

Financing Biodiversity¹

--- First Draft ---

**Dan Biller
And
Karoline Sermann**

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¹ This paper is a collaborative effort, and senior authorship is not assigned. Dan Biller is a Senior Economist at the World Bank Institute and Karoline Sermann is a consultant to the OECD.

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1. INTRODUCTION

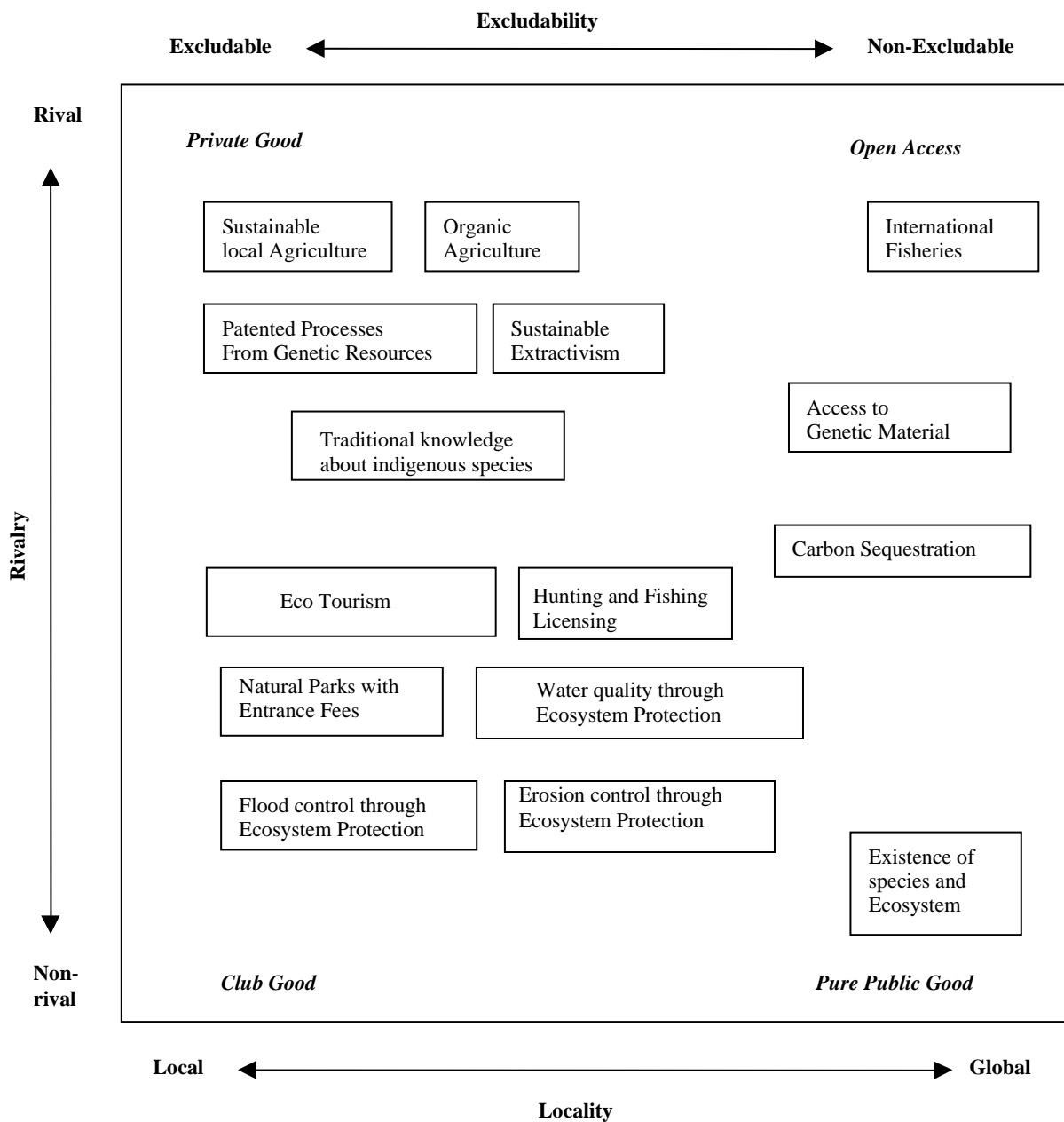
1. The convention on Biological Diversity (CBD) defines biological diversity or biodiversity as “...the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” According to the CBD, biological resources are a subset of biodiversity, and are defined as “...genetic resources, organisms or parts thereof, populations or any other biotic component of ecosystems with actual or potential use of value for humanity.” Biological resources have been commercialised ever since man created markets; yet, its public goods characteristics and the difficulties in establishing and enforcing property rights have facilitated unsustainable rates of exploitation. This coupled with man-made changes on habitats has resulted in biodiversity being lost at alarming rates.
2. As indicated by the CBD, both biological resources and biodiversity have value. Yet, accounting for and capturing the total value of biodiversity is not trivial. Moreover, the fact that biodiversity has value does not necessarily mean that markets can be created to privately appropriate this value. In order to have a successful private provision of this public good called biodiversity; private agents must be able to attain positive rates of return on biodiversity investments even if they are unable to capture the full value of biodiversity.
3. As in any other business, biodiversity needs capital. This paper specifically analyses the main source of private capital – the financial sector - investment on biodiversity. Section 2 expands on the analysis of biodiversity as a public good, indicating where the private sector in general may be interested in getting involved with its provision. Section 3 details the main instruments available to foster financial sector participation as a source of capital for private sector involvement in biodiversity and section 4 elaborates on the constraints faced by the industry. Section 5 provides the concluding remarks.

2. BIODIVERSITY AS A PUBLIC GOOD

4. The value of biodiversity can be divided into five categories (OECD 1996):
 - Direct Extractive Use: Includes food, plants and other products of commercial value. Products that are part of this group are either traded or have potential for trade.

- Direct Non-Extractive Use: Includes services provided by biodiversity, relating to ecosystems and genetic material, such as eco-tourism, education, recreation and the development of new pharmaceuticals.
 - Indirect Uses: Ecological values including services provided by ecosystems such as water supply, flood control, soil conservation, etc.
 - Option Values: Refer to the possibility that people may want to have the option of using a resource in the future.
 - Existence or Bequest Values: The amount that people are willing to pay to preserve the existence of biodiversity.
5. Products and value linked to direct extractive use and some non-extractive use are usually the one associated with markets. Products and services associated with other values are generally linked to some public good characteristic; that is, they are either non-rival in consumption or non-exclusive or both. This is important since it determines given the current level of technology where the private sector would be willing to invest.
 6. Figure 1 maps some biodiversity products and services according to their degree of rivalry, excludability and geographical location. While the intent is not to precisely indicate where a particular product stands, the figure underscores the areas where economic agents may be willing to privately provide a public good if the regulatory conditions are favourable. Moreover, the figure highlights the characteristics of specific biodiversity products and services without necessarily precluding products to have similar characteristics. For example, international fisheries are traditional examples of open access resources and are a global issue. One can also have an open access resource locally; that is, not all open access resources are global.
 7. More importantly, however, is the characteristic of excludability. As noted by Heal (2000), non-excludability-the fact sellers cannot stop non-payers from benefiting from a particular good or service-serves as an incentive for potential buyers to free ride. If a good is really public, why would anyone buy it? If the problem of non-excludability is not addressed through some kind of regulation, it is unlikely that the private sector would be willing to provide this specific good or service.
 8. Alternatively, even if the good or service is non-rival in consumption, private sector provision is feasible, therefore, from a private good to a club good, one can expect to find examples of private sector involvement. Since financial capital is generally welcomed in support of this provision, this is the area in figure 1 where one generally finds financial sector involvement.

Figure 1 Economic characteristics of biodiversity goods and services



source: OECD (forthcoming)

3. THE FINANCIAL SECTOR AND BIODIVERSITY

9. “Green” funds are potential instruments to create markets for biodiversity conservation and sustainable use by providing “biodiversity companies” with capital to finance their operations

and by gathering and disseminating information on biodiversity products thereby enhancing consumer awareness. They are generally classified under Socially Responsible Investing (SRI) or Ethical Investment and often apply some kind of environmental screening. This screening involves considering the ethical, social, and environmental performance of companies selected for investment, as well as their financial performance. Some ethical investors' screen companies on either a positive or negative basis, and only invests in those companies, which meet their ethical criteria. Others take companies' ethical performance into account alongside their financial performance, preferring, where possible, the companies with the better ethical status. (EIRIS 2000)

10. Biodiversity businesses are those ventures for which biodiversity conservation and sustainable use are integral and proactive components of their business operation. Biodiversity businesses can operate in a variety of ecosystems, such as arid and semi-arid ecosystems; coastal, marine or freshwater ecosystems; forest ecosystems and mountain ecosystems (IFC website). Biodiversity projects/activities are those in which biodiversity can be identified as being fundamental in the design and impact of the project/activity and in which one of the three objectives of the CBD is addressed (they may be selected by answering the question: "would the project/activity have been undertaken without the objective of biodiversity?"); and those projects/activities in which biodiversity is not one of the principal reasons for undertaking the activity, but biodiversity accounts for at least 25 percent of the project/activity budget.² Capacity needs to be built in respect to identifying, developing and financing such businesses as the biodiversity market segment has not yet been fully developed. IFC recognizes the importance of catalysing the development of biodiversity businesses and therefore seeks to demonstrate successful case studies that present a favourable risk/return rate in terms of both business and biodiversity aspects (IFC website).
11. While no aggregated data on biodiversity specific investment exists, a brief review of the SRI sector is meaningful. In August 2001, EIRIS estimated the value of ethical investments to be £4bn, up from £3.7bn in December 2000 and £2.1bn in January 1999 (EIRIS 2001). Number of unit holders and policyholders in ethical funds were estimated to be 492,000, while the number of ethical funds was estimated to be 60.
12. Two types of funds are of interest for biodiversity conservation: open-end mutual funds and venture capital funds. Open-end funds comprise the majority of mutual funds in the market and are available to any investor. Open-end funds invest in publicly traded securities. In order to avoid major losses from one industry or company that performs poorly, mutual fund managers diversify their holdings and may invest in industries across the market, usually according to pre-established criteria. Venture capital funds can be more specific in their investment portfolio as they are not required to invest in publicly traded securities, may maintain a less diversified portfolio and typically assume more risks. Venture capital funds are subject to an agreement of the partners, who are generally comprised of a small number of institutions and private individuals.

²

According to the WORKSHOP ON FINANCING FOR BIOLOGICAL DIVERSITY in Havana, Cuba, 16-17 July 2001. Item 5 of the provisional agenda* ADVICE ON DEVELOPING A FORMAT FOR STANDARDIZED INFORMATION ON FINANCIAL SUPPORT. Format for Reporting Financial Support to Biodiversity. Note by the Executive Secretary. CBD/GEF: CBD-GEF/WS-Financing/INF/1 4 June 2001

3.1 THE DEVELOPMENT OF SOCIALLY RESPONSIBLE INVESTMENT

13. Some leading financial institutions have taken a positive step towards incorporating environmental criteria into their management systems. As a response to stockholder pressure, institutions are increasingly publishing environmental and social responsibility reports, focusing on more ethical performance. The financial sector's attitude towards environment issues has followed four distinct phases (Van Belleghem, forthcoming):
 - a. Defensive phase: In this phase, environmental issues are perceived as threats to the business. The industry denies having anything to do with them, taking a critical and wait-and-see attitude towards any environmental measures governments may take, i.e. this phase is characterised by opposition and defensive behaviour.
 - b. Preventive phase: In the preventive phase, checks of environmental risks are carried out in any standard assessment of credit applications. Risks are thus a manageable phenomenon, and any expected detrimental effect can be neutralised in advance.
 - c. Innovative phase: Following the preventive phase, the innovative phase identifies environmental risk as a potential market. Innovative products are developed to take advantage of market opportunities and presented a green image to customers. Environmental aspects of companies' internal processes are targeted. This includes, for example, financial companies publishing environmental reports. Several motives explain creating innovative green products, including possible direct firm benefits from these products, avoiding negative reactions from clients and non-clients, achieving a green image with customers and non-customers, tapping into new potential markets, preventing losing business to competitors offering green products, and addressing environmental concerns among bank directors, the bank's employees and shareholders.
 - d. Sustainability phase: In this phase, sustainability becomes a benchmark in dealing with affairs beyond specifically environmentally related products. A limited number of committed banking institutions are currently at this phase.
14. Environmental related financial products have become relatively common even among mainstream financial industry with progress on regulatory monitoring and enforcement. Yet, examples specifically involving biodiversity are scarcer. Most biodiversity related investment opportunities remain largely unknown to international and local banks and private investment funds. In addition to common sources of risks such as natural disasters and volatile markets, biodiversity related activities are often undertaken by small and medium companies, adding considerable risks to an already non-standard activity.

3.2 INSTITUTIONS AND MARKET STRUCTURE

15. The apparent lack of interest on biodiversity by the financial sector is at least implicitly starting to be addressed by several institutions and entities. Several examples are coming from the Netherlands, where tax advantages offered for "green investments" have motivated dedicated financial products to the sector. Yet, other countries have also engaged in "green investments".
16. ING Group, a leading global financial institution based in the Netherlands, established a dedicated bank for ecological savings and investments - Postbank Groen. The bank invested around 550 million Euros from 1996 until 1999 on environmental related investments divided as Nature (17 Millions Euros), District heating (282 Millions Euros); Wind Power (69 Millions

Euros), Solar Energy (4.5 Millions Euros), Sustainable Construction (28 Millions Euros), Green Label Greenhouses (15 Millions Euros), International (17 Millions Euros), and miscellaneous projects (119 Millions Euros) (ING 1999).

17. Another example of a Dutch financial institution devoted to sustainable development is Triodos Bank founded in 1980. Triodos Bank is active in the following areas by sector: Social Economy (innovative businesses, trading, innovative living and working, services and business centres); Nature & Environment - sustainable energy (sun and wind), organic agriculture, environmental technology and nature conservation; Non-Profit and Art, North-South Development co-operation and fair trade. In November 1997 the Bank launched the Organic Saver Account, in partnership with the Soil Association, targeting funds to organic food and farming enterprises. In 1998 Triodos had extended 150 million Euros in loans, and managed funds amounting to 300 million Euros (Triodos website).
18. In the United States, there are also examples of private banks focusing on financing sustainable development. The ShoreBank Group, which has focused on community level banking since the early 1970s, has recently partnered with Ecotrust, a non-profit devoted to fostering a conservation-based economy, to create ShoreBank Pacific. ShoreBank Pacific is a financial institution with a focus on biodiversity markets. It is the first regulated financial institution in North America dedicated to economic revitalisation and ecosystem restoration - or more simply, conservation development. ShoreBank Pacific lends to businesses in rural communities in the temperate rainforest of the Columbia-Pacific Coast region of Washington and Oregon. To foster connections between rural communities and larger urban markets, the Bank also lends to conservation-minded companies in the greater Portland area. The bank takes deposits both from the US and abroad and commits to allocate them for a profit to support conservation loans to small businesses in their target communities. ShoreBank Pacific's loans have supported manufacturers in the following areas: Manufacturers that make wood products from sustainably harvested timber; manufacturers that reprocess waste into new products; manufacturers that produce innovative pollution-prevention technology; rural small businesses taking incremental steps to reduce their impact on water quality through thoughtful site improvements or by finding alternative markets for waste materials; and rehabilitation of affordable housing using sustainable building materials and conservation management practices (ShoreBank Pacific website).
19. Several NGOs active on the field of conserving biodiversity have taken on the chance of promoting biodiversity conservation and its sustainable use by improving synergies between the financial sector and potential biodiversity related investments. For example, IUCN is developing several funds such as the Biodiversity Capital Fund, the Kijani Initiative and the European Conservation Farming Initiative that attempts to generate profits out of biodiversity business. Conservation International and the Nature Conservancy, among others, have similar initiatives.
20. Perhaps one of the difficulties in establishing biodiversity-related investments is the lack of a well-accepted operational definition of biodiversity and the absence of solid information. This gap is being addressed in several ways. For example, the purpose of the European Biodiversity Resourcing Initiative (EBRI) is to establish an operational framework that will bring the needs for biodiversity resourcing in Europe together with the interests of the Banking Community and International Financial Institutions (IFI's). The aim is to provide opportunities for cooperation and synergies, mainstreaming biodiversity in existing banking policies and operations, and for sharing information and raising awareness about Europe's biodiversity conservation with the ultimate goal of increasing investments in bankable biodiversity activities. EBRI is initiated in the framework of the Pan-European Biological and Landscape Diversity Strategy (PEBLDS),

building on the CBD and the first Intergovernmental Conference “Biodiversity in Europe” (Riga, March 2000) on biodiversity resourcing. In addition, during the UNEP FI Annual Global Roundtable Meeting on Finance and Sustainability on 14-15 March 2002 on "Building Opportunities and Tools in Finance, Insurance, and Sustainability for Latin America and Worldwide" the topic of private biodiversity business equity funds was addressed.

21. Finally, several information centres have been established to inform the investor interested in SRI. While these centres in general do not focus on biodiversity only or even environmental issues, they provide a wide range of information for parties interested in green investment. Such centres include EIRIS, IMUG, Centre Info, Ethibel, SAM and the SRI World Group.

3.3 FINANCIAL MECHANISMS FOR BIODIVERSITY

22. Public sector, bi-laterals and multilateral agencies have been key biodiversity financing agents. Financial support has been occurring mainly through grant mechanisms and has often targeted biodiversity protection. However, private investors are also beginning to perceive market potential on biodiversity. Following this trend, investment funds have identified potential money making enterprises and a pool of investors willing to provide them with financial capital. While these funds still approach sustainable investment in a broad way, their activities have both indirect and direct impacts on biodiversity. Moreover, biodiversity has strong pure public goods characteristics and thus non-market financial transfers are important components of its financing.

3.3.1 Non-Market Transfer Payments

23. The Global Environmental Facility (GEF), set up in 1991 with the objective of funding “incremental” domestic costs of projects that protect the global environment, is the main international source of funding for biodiversity conservation activities. GEF has transferred US\$ 775 million to nearly 250 biodiversity projects, and generated an additional US\$1.2 billion in co-financing.
24. Debt for nature swaps are another class of transfer payments. These agreements between donors (including NGOs, private sector or governments) and recipients aim at the cancellation of a portion of the latter’s external debt in exchange for environmental commitments. These instruments became popular market based mechanisms to reduce debt during the 1980’s when developing countries debt traded at large discounts. Although innovative in their design, their impact was limited and lasted only a short term and hence had a relative small effect on the conservation of biodiversity. From 1987 until 1994, 32 transactions took place in 15 debtor countries, mostly in Latin America. Transactions reduced the stock of commercial foreign debt by US\$177 million, and generated around US\$130 million in domestic programs for conservation. Adding up second-generation swaps that target the cancellation of public bilateral debt, transactions are estimated at US\$ 1 billion.
25. Trust funds are also playing an increasingly more important role (Norris 2000; GEF 1999a and 1999b)³. The Mexican Nature Conservation Fund (FMCN), funded mainly through the Mexican and the US government, is an interesting example as a private institution founded to promote the continuity of the official conservation agenda during the transition of six-year government periods, or “sexenios ”as they are known in Mexico (FMCN website). FMCN was incorporated in 1994 after an extensive and participatory consultation process with the support of all sectors of

³ A list of trust funds, including those in planning, is available in quoted publication.

society. This strong consensus on design and operation issues, together with the strong support of a government convinced that the conservation of natural resources is key to the long-term economic viability of a country, was fundamental to carry on the initiative from President Carlos Salinas to President Ernesto Zedillo 's administration. Early involvement of top-level government personnel during the design process allowed the steering committee to address key issues that secured the political will and later proved fundamental in the capitalization process of the Fund. After almost five years of operation, FMCN has also proved very useful in field testing conservation initiatives like the protected areas program (FANP) and the recently created Wildfire Prevention and Restoration Program (PPRIF). For the protected areas program, FMCN has helped to leverage funds from different sources, strengthening the financial self-sufficiency of protected areas (Norris 2000).

3.3.2 Venture Capital Funds

26. The EcoEnterprises Fund by the Nature Conservancy is a venture fund for nature, which invests in venture capital and technical assistance in environmentally compatible businesses in Latin America and the Caribbean (EcoEnterprises Fund website). Investments aims not only at generating profits but also at improving income for local communities, funding for conservation and improving some of the planet's most diverse and dramatic landscapes. The initial closing of the EcoEnterprises Fund is \$10 million. The EcoEnterprises Fund consists of two components: a \$6.5 million Venture Fund that invests in small- to medium-scale environmentally compatible enterprises in Latin America and the Caribbean, and a \$3.5 million Technical Assistance Fund that covers fund management costs and provides limited business advisory services to prospective projects.
27. The EcoEnterprises Fund invests in companies at all stages of development with sales revenues up to \$3 million. Investments range from \$50,000 to \$800,000, with an average investment of \$225,000. The Venture Fund finances up to 50 percent of the individual project costs. Financial exposure to any one venture must be less than 12 percent of the Fund's total committed capital and not more than 20 percent to one or more companies in an affiliated group. The Inter-American Development Bank matches each dollar received by the Fund one-to-one. In addition, the Fund finances up to 50 percent of any single venture. Targeted sectors for investment include alternative agriculture, sustainable forestry, non-timber forest products and ecotourism. Portfolio ventures must adhere to strict standards for biodiversity conservation, sustainable use and community involvement.
28. The EcoEnterprises Fund was established by The Nature Conservancy and the Multilateral Investment Fund of the Inter-American Development Bank to provide venture capital to environmentally compatible enterprises undertaken by private businesses in cooperation with local non-profit institutions. Individuals and institutions may purchase Fund shares or make a charitable contribution toward its work.
29. IUCN is also involved in venture capital for biodiversity as represented by the Kijani Initiative, a new venture to support businesses in Africa which generate sustainable financial returns and conserve the integrity and diversity of nature (Kijani website and IUCN website). Kijani's goals is to encourage the sustainable and equitable use of natural resources, strengthen rural economies, open up local and foreign markets, create new job opportunities, and alleviate poverty. In collaboration with the International Finance Corporation (IFC), the Global Environment Facility (GEF) and others, IUCN is currently developing the technical assistance and private equity components of Kijani.

30. The Terra Capital Fund was founded in 1998 in response to growing consumer demand in Europe, North America and Asia for biodiversity goods and services. As the first biodiversity investment fund for Latin America, Terra Capital Investors seeks to invest in small and medium sized companies active in the five sectors: organic agriculture, sustainable forestry, non-timber forest products (NTFPs), sustainable aquaculture and ecotourism. Each investment is between US \$ 500,000 and US \$ 2,000,000 and is structured as a 6-8 year long-term lease. Investors in Terra Capital include the IFC, SECO (Swiss Government Agency of Economic Cooperation), the Multilateral Investment Fund (the Inter-American Development Bank), the Triodos Bank, and private institutional investors. Terra Capital Advisors, a partnership between A2R in Sao Paulo, the Environmental Enterprise Assistance Fund in Arlington, VA, the SDI (Sustainable Development Inc.) in Rio de Janeiro, and the IFC manage the Fund. Terra Capital Investors is supported by the Global Environmental Facility (GEF) through a US\$ 5 million grant during the life of the fund (10 years) to cover for its costs of screening, technical assistance, monitoring and evaluation. While the GEF grant is not used for investment, it was instrumental to attract private sector companies to participate in the management of the fund (Terra Capital website).
31. Terra Capital considers biodiversity conservation and financial profitability when screening potential projects, weighing both criteria equally in the decision-making process. In addition to the usual financial review of each company, the Fund hires an independent biodiversity consultant to research each potential investment's environmental performance. Furthermore, it uses a Biodiversity Advisory Board (BAB) made of researchers and experts with experience in Latin America and in the Funds' fields of activity to supervise and guide the development of Terra Capital's biodiversity guidelines. Three groups of activities were identified: (1) activities that maintain or enhance biodiversity assets or resources, (2) activities that reduce or eliminate possible negative impacts or threats to biodiversity and (3) catalysing activities that promote actions with positive impact on biodiversity. In its first two years of operation, Terra Capital has invested in five companies, two of them in the organic agriculture, another two in the NTFP and one in the eco-tourism market. Projects include organic berry production in southern Chile, Babassu coconut industrial processing in northern Brazil and a boat operation in the Galapagos Islands approved by the Rainforest Alliance (Moles forthcoming).
32. Corporacion Financiera Ambiental, a venture capital fund launched in 1996 to invest in small companies active in the sectors of organic agriculture; sustainable forestry, including tree plantations and derived wood products; renewable energy, including co-generation using biomass, energy efficiency; recycling, reduction and treatment of pollution, in addition to clean technologies and products; and sustainable tourism, specifically oriented towards the preservation of biodiversity, is an additional example in Central America. Investors include multilateral, bilateral and private sources (Corporacion Financiera Ambiental website).
33. The above-mentioned examples are interesting investment initiatives towards biodiversity products and services. However, they represent only a small fraction of the venture capital universe, which, only in Europe, has been estimated at EUR 100 billion, with at least 300 investment firms in the market. Biodiversity products and services are only starting to reach the attention of venture capitalists (European Venture Capital Association website).

3.3.3 Mutual Funds

34. Consumer preferences for environmentally sound products are also influencing the financial markets through open funds as well. Consumers are gradually allocating investments to companies that have a social and environmental clean track record. Pension funds and other

participants in the stock markets are expressing their “ethical” preferences by including new factors in the screening process of investments, in addition to financial performance.

35. Although the large menu of socially responsible funds varies in objectives and screening methodologies, most of them limit themselves to excluding the sectors that are not socially and environmentally correct (tobacco, alcohol, gambling are the most common exclusion). Green investors exert pressure on companies to adopt social and environmental codes of conduct, and have gradually exercised an influence on stock market prices.
36. Socially and environmentally responsible investing in open-end funds is a strong trend in developed countries' financial markets. In the USA, this segment represents US\$2.2 trillion, or around 13% of the total market. Total assets of these funds have increased 80% during the past three years, compared to over 40% of the rest of the market.
37. Green open-end funds that invest in biodiversity companies have been developing in OECD countries. They include the Domini Social Equity Fund (started in 1991), Portfolio 21 (1999), the Sustainable Performance Group (SAM, 1997), and the UBS Eco Performance Equity Fund (1997) and the Triodos Greenfund. However, only a small percentage of total holdings are in biodiversity businesses. For example, Portfolio 21, with an annualised return of 0.06% since its inception in 1999, has eight companies out of 38 that positively contribute to biodiversity conservation. The Swiss UBS Eco Performance Equity Fund has eleven biodiversity holdings out of 106, that is about 10% of the portfolio, and an return of 12.4% since its inception in 1997. The SAM Group of Sustainability Funds even has 12.1% of its holdings in biodiversity companies. Triodos Greenfund, listed fund at the Amsterdam Stock Exchange of about \$ 60 million, invests in organic farming, wind energy and a wide range of green projects and businesses, from organic butchers to eco-offices. Dividends from this fund in the Netherlands are not taxed under the Green Tax Break that was introduced by the Dutch tax authorities in 1995. Mutual funds that only invest in companies actively conserving biodiversity are not yet available.
38. An interesting effort to incorporate environmental and social issues as investment selection criteria has been developed by a Zurich-based company called Sustainable Asset Management (SAM), which has been pushing forward the concept of corporate sustainability. The underlying investment approach is that companies that incorporate environmental and social aspect into their management strategies will have a superior management performance than companies who ignore these factors, leading to an increase in shareholder value.
39. Corporate sustainability principles are used to select and rank companies based on the concepts of innovative technology, corporate governance, shareholders relations, industrial leadership, and social well being. The corporate sustainability performance of the eligible companies is assessed on the basis of an industry specific questionnaire, and the analysis of company policies and reports as well as stakeholder relations. Most analysis is based on qualitative and broad criteria, and considers a large number of factors that include corporate intentions and commitments as well as current performance. Although biodiversity is not specifically targeted in the selection criteria, the focus on environmental impact of corporate activities and natural resources management can be indirectly beneficial.
40. In 1999 SAM announced a partnership with the Dow Jones Group to develop the Dow Jones Sustainability Group Indexes (DJSI website). SAM selected more than 200 companies that are part of the Dow Jones Global Index, covering 68 industries in 22 countries, and a market capitalisation of US \$ 4.3 trillion. The DJSI family consists of one global, three regional and

one country index. Each of these five broad indexes has four narrower, specialised sustainability indexes (ex-alcohol, ex-tobacco, and ex-gambling), for a total of 25 indexes. Companies considered in these indexes include Stora Enso (the second largest paper and board maker in the world), BMW AG, Bristol Myers Squibb, Unilever and Credit Suisse.

41. The index is based on vague criteria that are hard to evaluate, and uses a large number of criteria for ranking. However, the index is an important benchmark for the development of ethical funds sectors, and represents an interesting first step towards including environmental factors into share valuations. As investors and market analysts develop more reliable evaluation tools, more sector-specific funds should develop.

3.3.4 Other Instruments

42. Other "green" financial products include green payment accounts, green savings accounts, and environmental insurance. Green payment accounts, another Dutch example, allows for a part of transactions to be donated to causes which are relevant to nature or the environment such as the WWF. In green savings accounts, banks guarantee that the deposited capital will only be invested in companies or projects which make a contribution to sustainable development. Environment liability insurance covers corporate liability for environmental damage. Environmental recovery insurance is a type of insurance where the insurance company is responsible for eliminating pollution. Rather than money being paid out, a clean-up service is provided (Van Bellegem, forthcoming).
43. An instrument that has been receiving significant attention due to its links to mitigating climate change is the Clean Development Mechanism (CDM) applied to forest ecosystems. There are several ways to use forests for carbon sequestration. Preserving existing carbon repositories, practising improved low impact logging or sustainable forest management, and reforesting degraded land with fast growing tree species are three large categories (Totten 1999). Biodiversity conservation can be compatible with the first two activities and is impacted by the third. However, in order for markets to develop, an agreement will have to be reached at the Kyoto Protocol on CDM eligibility. Jointly implemented activities have taken place during the last 5 years to finance conservation activities in developing countries, mainly as part of pilot projects. Large corporations have acquired reserves in developing countries, in exchange for the right for carbon credits. Although these activities are not market but one off transactions, they result, in some cases, in conservation financing. However, no market has fully developed, as private sector participants are still uncertain as to the eligibility of their investments vis-à-vis the Kyoto Protocol (Zollinger and Downen 1996).
44. A first effort to issue market based instruments that could qualify for the Kyoto Protocol if eligible comes from Costa Rica, who sold its first Certified Tradable Offsets (CTOs) in 1997. CTOs were sold at first to a Chicago-based financial concern called Centre Financial Products, the Norwegian government, and a consortium of three Norwegian companies, including ABB, Kvaerner Energy and Eeg-Henriksen Anlegg, a construction company. Together, those CTO purchases represent sequestration of over 200,000t of carbon, priced at US\$10/t. The transactions have raised more than \$2 million for the Costa Rican government, which uses the money for sustainable forestry projects on privately owned land. Under the program, small farmers are paid to use sustainable forestry practices to cut greenhouse gas emissions (Tomorrow Magazine, May-June 1998).

4. CONSTRAINTS

45. The financial sector is one of the most dynamic and competitive sectors of any economy. As such, it is constantly adapting to attract new customers and provide novel instruments to address customer needs. This dynamism is reflected in the interaction between the financial sector and environmental issues, which evolved from the financial sector viewing environmental issues as potential threats to attractive market opportunities. While the use and scope of market based financial instruments to address environmental issues in general and biodiversity specifically is growing in a positive sense, this use is limited by several factors.
46. Environmental and biodiversity processes often take a long time to occur. Customers and suppliers frequently enter into long-term relationship, limiting options for customers' decisions. Yet, the financial sector is often willing to pay a premium for "liquidity". In other words, it is often willing to forgo returns for the opportunity to exit an investment perceived as unsound. This contradicts the need for long term investments on environment. To be more attractive to the financial sector, environmental investments would be expected to provide greater financial returns, but this may be difficult due to the nature of these investments.
47. A success of a financial product is also often linked to understanding what it does. The risk profile of financial products needs to be well known. This does not mean that the risk needs to be low. As sustainable products often entail considerable financial uncertainty, the level of risk is consequently often difficult to estimate. This is augmented in the case of biodiversity where definitions often lack clear applicability, property rights are poorly defined, and laws are difficult to apply or unclear.
48. Small and medium size companies in marginal areas where most biodiversity is found often undertake biodiversity investments. These companies often lack the skills necessary to comply with the stringent business requirements of open funds and even venture capital funds. The lack of capacity is often an important obstacle that only a few financial institutions are willing to address.
49. Much of the success of these novel financial instruments relies on the client's perception of doing something positive to society. This implies an understanding of the concept of sustainability. Yet, the concept itself is multifaceted and often lacks clear operational applicability. Difficulties also arise when customers do not have a well-defined idea of the product criteria. Rather than looking for exact properties they then buy a product that has a more sustainable character in comparison to competitive products.
50. Success also depends on the environmental reputation of the financial institution and not only on the environmental quality of the green product being sold. That is, a bank wishing to operate successfully in the sustainable product market has to be aware of the requirements this sets for its other products as well. The necessity for an overall green image leads to environmental criteria for other activities, environmental reporting, among others. Not always traditional business activities are compatible with environmentally related products.
51. Successful environmental instruments are often transparent. Transparency in terms of financial products means indicating where the money is coming from, how green funds are deployed, where they are deployed and indicating under what conditions the funds are invested. Difficulties may arise not only because of uncertainties inherent to biodiversity processes but also because of sensitivity issues involving economic interests.

52. Financial products often face risks from many areas; therefore, minimising risks is often a key goal of financial managers. Stability and continuity are often sought. Yet, a number of green products entail extremely long-term contracts. Loans in nature projects can run up to twenty and sometimes thirty years. Stability and continuity over such a time span can be difficult to achieve.
53. Developing and selling banking products requires significant information on economic, financial and fiscal issues both nationally and internationally. In addition to this combination of specific knowledge, sustainable products require a different kind of knowledge about biodiversity, nature, and the environment. It also requires a different marketing strategy to convey that the institution has the knowledge needed to establish a reputation on sustainable products. This required additional knowledge and marketing needs translate in additional costs, which may repel potential clients.
54. Finally, legal and administrative conditions may be more stringent when involving environmental issues. While this is at least one of the reasons why financial products addressing environmental issues have developed, it may also serve as a deterrent to the development of biodiversity financial markets.

5. CONCLUSION

55. The constraints described above may at least in part explain why environmental market based funds in general and biodiversity funds specifically are not part of the mainstream financial sector. Moreover, as illustrated by figure 1, biodiversity has strong public good characteristics, which restricts the development of markets. These obstacles, however, have not precluded the development of a financial sector link with biodiversity. This link is likely to grow stronger but it is nonetheless limited.
56. Currently, green funds are not a sufficiently developed market tool for biodiversity conservation, as only a few funds exist with also only a very small percentage of their portfolios being actively conserving biodiversity businesses. As green funds seek financial success, they tend to list technology, oil, telecommunications and other major industries in their top ten holdings. Yet, regardless of the difficulties, investor demand for green funds seems to be steadily growing. Some funds such as the Domini Social Equity Fund (with seven biodiversity holdings, or 1.75% of the index) are in the market for over a decade and show positive returns with an annualised return of 14.16% since its inception in 1991.
57. While demand for biodiversity products like certified wood, shade grown coffee and eco-tourism is growing rapidly, they still only comprise a small fraction of the larger timber, coffee and tourism industries. There is a lack of available information on biodiversity holdings of funds and information asymmetries about biodiversity products, making it harder for consumers to decide in favour of such funds. For example, among the main obstacles facing Terra Capital and its projects are a lack of certification standardisation and a lack of market recognition of biodiversity products. Consumers must be guaranteed that the products they purchase with an “eco” or “green” certification label are actually produced using certifiably sustainable or organic techniques. Additionally, the “biodiversity products” that Terra Capital invests in will not gain

widespread recognition until consumers associate “green” certification with biodiversity conservation. Thus, the Fund has plans to highlight certification and biodiversity conservation as parts of its marketing strategy (Moles forthcoming). On the financial side, no independent regulating body officially certifies environmental funds.

58. Another problem is both valuating biodiversity enterprises and closely linked with this a potential liquidity problem. For example, consider Earth Sanctuaries Ltd. (ESL), the first publicly listed commercial company in Australia to make wildlife preservation its primary goal by establishing safe habitats for Australia’s wildlife and conserving biodiversity needed for their survival. Revenue comes mainly from ecotourism and associated activities at ESL's sanctuaries such as permits for film crews and photographers, and from professional consulting. In 1999-2000, ESL’s annual revenue was A\$3,697,203. ESL listed on the Australian Stock Exchange in May 2000 at A\$2.50 per share, and by June 2001 the option had fallen to A\$0.75. The volume of ESL shares traded on the stock exchange has been low with few active buyers and sellers. ESL attributes these weak numbers to an “investment and conservation wariness”, arising from the fact that the investment community has little experience to judge ESL’s worth and that the conservation community prefers to buy shares from the company itself rather than from the market. However, pre-stock market funds were A\$ 8.9 million compared to almost A\$12 million from the Australian stock market listing. This money will help fund the development of further sanctuaries (Peterson et. al. 2001).⁴
59. An official definition and ranking would benefit green funds. A third party organisation could accredit other certifying groups, just as the Forest Stewardship Council does in the forestry industry. Such a removal from actual certification processes and by gathering opinions and inputs from all stakeholders in social, economic and environmental areas of expertise would enable unbiased decision-making when setting certification standards. Official market recognition and regulation of green funds would help solidify investor confidence in them as a viable investment choice that reliably meets environmentally responsible investment concerns.

***** To be finalised *****

⁴ According to recent news, ESL has been experiencing financial troubles. A large expansion of the company during the 90s has not yielded the necessary cash flow. ESL is currently under restructuring to attempt to correct these issues.

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Van Bellegem, forthcoming