

Forestry finds it has more to sell than timber: We used to value forests for logging. But their role in providing environmental benefits is worth far more, says Vanessa Houlder

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There have been many attempts to develop constructive links between commerce and conservation. But few have been as ambitious as those in forestry.

In Australia, investors are funding a tree-planting company that will pay carbon and salinity "credits" instead of cash dividends. In Costa Rica, forest owners receive fees from the tourists who visit its rain and cloud forests. And in New York, water users are investing Dollars 1bn (Pounds 670,000) in regenerating forests to purify the city's water supply.

These are all examples of the growing markets for "ecosystem" services derived from forests. Market-based instruments are being devised to preserve the forests' ability to perform invisible but essential roles, such as purifying water, fostering biodiversity, limiting global warming, alleviating floods and preventing landslides.

These markets could have huge potential value, says Michael Jenkins, executive director of Forest Trends*, a Washington-based coalition of public and private organisations that promotes forest products and services. He estimates that the role of forests in stemming global warming by storing carbon could be worth Dollars 2bn a year. Their role in purifying water and improving water flow could be worth as much as Dollars 4bn a year.

Forest Trends, which is backed by a number of conservation organisations, forest product companies, research groups, multilateral development banks and private investment funds, aims to diversify trade in the forest sector beyond an exclusive focus on timber. It has set up a working group called The Katoomba Group** to develop markets for ecosystem services. It is named after the Australian venue of its first meeting in 2000.

The participants include government officials, the World Bank, environmental groups, the Sydney Futures Exchange and companies such as Mitsubishi and Mitsui. This month it will host a conference in London about environmental services and new market opportunities, with speakers from banks, insurance companies, academia and investment companies.

The attempt to preserve forests by putting a value on "green" forest products has a long history. A seminal paper published in 1989 in *Nature*, the science journal, calculated that harvesting "non-timber forest products" in Amazonian rainforests could yield up to twice as much income as logging. It particularly emphasised the potential for finding new medicines, following the success of compounds such as Taxol, a cancer drug originally derived from the Pacific yew tree.

Unfortunately, those early hopes of deriving medically valuable compounds from plants have mostly been disappointing. And trading forest products such as brazil nuts, shea butternuts and locust beans has offered limited rewards.

More successful, perhaps, have been attempts to preserve biodiversity in forests by improving logging practices. Across Europe and the US, companies such as Home Direct, B&Q and Ikea use only timber that has been certified as coming from forests that are cultivated responsibly.

But Forest Trends is convinced that there is scope for diversifying trade in the forest sector, even if that means moving beyond the early focus on forest products. "I think we have seen a shift away from seeing forests as having a set of products to having a set of services," says Mr Jenkins.

He is particularly enthusiastic about water services. Most of the world's population lives downstream from forested watersheds and is vulnerable to watershed degradation. The financial consequences can be significant. New York City believes that the alternative to investing about Dollars 1bn on land protection and conservation would be to spend Dollars 4bn-Dollars 6bn on filtration and treatment plants.

The ability of forests to store carbon could also prove valuable. Under the 1997 Kyoto protocol on climate change, countries can offset their obligations to reduce greenhouse gas emissions by buying "credits" from other sources, including forestry projects in developing countries.

Some forestry projects could offer more than one benefit at a time. The Hancock Nature Resource Group, a subsidiary of John Hancock Financial Services, based in Boston, Massachusetts, has launched an Australian company that will reforest areas of marginal farmland. It will pay carbon "credits" instead of cash dividends for its first 20 years while the trees are growing and absorbing carbon dioxide, after which it will yield cash from timber activities. Its reforestation projects could also generate salinity "credits", as part of a government scheme to combat the rising water table, which is bringing dissolved mineral salts to the surface. Australia, with its extensive land area and willingness to experiment with financial products, is a testbed for many such ideas. Last year it became the home of the first conservation company in the world to go public. This is Earth Sanctuaries, which buys up vast tracts of degraded land and restores native vegetation and wildlife, earning income from tourism, consulting and sales of wildlife products.

In developing countries, linking conservation to financial markets could prove more difficult. The capacity to manage and monitor forests is weaker, says Charles Eyre of Aon Insurance, which is considering insuring projects in the forest services market. But he is optimistic that this problem can be overcome. Satellite imaging has emerged as a useful technique for monitoring forests, he says.

Another difficulty arises from the ownership of forests. Large areas of forest are owned by indigenous groups and local communities, rather than businesses or governments. How should money from an industrialised country wanting to offset its carbon emissions be distributed among a local community in a remote forest in a developing country? Mr Eyre envisages setting up intermediaries that can ensure indigenous groups receive the benefits from the forests.

Another, perhaps more profound, difficulty in using innovative financial mechanisms to conserve forests is that it puts a price on nature.

Currently, many societies implicitly treat ecosystem services as "free". Valuing such services often raises cultural objections. It can also pose technical problems, according to Gretchen Daily and other scientists affiliated to the Royal Swedish Academy of Science, writing in *Science* last year.

Valuing ecosystem assets "involves some of the oldest problems in economics", they warned. Most techniques are limited or flawed. Few ecosystem services are traded on markets, and prices frequently fail to reflect the full costs of production. The scope for inferring the value of services - such as calculating the cost of pollution by comparing land values in clean versus polluted areas - is restricted.

Approaches based on avoiding cost - such as the cost of an extra water filtration plant to compensate for forest degradation - cannot be applied to services where there are no adequate alternatives, such as regulating the climate. Surveys of public opinion are often hopelessly flawed, as they depend on how much individuals know about the environment.

But the financial consequences of floods, droughts, landslides and extreme storms are gradually bringing the costs of environmental destruction into focus. At the same time, interest in bringing together ecological, economic and social approaches to managing ecosystem assets is growing, according to Ms Daily and her colleagues. They are optimistic about the future: "The potential for such approaches is tremendous."

*www.forest-trends.org **www.katoombagroup.org