

The business of biodiversity

The value of ecosystems is largely invisible to markets. **Ricardo Bayon** and **Michael Jenkins** call on governments to drive regulatory and voluntary economic instruments that put a price on the services that nature provides.

As delegates gathering in London this week for the 1st Global Business of Biodiversity Symposium (www.businessofbiodiversity.co.uk) will discuss, an important reason for the alarming rate of environmental destruction across the world is that the true value of ecosystems is largely invisible to markets. When we raze forests or build on wetlands, the loss of the essential services they provide, such as clean air and water, food, pollination or flood control, does not show up on any balance sheet. Landowners in the Amazon can earn money by felling their forest for timber and converting the land to agriculture, but they earn little or nothing by leaving them standing, despite the global benefits of doing that. Our economic system is designed to value goods over services, and human-made goods and services over those provided by nature.

Instead, regulatory and voluntary economic instruments that put a price on the services that nature provides are needed to dissuade businesses from plundering the natural resources on which their futures depend. The past 20 years have seen the emergence of a range of such instruments, from carbon markets aimed at capping the growth in greenhouse-gas emissions to biodiversity offsets that allow businesses to compensate for unavoidable harm to a habitat. Governments now need to be creative about building on these and scaling them up to a level that will have a real effect. Imposing a price on natural resources and ecosystem services is by far the most effective way of forcing businesses to develop without damaging nature.

It is hard to imagine the wholesale redesign of the global economic system that some have called for. Instead we propose a patchwork of measures that will, nonetheless, have wide-ranging implications. A global effort to put a price on nature will generate a new system of economic decision-making. Imagine, for example, that the Brazilian government introduces regulation that imposes a value on the environmental services of a rainforest. The regulation would make it more expensive to destroy the rainforest, thereby increasing the production costs of what-ever replaces it, for example, soya beans or



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Palm oil trees being cleared in Sumatra to allow forests to regenerate and isolated elephants to connect.

cattle. As these costs would be passed on to the consumer, this would push people and companies to find ways of producing without destroying the ecosystem. At the same time, it would make it more profitable to protect the rainforest, thus creating a market for conservation.

For such systems to work, it will be important to ensure that the businesses or consumers that are using ecosystem services are the ones paying. Various approaches can help here. Governments can apply taxes or surcharges on certain services and use the money to maintain the ecosystems that provide

them. This is happening in Mexico, where the government adds a surcharge to all water fees and uses the revenue to pay some landowners to keep watershed forests intact. The money raised has grown from US\$15 million in

2003 to \$150 million this year. Not all of those paying are seeing the benefits, but it demonstrates how governments can play a crucial part in managing natural resources. Similar schemes are under way in countries such as China, the United States, South Africa and Costa Rica¹.

Offsetting damage

Another approach is to encourage private owners to pay for the care of the ecosystems that they exploit, while allowing them to reap the benefits. Many landowners and businesses have begun to do this voluntarily. For example, Swiss food giant Nestlé Waters pays landowners around its Vittel water source in northeastern France to help prevent nitrate contamination of the springs and maintain the ecosystems that feed them². Large multinational resource-extraction companies, such as the mining companies Rio Tinto and Sherritt, oil company Royal Dutch Shell, and gold

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miners Newmont, have voluntarily started to monitor, measure and pay for their impact on biodiversity. As part of its effort to offset damage caused by one of its nickel mines in Madagascar, Toronto-based Sherritt is helping to create and protect a nearby forest reserve, restoring forest on the mine site, and helping to establish forest corridors in nearby national parks³.

Soft-drinks companies such as Coca-Cola and PepsiCo are also considering how to contribute to the maintenance of the water systems on which their products depend. Since 2007, Coca-Cola has been working with environmental organization WWF to conserve key watersheds and improve the efficiency of its water use⁴. Governments can encourage such schemes by underwriting some of the risks involved, or in the case of voluntary 'cap-and-trade' markets by agreeing to buy any credits that investors cannot sell. Such assurances can be crucial for getting people to take part in voluntary schemes.

More approaches needed

On one level, private and voluntary payment and trading schemes are more effective than government surcharges. This is because those who benefit are the ones paying, and those who pay for the use of resources are more likely to use them efficiently. However, private initiatives are generally small-scale. In 2009, the voluntary carbon market was worth about \$387 million worldwide, compared with \$144 billion for the regulated market⁵. By themselves they are not a solution to the large-scale environmental problems we face. And although government surcharges can be effective, governments would never be able to raise enough money to cover all ecosystem services unless they raised taxes radically.

For maximum impact we need yet another approach: national or global environmental markets that are driven by government regulation. Many countries have already started to build such markets, some of them sizeable. The global carbon market, essentially a means of valuing the planet's climate regulation services, has become a substantial global economic instrument. Another is the national mitigation scheme established in the United States to control the exploitation of aquatic resources such as wetlands and streams⁶. Under this system, a business wishing to carry out development that will damage a wetland of national importance is granted a permit only if it agrees to compensate for the damage by restoring or enhancing a wetland of similar function and value in the same watershed. Instead of taking on the restoration itself, the business can purchase

'mitigation credits' from an organization that has already done the work.

This arrangement has encouraged businesses to restore wetlands specifically for the purpose of selling credits to developers, creating what are known as 'mitigation banks'. The market for mitigation credits is now worth an estimated \$2.4 billion a year in the United States. A similar national scheme exists to offset damage to endangered species. This permits a business to damage the habitat of an endangered species only if it compensates by creating or protecting comparable habitat within the species' range, or by buying credits from an organization that has carried out the conservation work. The trade in 'species credits' amounts to hundreds of millions of dollars a year. A similar scheme has also started in Australia⁷.

Regulation-led environmental markets can benefit all types of natural resources. But only the state can create and regulate demand for such markets on a large scale. There are signs that some governments are keen to take up the challenge. Two years ago, the US Department of Agriculture set up the Office of Environmental Markets. This body coordinates the work of various government agencies on ecosystem

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services and on the creation and monitoring of new environmental markets. The office is small and has few powers, and it faces an uphill struggle trying to coordinate government agencies that are notoriously poor at communicating with each other. Yet if allowed to flourish it would represent a great step forwards. For example, it could help the US Forest Service to measure the extent of ecosystem services provided by the country's forests, and consider how best to value them. Meanwhile, governments in Australia, Europe, Latin America and elsewhere have begun to set up similar systems to manage natural infrastructure.

Relying on environmental markets to transform the way businesses exploit and pay for ecosystem services requires certain preconditions: a government able to regulate and enforce; a market infrastructure to allow trading; clear and equitable tenure and user rights with particular concern for small holders, local communities and indigenous peoples. Countries where those are not available will have to rely on voluntary markets and government payment schemes for now. But in the developed world at least, the new markets could transform the way we all do business by addressing one of the most pressing issues of our age: that economic systems are blind to the destruction of the natural world. ■

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At what price? Soya-bean fields in Brazil encroach on the Amazon forest.

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