

See discussions, stats, and author profiles for this publication at:  
<https://www.researchgate.net/publication/227689263>

# Biodiversity Finance

Article *in* International Affairs · April 2000

DOI: 10.1111/1468-2346.00131

---

CITATIONS

13

READS

18

1 author:



[Michael Rubino](#)

National Oceanic and Atmospheric Administration

14 PUBLICATIONS 52 CITATIONS

SEE PROFILE

All content following this page was uploaded by [Michael Rubino](#) on 30 July 2015.

The user has requested enhancement of the downloaded file.

# Biodiversity finance

MICHAEL C. RUBINO\*

The time is ripe to reassess the role of private sector finance for biodiversity conservation. In 1992, the signatories of the Convention on Biological Diversity recognized that biodiversity would not be conserved unless economic reasons for protecting it and using it sustainably were broadcast, and unless the private sector contributed its vast technical, managerial and financial resources to the conservation effort. The Convention challenged signatory countries to seek out and attract new financial resources, including those of the private sector, to implement the objectives of the Convention, and to work with the private sector on sustainable use. During the intervening eight years, pioneering businesses have succeeded in making money while conserving and sustainably using biodiversity. What lessons have we learned? How can we speed up the adoption of biodiversity-friendly business activities? Where and how can additional private investment for biodiversity conservation and sustainable use be found?

To answer these questions, this article will

- briefly review why biodiversity conservation needs private sector finance and define the beneficial links between business and biodiversity;
- present the business rationale for financing conservation and sustainable use, including the rapid growth of biodiversity-linked markets for certified organic foods, certified wood, and ecotourism;
- identify who is currently investing in these businesses; and
- outline the conditions necessary to attract much larger amounts of private sector financing for biodiversity conservation and sustainable use.

\* This article is partly based upon feasibility studies conducted by the author between 1995 and 1998 for Terra Capital Fund, a biodiversity fund for Latin America, and the Small and Medium Scale Enterprise Program while he was at the International Finance Corporation (IFC), the private sector affiliate of the World Bank Group, and from the design of an environmental investment strategy for the Multilateral Investment Fund of the Inter-American Development Bank, co-managed by the author in 1999. See M. C. Rubino, *Biodiversity and business in Latin America*, IFC working paper (Washington DC: forthcoming); E. A. Brugger, M. C. Rubino and R. Wells, *An environmental investment strategy for the IMF* (Washington DC: Inter-American Development Bank, 1999; see the IADB website at <[www.iadb.org](http://www.iadb.org)>).

## Why conservation needs business

There is not enough public sector money to conserve biodiversity and stem habitat loss. Government aid to developing countries with significant biodiversity resources declined over the 1990s. However, private investment in developing countries has expanded dramatically.<sup>1</sup> If a small portion of this private capital flow into emerging market countries could be directed to biodiversity-linked businesses (a definition of this term is offered below), the impact on conservation could be enormous. But how can the private sector, from microenterprises to multinational corporations, help? After all, natural habitats are under threat from private sector activities in the form of increased population, urbanization, and the expansion of cropland and industrial facilities.

We may begin with a note about definitions. In this article the term 'sustainable' means (paraphrasing the Convention) that the practice, process, system or product so described allows people to meet their current needs without compromising future stocks of environmental capital, such as productive topsoil, clean air, fertile forests, abundant fish stocks or genetic diversity of both plants and animals.<sup>2</sup> A veteran field biologist called sustainability 'taking care of capital and living off the interest';<sup>3</sup> but even within this interpretation the term can be defined widely or narrowly depending upon one's objectives and perspective.<sup>4</sup> What to require before granting a particular certification label is the topic of ongoing discussion and research.<sup>5</sup> Trade-offs between conservation and use must often be made. We cannot wait for a perfect definition: consumers are seeking and purchasing and producers are offering 'green' or 'sustainable' products now. The potential biodiversity benefit of environmental labels is too

<sup>1</sup> T. Brewer and K. Jun, 'The role of foreign private capital flows in sustainable development', in *Finance for sustainable development: the road ahead* (New York: United Nations, 1997).

<sup>2</sup> See United Nations Environment Programme, *The biodiversity agenda: decisions from the Third Meeting of the Conference of the Parties to the Convention on Biological Diversity, Buenos Aires, Argentina, November 1996* (New York and Geneva: United Nations, 1997); L. Glowka et al., *A guide to the Convention on Biological Diversity* (Gland, Switzerland, and Cambridge: IUCN/The World Conservation Union, 1996).

<sup>3</sup> D. H. Janzen, 'Commercialization of biodiversity: Costa Rica's Guanacaste Conservation Area as a base for development', paper presented at conference on 'Commercial Issues of Biodiversity', sponsored by *Scientific American*, San Jose, Costa Rica, 7-10 April 1997.

<sup>4</sup> See P. Hazel and E. Lutz, 'Integrating environmental and sustainability concerns into rural development policies', in E. Lutz, ed., *Agriculture and the environment: perspectives on sustainable rural development* (Washington DC: World Bank, 1998). Hazel and Lutz distinguish 'weak', 'strong' and 'sensible' sustainability, depending on whether the definition allows substitution between types of capital assets. 'Sensible' sustainability allows for transformations of natural into human or man-made capital, but also recognizes that critical levels of each type of capital may exist beyond which concerns about sustainability can arise. As the critical limits for each type of capital are not always known, 'it behoves the sensible person to err on the side of caution in depleting resources (especially natural capital).' 'Weak' and 'sensible' definitions of sustainability have the advantage that they do not suggest freezing or preserving all natural resources at existing levels.

<sup>5</sup> For example, forestry experts point to the example of an operation which mines one high-value tree species (which may not be sustainable in the sense that the particular species is difficult to replace because of regeneration characteristics or economic factors) but leaves the rest of the forest and its biodiversity values relatively intact. Should this be termed 'sustainable' or 'low-impact' or 'wise-use' or 'biodiversity-friendly' forestry? See R. E. Rice, R. E. Gullison and J. W. Reid, 'Can sustainable management save tropical forests?', *Scientific American* 276: 4, April 1997, pp. 44-51. Similarly, an ecotourism venture certified as following best practice may bring tourists to previously little-visited areas, causing potential impacts on natural habitat and native peoples.

great to ignore. The definitions and criteria will be refined as more scientific information is garnered and as lessons are learned from businesses that include biodiversity objectives.

*Business connections to biodiversity*

Businesses have at least three potentially beneficial routes of connection to biodiversity: they can adopt sustainable use methods, and minimize environmental and social impacts.

- *Sustainable use* 'Biodiversity-linked' businesses are concentrated in industries that depend on the bounty of biological resources such as forestry, agriculture, fisheries, tourism and pharmaceuticals. For these businesses, the conservation or sustainable use of biological resources is an integral, necessary and positive part of their operations.
- *Environmental impacts* Most economic activities have environmental and ecological impacts on biological resources. For example, the mining and petroleum industries, which can have hugely damaging consequences for biodiversity, can seek to limit these negative impacts (in economic terms: correct negative externalities). All businesses which implement the best available environmental controls can contribute to biodiversity conservation to a greater extent than similar businesses subject to no environmental controls.
- *Social impacts* Similarly, the social or distributional impact of economic activity can be substantial, and can be ameliorated by attention to the sustainable use of biological resources.<sup>6</sup> Most ecotourism guidelines, for example, list improvement of the well-being of local people as a criterion for good practice.<sup>7</sup>

This article focuses on the first of the three business connections to biodiversity, sustainable use. While biodiversity-linked activities can wreak terrible damage on the ecosystems on which they depend, these same activities can be undertaken using methods that are designed to conserve biodiversity. Many hope that the private sector, by converting from the commonly used harmful practices to practices that help prevent the loss of biodiversity, can become a steward of biodiversity, while continuing to operate profitably. Businesses can create new value from ecosystems and genetic resources (as, for example, in ecotourism and bioprospecting), divert pressure from critical biodiversity resources (e.g. through some forms of aquaculture, or by introducing alternative livelihood activities in buffer zones around a national park), practise low-impact methods of cultivation to generate sustainable yields (e.g. certified organic

<sup>6</sup> S. Davis, ed., *The social challenge of biodiversity conservation*, GEF Working Paper No. 1 (Washington DC: Global Environment Facility, 1993).

<sup>7</sup> Organizations such as the World Bank have adopted and continue to refine guidelines for impacts on and displacement of indigenous peoples, worker health and safety, and other social impacts as part of their environmental review policies. The treatment of intellectual property rights and access to genetic resources in relation to biodiversity is beginning to be addressed by some countries.

agriculture and certified forestry), extend natural habitats (e.g. in 'shade coffee' plantations and agroforestry) and finance habitat preservation as part of a business venture (e.g. through channelling ecotourism profits to conservation).

Many production and processing practices may be environmentally friendly relative to other methods. What defines a biodiversity-friendly practice? How do I know that I am purchasing a biodiversity-friendly product? What criteria will an investment fund that follows environmental guidelines use in making decisions? Scientific research, documents related to the Convention, best practices required for environmental certification and lessons learned from existing biodiversity businesses provide some guidance in answering these questions. Among the practical guidelines are the best practices adopted by certified organic agriculture and the Forest Stewardship Council. These guidelines represent large steps in the direction of sustainable use and will continue to be refined as new scientific information is garnered.

For example, since the beginning of the 1990s a growing number of companies have switched to what is termed 'sustainable forestry'. These companies manage forests for multiple uses while respecting ecological limits, use low-impact harvest methods, obtain forest management certification, solicit local community involvement and market their products to green buyers' groups.<sup>8</sup> Sustainable forestry practices are often part of a forest landscape approach combining remnants of primary forest with no logging (ecological reserves), primary forest with highly selective logging (for very high-value uses), extensively managed secondary forest and more intensively managed plantations in previously deforested areas.

### **The business rationale**

Why would the private sector, driven by profit and self-interest, pay attention to biodiversity conservation? Three drivers can be identified:

- the pursuit of markets for biodiversity-linked products;
- concerns for efficiency, cost savings, partnership and corporate responsibility;<sup>9</sup>
- government signals in the form of regulations, taxation and subsidy.

This article focuses on the first of these, in keeping with the emphasis on sustainable use in terms of business connections to biodiversity. Efficiency and policy influences on biodiversity finance are introduced, but not examined in detail, in the sections below; however, these other two drivers are equally, if

<sup>8</sup> Sustainable forestry is defined further in C. Best and M. Jenkins, *Capital markets and sustainable forestry* (Chicago: The John D. and Catherine T. MacArthur Foundation, June 1999).

<sup>9</sup> See World Business Council for Sustainable Development and IUCN, *Business and biodiversity: a guide for the private sector* (Geneva: IUCN and WBCSD, June 1997). For a popular explanation of the importance of biodiversity to business see L. Boulton, 'FT guide to biodiversity: why extinction is bad for economic progress,' *Financial Times*, 5 May 1998.

not more important in their impact on biodiversity. Moreover, the three drivers are linked. In particular, government tax and subsidy programmes are difficult to change because of entrenched political interests. One way to prompt governments to eliminate 'perverse' tax and subsidy policies (from the perspective of biodiversity conservation) is to build the political constituencies that will gain in strength and numbers with the growth of biodiversity-friendly enterprises and markets. Biodiversity business may by example help to set, change or enforce government policies that affect biodiversity.

### *Markets*

Growing consumer demand for environmental products, the urgency of the biodiversity crisis and the capital needs of biodiversity companies provide a compelling rationale for finding ways to attract new sources of capital to biodiversity-linked businesses. The biodiversity-linked markets for natural products, certified organic agriculture, ecotourism and certified forest products are booming. For example:

- sales of certified organic agricultural products have been growing at 20–25 per cent per year over the 1990s, with annual sales at the wholesale level reaching US\$15 billion in Europe and North America alone.<sup>10</sup>
- by 31 January 2000, over 120 forest products companies in 25 countries in Africa, Asia, Europe and the Americas had sought and received certification following guidelines established by the Forest Stewardship Council, bringing the total FSC-certified area to 17.7 million hectares (up from 2.3 million ha in 1996).<sup>11</sup>
- ecotourism by all accounts is growing rapidly, but the actual size of the market depends very much on the definition of ecotourism.<sup>12</sup>

While the volume of these products is still small relative to overall market size, it is increasing rapidly as entrepreneurs move into these sectors, and real investment opportunities of all sizes exist. Some examples of current enterprises that are profitable and also conserve biological diversity include:

- cultivation of shade-grown certified organic coffee that extends migratory bird habitat;
- selective harvesting of palm juice and heart from forest trees;
- the establishment of ecotourist lodges next to nature reserves which they actively help to conserve;

<sup>10</sup> US figures are from the annual June issues of *Natural Foods Merchandiser* for the years 1995–9; European figures are estimates from personal communications with Carole Haest, Global Partners Consultants in Organic Agriculture and Trade, Belgium, 1997.

<sup>11</sup> The FSC posts updated figures at <[www.fsoax.org](http://www.fsoax.org)>. The 1999 total includes Sweden with 9 million ha, Poland (2.2 million ha), the United States (1.6 million ha), Brazil (1.4 million ha), the UK (0.9 million ha), and Bolivia and South Africa (0.7 million ha each).

<sup>12</sup> K. Brandon, *Ecotourism and conservation: a review of key issues* (Washington DC: World Bank, April 1996).

- aquaculture of Amazonian fish that reduces fishing pressure on wild stocks, and mariculture of native scallops which helps to replenish depleted natural stocks;
- manufacture of laminated flooring from wood sustainably harvested by community forestry operations;
- the construction of an aerial tram for ecotours of the forest canopy which conserves a rainforest corridor;
- the production of wool from alpaca (alpaca do less damage to soils than sheep);
- the use of flower essences in perfumes and foods such as yogurt.

Bioprospecting is already yielding financial returns. Although, the hit rate for finding natural products that will yield new pharmaceuticals is very low, local and international companies sponsor institutes around the world to collect and screen plant and animal tissues, essences and extracts for their medicinal and other human uses. This is not just a search for the holy grail, the cure for cancer. Botanical and herbal products are used widely by local peoples and increasingly also in European and North American markets. Agribusiness companies seek natural pesticides and herbicides in the wild. Components of fragrances and food aromas are big business. Chemists mix and match scents, many of which come from forests and wildlands, that become the perfumes of top fashion houses. Their aromas, both natural and synthetic, are sold to food companies and show up in ice-creams, yogurts, beverages and stews.

#### *Efficiency, partnership and corporate responsibility*

All types of businesses, whether biodiversity-linked or not, can adopt internal management practices and production approaches that will mitigate their potentially negative impacts on biodiversity.

*Efficiency* By adopting efficient, sometimes termed ‘ecoefficient’, processes (summed up under the rubric ‘reduce, reuse, recycle’), businesses can derive long-term cost savings, reduce the liability of clean-up costs and penalties and raise profit margins.<sup>13</sup> A firm that implements ecoefficiency in a broader way with a view to achieving more than simple cost savings will seek to innovate, to redefine its product and even its business purpose (e.g. from an oil company to an energy company), and to offer products that solve environmental problems and respond to consumer demand. By consuming fewer resources, efficient firms reduce their negative impact on biodiversity.

*Stakeholders and partners* Some businesses are reaching out to new partners such as non-governmental organizations (NGOs), participating in the definition of

<sup>13</sup> ‘Ecoefficiency’ is a term coined by the WBCSD. See S. Schmidheiny *et al.*, *Changing course* (Cambridge, MA: MIT Press, 1992); S. Schmidheiny and F. Zorraquin with the WBCSD, *Financing change* (Cambridge, MA: MIT Press, 1996). The case for efficiency and sustainable use is also made in P. Hawken, A. Lovins and L. Hunter Lovins, *Natural capitalism* (Boston: Little, Brown, 1999). Examples are in S. Ward and L. Pratt, eds, *Sustainable enterprise in Latin America: a case book* (Washington DC: World Resources Institute, 1997).

environmental standards and creating new brand names to promote biodiversity-friendly products. These companies also recognize that social outreach, corporate philanthropy and the promotion of small enterprise opportunities in adjacent communities will benefit their business. By adopting responsible practices they can avoid negative publicity created by activist NGOs and the press. Listening to stakeholders is another way to identify consumer demand. Institutional investors, such as pension funds, insurance companies and mutual funds, which monitor the environmental effects of their investments, may be concerned about biodiversity conservation.

### *Government policies*

Interest rates, land tenure and allocation, road-building and agricultural subsidies, and regulatory enforcement are all policy areas through which government can affect private sector investment and as a consequence biodiversity.<sup>14</sup> In some cases, best practices are not cost-competitive because government policies skew producers and lenders towards unsustainable practices. The examples are well known: agricultural subsidies that favour monoculture and the use of agrochemicals; maintenance of road systems in national forests at public expense for private logging; subsidized road-building rather than investment in efficient mass transit schemes.

On the other hand, user fees, tax and subsidy reform, environmental fines, tradable permits, quotas and full-cost pricing are ways in which government policy can promote biodiversity conservation and minimize negative externalities.<sup>15</sup> Businesses respond to government regulations, global agreements and contractual obligations that impose stringent environmental requirements. Regulation is needed to conserve many biodiversity services provided at no pecuniary cost. Unconstrained exploitation of free goods can lead to the 'tragedy of the commons': a threshold of destruction is reached and all users suffer when the free service such as clean water or air is no longer available. Regulations, if enforced, can compel companies to mitigate the negative impacts of their activities or reduce the rate of exploitation. International lending agencies such as the International Finance Corporation and the European Bank for Reconstruction and Development require compliance with environmental stipulations as a condition of investment. In some cases, the use of sustainable practices is a precondition for

<sup>14</sup> *Investing in biodiversity conservation*, Inter-American Development Bank, Environment Division Report No. ENV-111 (Washington DC: IADB, 1997); R. R. Schneider, *Government and the economy on the Amazon frontier*, World Bank Environment Paper No. 11 (Washington DC: World Bank, 1995); K. Keipi, ed., *Forest resource policy in Latin America* (Washington DC: Inter-American Development Bank, 1999). Estimates of the costs of 'perverse' subsidies are outlined in Hawken *et al.*, *Natural capitalism*.

<sup>15</sup> See K. Brown, D. Pearce, C. Perrings and T. Swanson, *Economics and the conservation of global biological diversity*, GEF Working Paper No. 2 (Washington DC: Global Environment Facility, 1993); T. Swanson, *Global action for biodiversity* (London: Earthscan, 1997). An outline of Costa Rica's national commitment to sustainable development is in C. F. Zamora Murillo, ed., *Del bosque a la sociedad—from forest to society: results of the First International Forum* (San José, Costa Rica: Editorial Universidad Estatal a Distancia, 1994).



access to resources. In more and more countries, companies are seeking to avoid potential environmental liabilities such as responsibility and legal penalties for cleaning up pollution.

We should note here that private sector engagement is only one piece of the biodiversity conservation puzzle. Private investment will not eliminate the need to create government-sponsored biodiversity reserves, national parks and wilderness areas. Similarly, a few specific ecotourism or non-timber forest projects may not necessarily do as much to improve the well-being of local populations as general education and training programmes.

### **Current business investment in biodiversity-linked markets**

Biodiversity-linked business sectors are still small relative to the overall markets within which they operate. However, pioneering investors, often working in collaboration with public investment funds, are providing capital to enterprises that adhere to sustainable practices. For example, a handful of investment funds in Latin America and Europe target organic agriculture, sustainable forestry and ecotourism. Much larger amounts of money are being invested by agribusiness companies and entrepreneurs in the natural foods industry. These existing sources of investment are briefly outlined in the following sections. The article then goes on to examine how such catalytic investments can leverage much larger amounts of capital to bring sustainable practices into the business mainstream.

#### *Entrepreneurial and business activity*

Companies, family businesses, farmers and cooperatives in the food and forestry industries are responding to consumer and buyer demand by investing in sustainable practices. Along the entire supply chain of the natural foods industry, producers and processors of all sizes are reinvesting cashflow, seeking bank loans and negotiating trade deals to finance expansion. In the United States investment in natural foods supermarkets, such as Whole Foods and Wild Oats, and in organic foods distribution and processing companies, is on the rise (e.g. based on the stock market valuation of these companies). Several large companies (among them Heinz, Smuckers and General Mills) have purchased smaller organic foods companies. Supermarkets in Europe and Brazil are featuring organic products more strongly. Some producers in Latin America and Africa are converting to organic production to supply export demand and even certain domestic markets. Many of these investments support sustainable use of biodiversity.

Consumers in OECD countries are not clamouring for certified forestry products. The demand for certified products is coming instead from wholesale purchasers such as home/builder supply and do-it-yourself stores (such as Home Depot and B&Q), window, door and furniture manufacturers, and guitar-

## *Biodiversity finance*

makers. These buyers are responding to pressure from environmental groups,<sup>16</sup> fear of adverse publicity, and the desire to capture brand-name advantages and cost/efficiency savings. 'Buyers' groups' are emerging in Europe, the United States and Japan. In response, certain producers, including much of the Scandinavian industry, the large Canadian forestry company MacMillan Bloedel, the largest Bolivian producers, and a number of Brazilian producers are moving to certified production.<sup>17</sup>

## *Venture capital*

Venture capital or private equity funds generally seek to invest in privately held, small and medium-sized companies. These companies are often dynamic, innovative engines of growth and new job creation in an economy. Funds pool capital from several investors, invest in a dozen or more enterprises to spread risk and employ managers who coach investee companies. They often focus on a particular sector, group of sectors, country or region.<sup>18</sup> Investment holding companies which invest in several companies are similar to venture funds. A few funds are beginning to invest in 'green' ventures in North America, Europe and Latin America.

Trefoil Natural Foods/Shamrock Capital (California), Frontenac (Chicago), and Shansby Group, Venture Strategy Group and Rosewood Capital (all in San Francisco) are investing in US natural foods companies.<sup>19</sup> Triodos, based in the Netherlands, has invested in several European organic agriculture companies. Triodos receives its funds from private investors, the Dutch government, Dutch 'green' funds and the national lottery.<sup>20</sup> In addition, the first generation of funds with biodiversity objectives focused on non-OECD countries has raised about US\$80 million earmarked for biodiversity-linked enterprises from private investors, foundations, and bilateral and multilateral organizations. These funds include Corporación Financiera Ambiental (Environmental Enterprises Assistance Fund), based in Costa Rica and investing in Central America, with US\$10–15 million under management;<sup>21</sup> and funds initiated by the International Finance Corporation and the Global Environment Facility, including the Terra Capital Fund based in Brazil (about US\$20 million) and the global IFC/GEF Small and Medium Scale Enterprise Program (US\$20 million for both biodiversity

<sup>16</sup> See Greenpeace International, *Buying destruction* (Amsterdam: Greenpeace, 1999).

<sup>17</sup> The John D. and Catherine T. MacArthur Foundation funded a series of studies and case-studies on sustainable forestry practices. See Best and Jenkins, *Capital markets and sustainable forestry*; J. Polak *et al.*, *Sustaining profits and forestry: the business of sustainable forestry* (Chicago: John D. and Catherine T. MacArthur Foundation, 1997); M. B. Jenkins and E. T. Smith, *The business of sustainable forestry* (Washington DC: Island Press, 1999).

<sup>18</sup> L.W. Carter, *Investment funds in emerging markets* (Washington DC: International Finance Corporation, 1996).

<sup>19</sup> K. Murphy, 'There's big green in organic food', *Business Week*, 6 October 1997, p. 170.

<sup>20</sup> T. van Bellegem, 'Green investment funds in The Netherlands', paper presented at the Tenth Session of the Global Biodiversity Forum, Bratislava, Slovakia, 1–3 May 1998; Triodos Annual Report 1998.

<sup>21</sup> See *Promoting entrepreneurship through equity financing*, brochure published by the Multilateral Investment Fund of the Inter-American Development Bank (undated).

and climate change projects).<sup>22</sup> The Nature Conservancy and the Multilateral Investment Fund of the Inter-American Development Bank recently launched EcoEnterprises Fund (about US\$10 million) which will invest in Central America.

Several new funds will target natural foods along with efficient technology, renewable energy and efficient transport. In Switzerland, SAM Sustainability has announced its intention to form a private equity fund to invest in European and North American companies. UniStorebrand, the Scandinavian insurance company, and ING Barings in London plan to start the Sustainable Investment Partnership, largely to invest in Europe. And EA Capital in New York is working on a fund in North America.

### *Institutional investors*

So far, green venture capital funds have captured only a tiny slice of the available institutional money. Several European and North American banks, insurance companies and fund management companies have 'green', ethical or socially responsible funds seeking investment; however, most of this money is directed towards listed securities (traded on stock exchanges), although a few funds will invest in smaller enterprises, either directly or through private equity schemes.

With the rising demand for certified wood and the emergence of widely accepted certification standards, sustainable forestry is beginning to attract the attention of institutional investors. Several US and European institutional investors have invested in sustainable forestry operations in Brazil, Costa Rica, Chile and Paraguay.<sup>23</sup> Also, North American forestry funds (with over US\$7.5 billion under management<sup>24</sup>) are seeking 'sustainable forestry' investments. Banco Axial of Brazil and Grantham, Mayo Van Otterloo & Co., a fund management company based in Boston, have formed a forestry fund to invest in saw-mills in Brazil, including the Amazon region, that will handle certified wood.<sup>25</sup>

### *Multilateral and bilateral investment*

Small amounts of multilateral and bilateral investment can leverage much larger amounts of private capital by taking first-in risks, reducing transactions costs,

<sup>22</sup> International Finance Corporation, Technical and Environment Department, *GEF project document: Latin America Terra Capital Fund* (Washington DC: IFC, January 1997); IFC Technical and Environment Department, *GEF project document: small and medium scale enterprise program replenishment* (Washington DC: IFC, January 1997).

<sup>23</sup> A Swiss company, Precious Woods, raised an estimated US\$40 million in the mid-1990s, largely from Swiss institutional investors, for forestry operations in Costa Rica and Brazil. A US company, Sustainable Forest Systems, raised about US\$12 million from institutional investors in the United States over about 1995–8 for certified forestry operations in Paraguay. Another US consortium, Savia (also called Trillium), raised US\$100 million in 1997–8 for a planned sustainable forestry operation in Chile and Argentina that subsequently did not proceed. Information based on personal communications with principals of the companies.

<sup>24</sup> D. Starkman, 'Hancock Timber tries to solve its knotty problems', *Wall Street Journal*, 11 Feb 2000, p. B4.

<sup>25</sup> J. M. Forgach, Vice-President of Banco Axial, personal communication, 24 January 2000.

and giving private investors additional confidence to invest in new sectors (the ‘demonstration effect’). The funds mentioned above sponsored by the International Finance Corporation, Global Environment Facility and Inter-American Development Bank are examples. Multilateral, bilateral, government and foundation funds support critical technical assistance, pilot projects, training and loan financing activities that build the infrastructure to support sustainable enterprises.

### **Next steps for broader adoption of and investment in sustainable use**

Channelling private investment towards biodiversity-linked businesses appears to offer a way of stemming biodiversity loss while generating good returns on capital. But, as already noted, biodiversity business sectors remain small relative to the overall market within which they operate. What are the next steps towards more widespread adoption of sustainable production methods, and how can additional private sector, institutional and pension fund money be brought into play?

Many questions have to be answered before larger amounts of capital are committed to these businesses, and before more companies adopt ‘responsible’ or environmentally sensitive business practices:

- What is the evidence that these activities actually conserve biodiversity?
- How fast will these businesses grow? When will they become mainstream, thereby more quickly countering biodiversity losses?
- How can small and medium-sized companies be encouraged to adopt practices that reduce and mitigate impacts on biodiversity?
- Can large corporations be encouraged to go beyond environmental compliance to create new value from partnerships with stakeholders that in turn conserve biodiversity?
- What are the ‘hypergrowth’ opportunities—enterprises that may have a dramatic impact on business and biodiversity, such as e-commerce, Internet services, vertically integrated organic agriculture or forestry companies, and circuits of ecotourism sites?
- How do consumers know they are buying a biodiversity-friendly product and that best practices are followed in the production and processing of the product?
- Will too many environmental labels help or confuse consumers?

A wide range of methods are used to jump-start markets, bring new technologies to market, support scientific research, stimulate economically depressed regions and nurture small businesses. Many of these methods can be applied to biodiversity conservation and sustainable enterprise.<sup>26</sup> All the typical market development techniques are needed: improved access to information, markets, and technical assistance; more value-added processing in the country of origin;

<sup>26</sup> R. Livernash, ‘Fostering sustainable enterprise in the global marketplace’, in *Valuing the global environment: actions and investments for a 21st century* (Washington DC: Global Environment Facility, 1998).

improved infrastructure; legal and accounting transparency. Also needed are training, business incubators (programmes or institutes that nurture start-up companies) and other methods of generating a larger 'deal flow'. And, as noted above, perverse government policies, including unhelpful subsidy and tax measures, need to be reversed to encourage biodiversity-friendly and ecologically efficient practices.

Each sector has its own particular needs. For example, small producers in tropical and sub-tropical countries with many types and qualities of wood to offer have trouble getting these supplies to market. And while 'small is beautiful' in terms of minimizing the impact of tourism on the environment, small projects reach few tourists, have few links to major tour companies, are often unprofitable, and may have little impact on the industry as a whole.

Several promising avenues for encouraging private investment in biodiversity-linked business sectors are outlined in greater detail below:

- development and wider acceptance of standards and guidelines;
- finance for small and medium-scale enterprises;
- Internet and information technology;
- public-private partnerships;
- institutional investment;
- generating revenue from ecosystem services such as carbon offsets, insurance and watershed management;
- educating the next generation of business leaders.

#### *Standards for biodiversity-linked markets*

Certification standards need to gain wider market acceptance to encourage faster growth of biodiversity markets. Consumers are now often confused by the plethora of standards and labels, and are seeking assurances of the veracity of sustainability claims. At the same time, a growing number of investment funds, pension funds and multilateral institutions are requiring certification as a precondition for a commitment to invest.

The recognition and success of certification vary by industry.

*Agriculture* Certified organic agriculture, a subset of sustainable agriculture, has been well established for over 20 years and has become the most widely accepted indicator of a biodiversity-friendly agricultural product. Best practices for sustainable agriculture are well defined: low environmental impact, minimal or no use of chemical inputs, organic fertilizers, crop rotation, integrated pest management, recycling of waste materials, and more efficient and intensive production.<sup>27</sup> However, for some products, especially those where organic

<sup>27</sup> Committee on the Role of Alternative Farming Methods in Modern Production Agriculture, Board on Agriculture, National Research Council, *Alternative agriculture* (Washington DC: National Academy Press, 1989); J. P. Srivastava, N. J. H. Smith and D. A. Forno, *Biodiversity and agricultural intensification*, World Bank Environmentally Sustainable Development Studies and Monographs Series No. 11 (Washington DC: World Bank, 1996).

methods are difficult or costly to employ or where demand exceeds supply, a variety of competing labels remain. Coffee, in particular, comes under organic, sustainable, Fair Trade, bird-friendly and shade-grown labels.<sup>28</sup>

*Forestry* Unlike agriculture, where one standard dominates, a variety of organizations promote somewhat different certification schemes. The Forest Stewardship Council (FSC), the International Tropical Timber Organization (ITTO), the International Organization for Standardization (ISO), industry associations and quasi-government associations all promote different approaches—each of which has advantages and disadvantages.<sup>29</sup> In some ways these labels are competing for market recognition. The FSC, favoured by many NGOs, may succeed in the marketplace because leading buyers (e.g. B&Q and Sainsbury in the UK) have adopted its standard. The FSC is an independent third-party NGO formed by NGO, industry associations and businesses. Its criteria are broad enough to encompass primary and secondary forests and plantations, and the method not only certifies the management of forests but traces the wood to the consumer.

*Ecotourism* Nature tourism is often advertised as ‘ecotourism’ whether or not the business contributes to biodiversity conservation. Simply building a hotel next to an attractive natural site does not constitute ecotourism.<sup>30</sup> The absence of consistent and accepted standards is a major risk for the sector.<sup>31</sup> The credibility of the sector may suffer if travellers cannot distinguish sustainable operators from low-quality imitators. Joint efforts by concerned NGOs and the tourism industry to educate consumers about the differences between ecotourism and nature tourism are under way.<sup>32</sup>

<sup>28</sup> J. P. Levaux, ‘Café politique: growing organic coffee market makes for controversial brew’, *Investor’s Business Daily*, 22 November 1999; R. A. Rice and J. R. Ward, *Coffee, conservation, and commerce in the western hemisphere* (Washington DC: Smithsonian Migratory Bird Center and Natural Resources Defense Council, June 1996).

<sup>29</sup> See R. Crossley, ‘A review of global forest management certification initiatives: political and institutional aspects’, paper presented to the conference on ‘Economic, social and political issues in certification of forest management’, Malaysia, 12–16 May 1996, at <[www.forestry.ubc.ca/concert/crossley.html](http://www.forestry.ubc.ca/concert/crossley.html)>. ‘Light at the end of the forest: the forestry industry’s bumpy road to greenery’, *Tomorrow: Global Environmental Business* 5: 2, special issue devoted to sustainable forestry, April–June 1995.

<sup>30</sup> Ecotourism businesses actively contribute to conservation rather than just seeking to minimize environmental impacts. Ecotourism ventures are expected to contribute financially to preserving the land resource upon which the business is based (neighbouring forest or coral reef), support educational and research programmes, follow ecologically sensitive architectural and land use designs, help sustain the well-being of local people and keep negative impacts to a minimum. Following all these guidelines is a tall order. Regardless of definition, ecotourism can change the biological and human environment if too many tourists go to previously little-visited areas.

<sup>31</sup> H. Ceballos-Lascurain, *Tourism, ecotourism and protected areas* (Gland, Switzerland: IUCN, 1996); S. Blangy and M. E. Wood, ‘Developing and implementing ecotourism guidelines for wildlands and neighboring communities’, in K. Lindberg and D. E. Hawkins, eds, *Ecotourism: a guide for planners and managers* (North Bennington, VT: Ecotourism Society, 1993); M. Wells, ‘Economic perspectives on nature tourism, conservation and development’, World Bank Environmental Economics Series paper, draft, August 1997; G. Wall, ‘Is ecotourism sustainable?’, *Environmental Management* 21: 4, 1997, pp. 483–91.

<sup>32</sup> In particular, the Ecotourism Society, the World Travel and Tourism Council, the World Tourism Organization and the IUCN have published best practices and industry guidelines.

*Bioprospecting* Stung by a history of natural resource exploitation that generated greater benefits for consuming countries than for countries of origin, many developing countries now prohibit the export of genetic material. However, some countries have recently set about designing legal regimes to permit the identification and export of genetic materials in return for licence fees, royalties, local value-added processing and other benefit-sharing arrangements. Costa Rica's Instituto Nacional de Biodiversidad (INBio) led off with agreements with Merck and other companies. Gabon followed, establishing an independent foundation to coordinate contracts between local research institutes, international companies and community groups.<sup>33</sup> In Brazil, legislation has been drafted to open up the country's vast potential biodiversity wealth to commercial use.

*Aquaculture and mariculture* Initiatives recently taken by these industries, either alone or in partnership with NGOs, seek to promote best management practices for marine fishing, shrimp farming, reef fishing and the aquarium trade. Examples include the Marine Stewardship Council, founded by WWF-UK and Unilever; the Global Aquaculture Alliance, formed by industry members of the World Aquaculture Society in 1997; and the International Marinelifelife Alliance in the Philippines, which is working with NGOs and industry to combat cyanide fishing in South-East Asia.<sup>34</sup>

#### *Finance for small and medium-scale enterprises*

Many people in tropical countries, where significant amounts of biological resources are located, work for or operate small businesses. Largely financed by traditional sources (reinvested cashflow, trade finance, and development bank and commercial bank financing), these businesses need longer-term equity and debt if they are to grow fast enough to make a positive contribution to biodiversity conservation.<sup>35</sup> The constraints on them in seeking such funding include the following:

- Most biodiversity businesses are too small to attract standard institutional financing. There are only a few large projects of US\$10–50 million.
- Local bank debt is scarce and often available only at prohibitively high rates.
- The business risks and transaction costs associated with small project size and the inclusion of biodiversity issues are perceived by potential investors to be high.

<sup>33</sup> The Brazilian/French NGO Pro-Natura International designed and brokered the agreements in Gabon. See V. Tardieu, 'Le radeau des cimes révèle les trésors cachés de la forêt guyanaise', *Le Monde*, 11 April 1998, p. 18. Pro-Natura International Newsletter, Spring 1998.

<sup>34</sup> See A. Maitland, 'Unilever in fight to save global fisheries', *Financial Times*, 22 February 1996; Global Aquaculture Alliance brochure, August 1997, available from the National Fisheries Institute at <office@NFL.org>; C. V. Barber and V. R. Pratt, *Sullied seas: strategies for combating cyanide fishing in Southeast Asia and beyond* (Washington DC: World Resources Institute, 1997).

<sup>35</sup> This was the conclusion of the feasibility study in Latin America for Terra Capital Fund. See International Finance Corporation, Technical and Environment Department, *GEF project document: Latin America Terra Capital Fund*.

### *Biodiversity finance*

- Local banks and other investors are unfamiliar with these sectors.
- Bilateral agencies and foundations focus on NGOs rather than individual producers.
- Most funds invest in listed securities or in telecommunications or energy projects.
- Many companies in emerging markets are part of family-owned groups of enterprises unaccustomed to joint ventures or outside ownership.
- Small companies seeking financing often need assistance to prepare business, marketing, certification, community relations and monitoring plans; establish links with marketing and technology partners; obtain grant or soft loan funds for pilot projects or site engineering; and obtain necessary government approvals.

Programmes that make financing more accessible to small businesses that use sustainable methods will help promote biodiversity-friendly practices. Loan financing, venture capital, technical assistance, training and market development programmes are required for biodiversity sectors in part because these investment opportunities remain largely unknown to many at international and local banks, institutional investment companies and funds, and multilateral agencies.

### *Information technology and the Internet*

Small and medium-sized enterprises, including smaller farms, microenterprises and cooperatives, often do not have market power or direct market access. Instead, they work through intermediaries, who extract much of the profit for themselves.<sup>36</sup> Many, too, lack the wealth and education to take advantage of new technologies. Yet the Internet and rapid developments in communications and information technology are reshaping the market chain.<sup>37</sup> Direct business-to-consumer/buyer and business-to-business contacts are now much easier, and this facility of direct exchange is changing the way business is done. With a cellphone or laptop computer, an increasing number of entrepreneurs in villages in less developed regions and countries can now tap into world markets and niche markets alike. By selling direct to consumers and buyers, producers can reduce the number of intermediaries on whom they depend, and extract a greater percentage of the profits made along the supply chain. In this way, use of new communications technology may help producers and processors to cover the higher production costs of organic, certified, smaller scale, and low impact approaches.

<sup>36</sup> J. W. Clay, *Generating income and conserving resources: 20 lessons from the field* (Washington DC: World Wildlife Fund, 1996).

<sup>37</sup> D. Siegel, *Futurize your enterprise: business strategy in the age of the e-customer* (New York: Wiley, 1999).



*Public–private partnerships*

Partnerships with government are often required to entice private sector investors into initial participation in biodiversity conservation. By reducing the risk of investing in untried biodiversity ventures, small amounts of government funds can open the gates for much larger amounts of private investment. Similar public policy arguments are made, for example, to ‘jump start’ private enterprise in Russia or to support scientific research. Public–private partnerships may also be used to set up the ‘rules of the game’ to protect public, stakeholder and private interests.

Several partnerships are under way or proposed in the field of biodiversity conservation and sustainable use. They include the following:

- Bioamazônia, a Brazilian public–private programme, is seeking private sector partners to develop and use the biodiversity and genetic resources of the Amazon. Bioamazonia is overseen by PROBEM (Programa Brasileiro de Ecologia Molecular) Amazônia, a Brazilian government programme. A new research centre in Manaus, Centro de Biotecnologia de Amazônia, and the Amazon Biodiversity Permanent Fund, a proposed investment fund with some similarities to the Alaska Fund for native peoples in Alaska, are affiliated with the programme.
- Private and public sector investors can collaborate on equity funds, lines of credit with banks, and loan guarantee programmes. The ministry or multilateral organization may invest in the fund alongside private investors; alternatively, public funds can be used for technical assistance and business preparation activities, to cover costs or reduce risks that private sector investors normally would not bear. Terra Capital Fund and the Small and Medium Scale Enterprise Program set up by the International Finance Corporation and Global Environment Facility, mentioned above, are examples of this kind of collaboration. Preparation of similar funds is under way in several Latin American countries and in the Philippines.
- Exclusive rights to tourist concessions and lodging in one region or around one national park may be granted in exchange for revenue-sharing or conservation benefits.
- Biodiversity land use planning within a framework of cooperation between government, local community and private sector (‘bioregional planning’) may create opportunities for ecotourism. Such a coalition is working in the Yucatán peninsula to avoid the overdevelopment of the Mayan region in the same way as Cancún.
- Enterprises that combine conservation with a mix of ecotourism, game ranching and other compatible activities can create essential biological corridors. Migration route corridors across private, tribal and public lands for large animals in Kenya, and mountain-to-sea biological corridors in Belize, are two examples.

*Institutional investment*

A few institutional investors have shown an interest in 'green' equity and debt funds, attracted by market opportunities in natural foods, renewable energy and other environmental areas, or for public relations reasons. But before committing larger amounts of money, these potential investors need case-studies, examples, and other proof that money can be made in biodiversity-linked markets. Interest is not limited to Europe and the United States. For example, Brazilian pension funds, attracted by the long-term potential of capitalizing on Brazil's agricultural, forestry and tourism resources, are considering investments in agroforestry and ecotourism ventures and funds.

*Ecosystem services*

Ecosystem services are often viewed as public goods squandered by the few or the many because they are not individually required to pay for the services. Policy-makers, scientists and businesses have been experimenting with ways to extract revenue (or to save costs) from ecosystem services. Payments for carbon sequestration and watershed management, and lower insurance rates are sources of revenue, finance or cost savings that may offset some of the potentially higher costs of sustainable business approaches.

An international agreement on trading of carbon credits remains elusive, and there is some uncertainty about the eligibility of forestry projects under the Kyoto Protocol. However, several companies and governments are experimenting with carbon offset programmes and investments. The companies want to learn how to design a carbon agreement and at the same time to benefit from public recognition and goodwill. Many of these projects, especially if forests are used to store carbon, help to conserve biodiversity.<sup>38</sup> Several electricity and automobile companies based in OECD countries have invested in plantation or forest management projects to 'buy' credits to offset their carbon dioxide emissions. Specific examples include reforestation in Costa Rica, an electric power company's commitment to double the size of a national park in Bolivia, and a recent US\$15 million grant by Peugeot for reforestation of native species in Brazil.<sup>39</sup>

In some regions, electric power companies that operate dams and flood control reservoirs pay landowners in the dam's watershed (catchment) to follow forest and land conservation practices. This approach is employed in the central volcanic region of Costa Rica, the watershed area for much of the country's power supply.<sup>40</sup>

The insurance industry is beginning to ask if sustainable practices in the

<sup>38</sup> See M. Totten, *Getting it right: emerging markets for storing carbon in forests* (Washington DC: Forest Trends and World Resources Institute, 1999). Forest Trends is a non-profit international forestry organization created in 1998 with initial funding from the MacArthur Foundation, the World Bank, and the World Wildlife Fund, US.

<sup>39</sup> 'Costa Rica: your pollution, our forests', *The Economist*, 27 June 1998, p. 36; 'Double the park, cut the carbon', *Nature Conservancy*, March/April 1997, p. 30; G. Reinaud, President, Pro-Natura International, personal communication, 12 Feb. 2000.

<sup>40</sup> F. Tattenbach, FUNDECOR, personal communication, 2 June 1999.

forestry industry can be considered a form of risk insurance. Insurers are starting to show signs of reluctance to cover forestry projects which do not meet sustainable forest management criteria. These criteria (which include production data, monitoring and loss assessment) are seen to provide the necessary framework for sound management and thus to reduce risk.<sup>41</sup> Forest companies which follow certification standards may be eligible for lower premiums.

### *Educating the next generation of business leaders*

Education takes time, but the payoff is huge. Business schools (e.g. INCAE in Costa Rica and the University of Michigan), groups of retired executives (e.g. SCORE in the United States), hands-on training universities (e.g. the Earth College in Costa Rica), and small business training courses (e.g. those sponsored by the Multilateral Investment Fund of the Inter-American Development Bank) include sustainable development and biodiversity conservation components in their training material. Future entrepreneurs equipped with a grounding in biodiversity conservation will be more likely to implement environmentally friendly business practices. For example, the World Resources Institute (WRI) worked for several years with US and Latin American business schools on sustainable development education through WRI's LA-BELL programme. Also in the Americas, MBAs are beginning to graduate from INCAE's Latin American Center for Competitiveness and Sustainable Development. The Center was set up in the late 1990s with a \$30 million endowment and has close ties to the founders of the World Business Council for Sustainable Development.

### **The way forward**

The key question for conservationists is: Can biodiversity-friendly businesses expand faster and thereby more quickly counter biodiversity losses? Key questions for investors are: Can 'green' market growth be sustained or increased? How can we directly invest in potentially profitable businesses which contribute to biodiversity conservation?

The jury is still out on the financial success and conservation impact of the pioneering business examples now under way. The 'best practices' now required for certification may not be 'sustainable' by some definitions. But low-impact practices are generally far better for biodiversity conservation than clearly unsustainable practices. Biodiversity-friendly businesses will gradually yield not just examples of entrepreneurship but also lessons learned—and evidence that such activities actually conserve and sustainably use biodiversity. If we don't try, we won't know. And if we don't use it, we may lose it. Events of the past few years give encouraging signs that the growth of the biodiversity business sectors will accelerate. This will serve to meet both conservation and market development objectives.

<sup>41</sup> J. Mundy, 'Risk mitigation in forestry under Kyoto', draft report to Forest Trends, prepared by Eyre Mundy & Arm for Forest Trends, October 1999.