation of natural habitat and other ecosystem services (ten Kate, Bishop, & Bayon, 2004). Examples include the emergence of wetland banking in the United States (Wilkinson & Kennedy, 2002), trade in forest conservation obligations in Brazil (Chomitz, Thomas, & Brandão, 2003), and markets for groundwater salinity credits in Australia (van Bueren, 2001). What all of these initiatives have in common is the possibility of trade, namely buying and selling environmental obligations to meet government mandates or voluntary targets.

One of the longest-established systems of tradeable rights for habitat can be found in the United States, where federal and some state laws require “no net loss” of wetlands and the conservation of habitat for endangered species. Regulations developed under the Clean Water Act and the Endangered Species Act require both public and private developers to compensate or “mitigate” the loss of natural habitat, when adverse impacts are considered unavoidable, by financing the creation, restoration and/or protection of comparable habitat.

Under certain circumstances, where public authorities determine that it is appropriate, compensation for environmental damage may be undertaken off-site. Typically this occurs when on-site compensation is deemed impractical or when greater conservation benefit would be secured by investing the same resources elsewhere.

Moreover, under the rules of wetland mitigation and conservation banking, developers may sub-contract and transfer their liability for compensation to third parties. Thus, for every hectare of wetland that is damaged or destroyed, developers may purchase credits from approved "mitigation" banks to support conservation efforts in the surrounding area, for habitat that is similar to that which they intend to convert. This has stimulated the rapid growth of a new business sector providing mitigation services. Out of more than 400 wetland mitigation banks in the United States today, about 70% are privately-owned, commercial operations (see Figure 4; Wilkinson & Thompson, 2006). Conservation banking for endangered species is at an earlier stage of development but is also growing rapidly. As of 2003, 35 approved conservation banks were operating in five states, of which 63% were privately owned (Fox & Nino-Murcia, 2005).

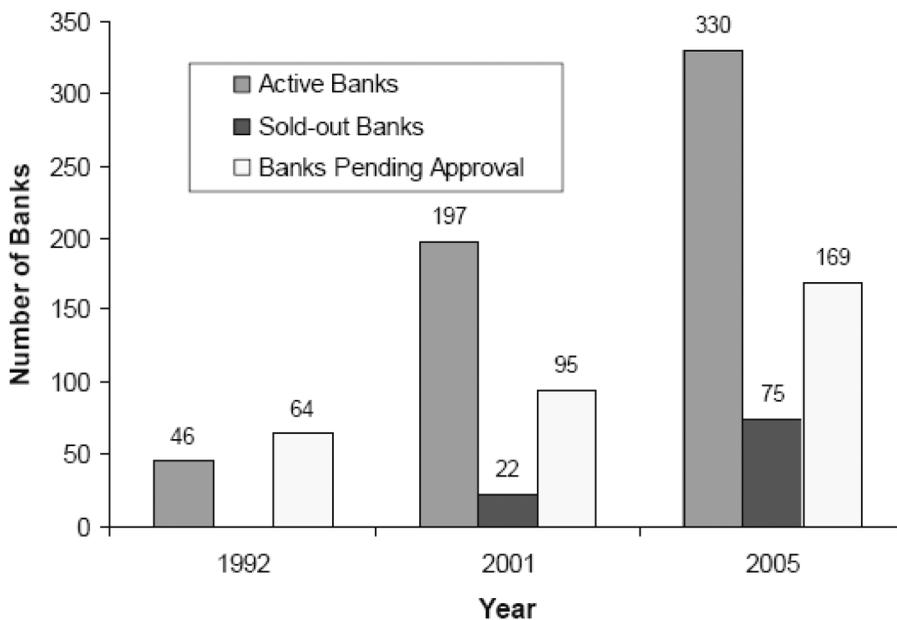


Figure 1. Mitigation Banking Trends: The number of mitigation banks in the United States that were active, sold-out, or pending approval in 1992, 2001, and 2005. (Wilkinson, Jessica and Jared Thompson. *2005 Status Report on Compensatory Mitigation in the United States*. Washington, D.C.: Environmental Law Institute, 2006.)

FIGURE 4 The Growth of Wetland Mitigation Banking in the USA.

Examples of legal support for similar approaches can be found in Brazil (Protected Areas Law of 2002 and Forestry Code of 2001), Canada (Fisheries Act of 1985), Switzerland (Federal Law for Protection of Nature and Landscape of 1983); as well as several Australian states (e.g., Victoria's Native Vegetation Management Framework of 2002, New South Wales Threatened Species Conservation Amendment [Biodiversity Banking] Act of 2006, Western Australia EPA Position Statement on Environmental Offsets of 2006). In the European Union, the implementation of the 2004 Environmental Liability Directive could lead to similar arrangements, as firms seek to fulfill their legal obligation to compensate for environmental damage on- or off-site.

In addition to mandatory compensation for damage to ecosystems, many companies are becoming interested in the potential public relations benefit of voluntary biodiversity offsets. Some companies have made public commitments to implement biodiversity offsets linked to their ecological "footprint," including the Canadian hydroelectric utility BC Hydro (2009), the international mining company Rio Tinto (2004), and the United States' largest retailer, Wal-Mart (n.d.) Some mainstream investors are beginning to look at biodiversity offsets as a potential business opportunity, as well as an indicator of good corporate governance in the companies they lend to or invest in (see, for example: International Finance Corporation, 2006).

Long-term prospects for tradeable ecosystem services may eventually include local or even international trade in conservation credits, along the lines of the market for carbon credits. Proposals for international financial transfers based on the concept of "tradeable development rights" have been circulating for years, mainly in the academic literature (see, for example: Cervigni, 1993; Panayotou, 1994). Unlike CO₂, however, many ecosystem services are not homogenous or global in scope. While international trade in ecosystem credits may be remote, there are many opportunities to support the development of tradeable rights as a new business sector at local, national, and corporate levels. Even where government does *not* require compensation for the loss of ecosystem services, some companies and agencies are cooperating to pilot biodiversity offsets on a voluntary basis. Such initiatives can help inform the development of new legislation or regulations, where appropriate.

DIRECT PAYMENTS: CREATING INCENTIVES TO SUPPLY ECOSYSTEM SERVICES

As noted above, many businesses and governments are increasingly aware of the importance of ecosystem services to secure production systems and, in some cases, entire economies. In some cases, notably where ecological processes are affected by agriculture, there have been initiatives to encourage the adoption of land-use practices associated with increased quality or

quantity of valuable ecosystem services (Bonnieux, Dupraz, Latouche, & Pech, 2004; Karel Mayrand et al., 2003).

Governments in several countries have developed subsidies and tax incentives to encourage resource conservation. In the United States, for example, income tax relief on charitable contributions has motivated donations of land or “conservation easements” to private environmental trusts around the country, protecting millions of acres (see, for example: Land Trust Alliance, 2008; The Trust for Public Land, 2009). Similar tax incentives are used in Europe and some developing countries (Bräuer et al., 2006).

A direct approach that has been successfully implemented in several countries is payment for watershed protection. This is based on the growing awareness of water users that conserving natural forests in watersheds and reducing pollutant loads in runoff from upland areas can be a cost-effective means of providing reliable supplies of clean water for hydroelectric power generation, irrigation and industrial, domestic and recreational uses (Johnson, White, & Perrot-Maître, 2001; Smith, de Groot, & Bergkamp, 2006).

Payments for watershed protection include payments by private water users to environmental agencies and conservation NGOs, as well as direct payments by central government to private landowners. Industry has played a leading role as the main beneficiary and buyer of watershed protection services in a few cases (see, for example: Perrot-Maître, 2006; Rojas & Aylward, 2001). Experience suggests that payments for watershed protection are most appropriate when:

- buying the resource outright is too expensive (and unnecessary);
- payments are less expensive than alternative technical fixes (e.g., infrastructure);
- provision of the desired service is verifiable and enforceable;
- transaction costs are not prohibitive;
- someone is willing to pay the price (Kousky, 2005).

LIMITS ON MARKETS FOR ECOSYSTEM SERVICES

All businesses operate within a framework of property and use rights, legal liabilities, and social norms. Government taxes, subsidies, and regulations, as well as voluntary commitments, also influence the profitability of commercial enterprise. These enabling conditions reflect public expectations about the rights, responsibilities, and roles of business in society.

While markets for ecosystem services appear to work well in some contexts, in many countries the policies and institutions needed to underpin such markets are weak or missing. Property rights are not defined, liability for environmental damages is not recognized, and positive contributions to ecosystem health are not rewarded.

Some people question the potential of market-based mechanisms for environmental management, particularly where regulatory capacity is weak (Friends of the Earth International, 2005; Von Witzkacker, Young, & Finger, 2005; Greenspan-Bell, & Russell, 2002). Others point to cultural barriers or institutional weaknesses that may undermine the potential of market-based approaches (e.g., genetic resources or biodiversity in the high seas).

Perhaps the most serious barrier to comparing conventional and market-based approaches to ecosystem management is lack of experience with the latter. Although market-based approaches to ecosystem management have attracted significant support from both public agencies and private investors, as well as growing interest from researchers, most ecosystem service markets are still in the early stages of development.

CONCLUSION: TOWARD ECOSYSTEM MARKETS

Conventional approaches to ecosystem management have sought to protect natural resources by taxing business and restraining the market. Such efforts often seem like a rear-guard action, defending nature while retreating in the face of growing economic pressure.

There is another way. We can create and expand markets for ecosystem services in the same way that markets now exist at a global level for carbon, and in some countries for other ecosystem services.

The power of market-based environmental policy is not in doubt; the real challenge is to persuade policy makers, business leaders, and the general public that a range of ecosystem services can be managed effectively, efficiently, and equitably using market-based instruments.

It is not easy to predict how much additional investment can be mobilized or which ecosystems would benefit most from market-based approaches. Who could have foreseen the explosive growth of demand for organic foods in some countries over the past 10 years? Who would have thought that European forests would come to dominate the supply of certified timber? What is clear, in both cases, is that large changes in corporate and consumer behavior were achieved with modest investments by those leading the campaign.

The key question is how to identify the most cost-effective market-based mechanisms, in terms of immediate environmental outcomes and financial leverage. Experience to date suggests that the greatest leverage is achieved with sector-wide initiatives, such as certification standards or cap-and-trade schemes, which can stimulate the development of new business sectors based on common standards and trading platforms.

Whatever the prospects for market-based approaches, it is clear that governments and NGOs will continue to play a key role in protecting ecosystem services. Market-based mechanisms cannot succeed without

effective environmental regulations and equitable governance at local, national, and international levels. There will likewise remain a need for vigilance to ensure that business and governments live up to their commitments.

A more immediate opportunity (and challenge) for governments and conservation groups will be to partner effectively with businesses to deliver ecosystem services through the market. Strong technical capacity will be essential to identify investment opportunities that deliver the most valuable ecosystem services, to develop effective ecosystem management systems for businesses (e.g., standards, guidelines, and metrics), as well as providing technical inputs for the design and evaluation of market-based environmental policy and incentives. There is likewise a need for robust monitoring and enforcement mechanisms to ensure the credibility of markets for ecosystem services, and the organizations that implement them.

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