BIODIVERSITY BUSINESS: THE VALUE PROPOSITION

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THE 3X3 BIODIVERSITY MARKET SPACE

A recently released report by IUCN and Shell entitled 'Building Biodiversity Business'[118] proposes that we can harness market forces to make biodiversity conservation a viable business proposition. This article is based on key observations and propositions of this report.

The concept of biodiversity is complex. Unlike climate change, which for better or worse, has been commoditized into units of tradable carbon, biodiversity is multi-dimensional concept that cannot be easily measured in units.

DEFINITION

As defined by the UN Convention on Biological Diversity and hence understood by our governments and policy makers, biodiversity is made up of three components – ecosystems, species and genes. Importantly, it also has three objectives – conservation of biodiversity, sustainable use of biological resources and the equitable sharing of the benefits arising from this use. With three components and three objectives, biodiversity is a much more complex concept than a unit of carbon. Unlike carbon which can be traded as units in the market, biodiversity is better understood as a 3x3 "eco" space in which market forces may be able to operate.

	Ecosystems	Species	Genes
Conservation	The Biodiversity market space		
Sustainable use			
Benefit sharing			

Within this 3x3 biodiversity market space, there are numerous opportunities for developing biodiversity businesses – i.e. commercial enterprises which

[118] This article is based on the 2008 IUCN/Shell report, *Building Biodiversity Business*, written by Joshua Bishop, Sachin Kapila, Frank Hicks, Paul Mitchell and Francis Vorhies. This adaptation of sections of this report and the interpretations and conclusions expressed here are those of the author and do not necessarily reflect the views of the other authors of the report, IUCN or Shell. Any errors in the presentation are purely the responsibility of the author of this article.

make money by conserving biodiversity, using biological resources sustainably and sharing equitably in the benefits of this use. In other words, within the biodiversity market space there is the possibility for investing in triple-bottom-line value propositions which can generate environmental (conservation), economic (sustainable use) and social (benefit sharing) returns.

THE BUSINESS CASE FOR BIODIVERSITY CONSERVATION

A traditional perspective is that the best contribution a business can make to biodiversity is to make donations for conservation activities by NGOs or pay taxes which support the conservation activities of governments. More recently, there has also been an increasing emphasis on reducing the 'footprint' of businesses on biodiversity. This can be accomplished through mandatory regulations or voluntary agreements. Though both of these approaches are valid, there is a third approach which looks specifically at biodiversity as a value proposition for business.

The business case for biodiversity is perhaps easiest to make for a business whose operations depend directly on biodiversity to operate. Examples include nature-based tourism, fisheries, forestry and agriculture. The dependence on biodiversity can range from natural landscapes as a tourist destination to crop genetic diversity which can be a key factor in maintaining disease resistance to tropical forests which can be the source of novel genes for agricultural, industrial and pharmaceutical uses.

Despite increasing evidence of the commercial benefits of conservation, for many businesses the case for investing in biodiversity remains unclear. As suggested, understanding what biodiversity means and how it affects business value is the first hurdle.

For most business sectors and companies, however, biodiversity conservation remains a liability, an obligation or a cost, rather than a value proposition or a profit centre.

Nevertheless, as awareness of the business case for biodiversity increases, more companies are seeking to distinguish themselves from competitors and gain favour with the public by supporting conservation efforts. This may include direct association of business products and services with natural environments in advertising campaigns; voluntary reporting of business impacts on biodiversity or of business contributions to conservation activities.

Other investors and entrepreneurs are discovering that biodiversity conservation can form the basis of profitable new business models. These include the supply of commodities and services according to emerging standards of biodiversity-friendly production, supported by independent certification or assurance mechanisms, as well as the supply of ecosystem restoration and management services to both public and private customers.

Clearly with worldwide support for protecting endangered species, restoring degraded ecosystems and ensuring the landscapes are management sustainably, biodiversity conservation has to potential to deliver real value to businesses.

THE CONSERVATION CASE FOR ENCOURAGING BUSINESS

Market-based approaches to environmental management are increasingly of interest to the conservation community including environmental agencies in governments and environmental NGOs. Market-based policies and programmes have the potential to achieve environmental objectives more effectively and efficiently. Market-based approaches may also provide greater flexibility and innovation, better responsiveness to consumers, improved access to capital and, in some cases, reduced regulatory costs due to better alignment of private and public interests.

Building on the case for market-based approaches to environmental management, the case for biodiversity business is based on recognition that efforts to protect biodiversity and restore degraded ecosystems can be enhanced by engaging private investors, entrepreneurs and managers in the supply of biodiversity-friendly goods and services. In addition to the important role for environmental regulations including the establishment of protected areas, biodiversity business can enhance conservation efforts throughout the landscape from the buffer zones of parks to urban centres.

In so doing, biodiversity business can channel scarce private capital, labour and know-how to conserving more biodiversity and improving the integrity and diversity of natural systems. Thus biodiversity business complements traditional approaches to conservation by generating new value chains from producers to consumers which integrate conservation as part of their value proposition.

THE DEVELOPMENT CASE FOR CONSERVATION BUSINESS

Market-based approaches to biodiversity conservation are not only of interest to businesses and environmentalists. Building biodiversity businesses can also contribute to global development objectives including poverty alleviation in developing countries.

In fact, the issue of poverty alleviation and more broadly social equity is an integral part of the biodiversity market space. Though traditionally, biodiversity policy has focused on the first two objectives of the Convention on Biological Diversity (CBD) – conservation of biodiversity and sustainable use of biological resources – it is important to recall the third objective of the Convention that calls for "*the fair and equitable sharing of benefits ...*" This

third objective relates directly to the broader goals of social equity and sustainability.

When the Convention was adopted at the Rio Earth Summit in 1992, the focus of this third objective was on the benefits arising from the use of genetic resources, but over the years it has been broadened to encompass the benefits arising from the use of all biological resources including ecosystems and species. Recent decisions adopted by the CBD's Conference of the Parties explicitly refer to the "*equitable sharing of the benefits from the utilisation of biological diversity*" in the context of various biodiversity issues ranging from environmental impact assessment to plant diversity to ecotourism.

From a business perspective, the objective of equitable sharing of biodiversity benefits requires a company to integrate the management of biodiversity with its approach to social responsibility. This can be done by adopting a stakeholder approach to biodiversity, involving customers, workers, investors, neighbours and other stakeholders who are affected by the company's relationship with biodiversity. Depending on the nature of the company, its relationship to biodiversity and to its stakeholders, a variety of issues can be addressed in the context of equitable benefit-sharing.

Such approaches are necessary in order to address real concerns about the potentially adverse impacts of market-based approaches to biodiversity conservation on the poor. Efforts to build biodiversity business should ensure that the very poor are not displaced from their jobs or cut off from the natural resources they previously exploited. Complementary measures to enable poorer groups to participate as suppliers of biodiversity and ecosystem services are also critical. In short, a biodiversity business must not only conserve biodiversity and ensure that its use of biological resources are sustainable, but it must also ensure that the benefits arising from this use are shared equitably and in so doing promote sustainable development.

BIOTRADE OR BIOPIRACY?

The illegal trade in wild species and native genetic resources – has been a major concern of conservationists for decades. At the species level, one of the first international environmental agreements focused on the potential detrimental impacts of biotrade – the 1975 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Convention's website explains:

> "Levels of exploitation of some animal and plant species are high and the trade in them, together with other factors, such as habitat loss, is capable of heavily depleting their populations and even bringing some species close to extinction. Many wildlife species in trade are not endangered, but the existence of an agreement to ensure the sustainability of the trade is important in order to safeguard these resources for the future.
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> "Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international

> cooperation to safeguard certain species from over-exploitation. CITES was conceived in the spirit of such cooperation. Today, it accords varying degrees of protection to more than 30,000 species of animals and plants, whether they are traded as live specimens, fur coats or dried herbs."[119]

At the level of genetic resources which is often closely linked to local traditional knowledge, many fear the potential for 'biopiracy,' i.e. the non-consensual patenting or commercialization of natural substances derived from native wild plants and animals.

As it is not possible to patent living organisms, patents are often registered on particular chemicals isolated or developed from them, often in combination with a stated and documented use of those chemicals. Some fear that granting such patents to scientific or industrial users may lead to restrictions on access by local communities to biological resources on which they depend for their livelihoods.

Hence, with respect to bioprospecting, there is an ongoing concern about the potential for biopiracy. In the short-to-medium term, it is possible that legitimate bioprospectors may be 'scared off' by the slow pace of international negotiations or confusion and controversy as to who 'owns' the rights to which biological resources. This may leave the space open to biopirates.

Under the CBD, bioprospectors should obtain prior informed consent to access genetic resources and they should share any benefits arising out of their commercialization. However, robust protocols and laws at either the international or national levels have not yet been set up to adequately prevent biopiracy. Also, there are further complications: bioprospecting is directly linked to other legal regimes such as the 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) and the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture.

That said, bioprospecting is today often perceived as a relatively un-remunerative investment, especially compared to the value that can be realized from other sustainable uses of biodiversity. Furthermore, as more countries enter the bioprospecting market with unique combinations of biological and technical resources for sale, market niches may well become even smaller leading to a further decline in prospective profits. Hence, analysts tend to caution against undue optimism regarding the potential contribution of bioprospecting to biodiversity conservation. In a 2007 paper, R. David Simpson makes clear that:

> "the emerging consensus among both economic and natural science commentators ... is that bioprospecting cannot, in most areas, generate sufficient private values to motivate meaningful conservation."

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[119] http://www.cites.org/eng/disc/what.shtml.

On the other hand, the good news is that if there is little money to be made from bioprospecting for genetic resources, then there indeed little incentive to engage in biopiracy. Of course, the situation is much different with the trade in various wild species ranging from elephants to mahogany to sturgeon and hence CITES has a key role to play in regulating biotrade.

BIODIVERSITY BUSINESS EXPORT OPPORTUNITIES

With the biodiversity market space, however, there are several sectors with clear potential for the development of biodiversity business. These include:

- Agriculture
- Forestry
- Non-timber forest products
- Fisheries and aquaculture
- Biocarbon
- Payments for watershed protection
- Bioprospecting
- Biodiversity offsets
- Biodiversity management services
- Ecotourism, and
- Recreational hunting and sport fishing.

The final section of this paper deals briefly with the biodiversity business opportunities in these sectors and thus highlights opportunities for exporters as well as investors and business support initiatives by donors and governments for exporting companies.

AGRICULTURE

Agriculture and food businesses are today undertaking a wide variety of initiatives to promote sustainable agriculture and the sustainable production of natural products. Leading examples include the growth of 'organic' agriculture and international 'roundtables' on sustainable palm oil, soy, coffee, sugar and cocoa.

Although the growth of certified organic or sustainable production in is much faster than for conventional products, the total volume and value of such products is still a small percentage of the overall market – typically less than 5%. Hence, with increasing awareness among consumers, the market for biodiversity-friendly agricultural products is sure to grow.

At the same time, however, there is a growing need to develop more holistic schemes for certifying the biodiversity values of various agricultural

processes. For example, organic certification schemes have tended to focus on the actual farm process or the sustainability of the use of agricultural resources, while fair trade schemes have tended to focus on the equitable sharing of the benefits. Combining these objectives with a better understanding of the impacts of agricultural practices on the sustainability of landscapes is a priority concern of most certification schemes.

Specific opportunities for improving the biodiversity impacts of agriculture include:

- Support to responsible agriculture-based enterprises within important biodiversity landscapes in partnership with local protected authorities;
- Investing in eco-agriculture approaches in priority production landscapes with specific private sector partners;
- Capitalizing eco-investment funds focusing on small and medium-sized enterprises, to scale-up their support for environmentally-friendly agricultural enterprises;
- Support to efforts to restore marginal agricultural land to native habitat along with intensifying agricultural production, using biodiversity-friendly practices on more suitable land; and
- Promoting responsible biofuel feedstock production.

FORESTRY

Certification standards for forests and forest products are increasingly recognized by retailers and consumers. Nevertheless, the total percentage of certified timber is low, particularly in developing countries. Hence, there is a growing opportunity for more companies is to manage forest resources in ways that optimize a range of biodiversity benefits, such as selling certified wood products, tapping into emerging markets for environmental services, non-timber forest products, forest-based ecotourism.

At the same time there is also a need to strengthen the biodiversity aspects of sustainable forest certification schemes particularly with respect to maintaining the integrity and diversity of natural ecosystems. There is also a need to address the cost barriers to certification faced by many developing country forestry companies.

Some biodiversity business opportunities in the forestry sector include:

- Support for the adoption of certification standards in developing countries, particularly in regions where these are currently non-existent or embryonic;
- Addressing policy issues related to land tenure, use rights and the decentralization of forest management to involve local communities to ensure the equitable sharing of benefits from forest-based businesses;
- Investing directly or indirectly (e.g. via existing eco-enterprise funds) in companies that market certified sustainable timber and timber products;

- Developing and promoting more efficient timber-processing and charcoal manufacturing technologies, in order to improve the currently very low conversion rates in many developing countries;
- Investing in businesses that manage forest resources to optimize a range of the environmental benefits they can provide; and
- Support to efforts to strengthen policies and practices to combat illegal logging and corruption within the forestry sector.

NON-TIMBER AND NON-WOOD FOREST PRODUCTS

Non-timber forest products (NTFPs), including the harvesting of wild fauna and flora, can be major sources of subsistence and cash income for rural poor communities in developing countries. Examples include edible nuts, mushrooms, fruits, herbs, spices, honey, gums and resins, rattan, bamboo, thatch, cork, ornamental plants and flowers, and an array of plant and animal products used for medicinal, cosmetic, culinary, cultural or other purposes. In addition to local uses, many NTFPs are traded internationally.

There is a biodiversity business opportunity to support NTFP enterprises that promote best management practices regarding sustainable harvesting and support for local communities. In many instances, such efforts would also need to address land tenure or NTFP access rights to be effective in the long term. A related need is to support the broader adoption of a sustainable NTFP certification, the development of low-cost systems, and research to measure the impacts of NTFP harvesting at both species and ecosystem level.

Specific biodiversity business opportunities linked to NTFP include:

- Investing in a portfolio of NTFP enterprises, either in a small number of high potential product markets, or a broader 'market basket' of products, that promote best management practices with respect to sustainable harvesting and support for local communities; and
- Investing in existing and new SME funds that support NTFP businesses.

FISHERIES AND AQUACULTURE

The sustainability of harvesting fish from the wild – in both marine and freshwater ecosystems – remains a serious challenge. Certifications schemes for both food fish and ornamental fish are in place, but still account for only small percentages of the trade. Also, aquaculture – which is growing very rapidly, particularly in Asia – is increasingly viewed as a part of the solution to over-fishing of wild stocks. Several certification schemes are being developed to promote sustainable aquaculture but again only a fraction of the world's aquaculture operations currently use verifiable environmentally-friendly practices. There is also a particular need to extend sustainable fisheries certification to address problems such as by-catch and

also to expand coverage across to developing countries, where certification is currently very limited. Hence there is a biodiversity business opportunity to invest in certified sustainable fishing and aquaculture.

Furthermore, akin to the opportunities for NTFPs in forest ecosystems, there is an opportunity to promote eco-investment funds for developing a portfolio of biodiversity-responsible businesses ranging from aquaculture to tourism in marine and freshwater ecosystems.

BIO-CARBON

Though there has been a good deal of focus on offsetting carbon emissions through carbon sequestration in forestry and agricultural projects in developing countries, to date very few of the carbon credits traded through the Clean Development Mechanism of the Kyoto Protocol relate to these sectors. Furthermore, this is little focus on the potential biodiversity benefits under such schemes.

More activity linking carbon offsets to biodiversity benefits, however, has taken place within the growing voluntary carbon market, as corporations and individuals seek to offset emissions to meet their own reduction targets. Nevertheless because biocarbon is subject to greater risks and uncertainties, compared for example to renewable energy initiatives, it remains also a small part of the voluntary carbon market. Hence there is an opportunity for further experimentation within the voluntary carbon market to support avoided deforestation and related initiatives that bundle carbon offsets with a range of biodiversity-beneficial goods and services.

There may well be several biodiversity business possibilities for conserving biodiversity and sustainably using biological resources through investing in carbon mitigation or offsets. One increasingly attractive option is to use carbon finance to tackle deforestation in the tropics. Another possibility is creating carbon offsets in biodiversity-friendly agriculture through no-till cultivation. Nevertheless, a good deal of work remains to be carried out to identify and market new biocarbon products on a commercially viable basis.

PAYMENTS FOR WATERSHED PROTECTION

Payments for watershed protection are increasingly used in many countries, ranging from payments by private water users to environmental agencies and NGOs to direct payments by central government to private landowners. Finding a willing buyer for watershed protection services, however, is often the main barrier to introducing such schemes or maintaining them over the long term. The key is to identify downstream water users for whom payments are a more cost-effective option than water treatment, water demand management, or the development of alternative water supplies.

Although technical assistance to design and evaluate watershed payment schemes is increasingly available, the more significant funding needed to purchase watershed protection services from private landowners is scarce, particularly in developing countries. Nevertheless, the approach is widely applicable but still relatively undeveloped, especially in Africa and Asia.

Also, importantly, because water catchments are often not restricted to one country, there are numerous opportunities for international payments to protect watershed.

Hence there may be a significant biodiversity business potential to leverage co-funding from government and development agencies and, in certain locations, to transfer the scheme to local water users. In so doing, contributions to poverty reduction could be substantial, due to the relatively low incomes of most upland farmers compared to downstream water users. Economic returns could also be high, particularly where the alternative to watershed protection is investment in costly water treatment or development of new water supplies.

BIOPROSPECTING

Bioprospecting is the systematic search for genes, compounds, designs, and organisms that might have a potential economic use and might lead to a product development. However, because novel products do not originate only in biodiversity-rich areas, the presumed link between bioprospecting and biodiversity conservation is not as clear as it might first appear. Also the socio-economic benefits of bioprospecting could be increased by supporting investments in rural communities that provide the raw materials.

At present, bioprospecting is perceived in some quarters as a relatively un-remunerative investment, compared to the value that can be realised from other sustainable uses of biodiversity. Nevertheless, it may be possible to invest in companies that actively support the law communities that provide the biological materials they utilise. Also, there is an opportunity for bespoke biodiversity services to monitor in-country bioprospecting and the subsequent use of biological samples and related data.

BIODIVERSITY OFFSETS

The use of legally mandated biodiversity offsets is growing and examples can be found in Australia, Brazil, Canada, Switzerland, and the US. The Environmental Liability Directive passed by the European Commission in 2004 could lead to similar arrangements throughout Europe. Analogous policies are under development in Mexico, New Zealand and Uganda, among other countries.

In addition to these mandatory offsets, there is growing interest in the potential of voluntary offsets. Some companies have made public commitments to implement biodiversity offsets linked to their ‘footprint’; while several mainstream investors are looking at biodiversity offsets as a new business opportunity, as well as an indicator of good corporate governance.

Long-term prospects for biodiversity offsets may include international trade in conservation ‘credits’, along the lines of the market for carbon credits. Unlike carbon, however, biodiversity is not a homogenous commodity, but a complex system that makes the development of any trading regime more challenging. Nevertheless, there are emerging opportunities to develop biodiversity offsets as a commercial business, focusing on situations where

there is significant unmet demand for offsets, or where demand could be stimulated more easily. Examples include local ecosystem 'banks', ecosystem service 'brokers', and biodiversity 'offsets for imports'.

BIODIVERSITY MANAGEMENT SERVICES

This specialized market is expected to increase significantly as more companies come to view biodiversity as both a significant business risk and as a potential business opportunity. The public sector is also likely to become a more significant customer for biodiversity management services.

In this respect there is a biodiversity business opportunity to develop and invest in specialist biodiversity management service providers to augment the services currently offered by conservation NGOs, academic and scientific institutions and independent environmental consultants.

Biodiversity management specialists could provide services to integrate biodiversity within environmental impact assessments; undertake or monitor ecosystem restorations; benchmark biodiversity performance; conduct or certify biodiversity action plans; or create and verify biodiversity offsets.

ECOTOURISM

Ecotourism or responsible nature-based tourism is a rapidly growing sector. There are now numerous many examples of tourist operations that maintain high standards and provide direct support for biodiversity conservation. There are also some examples of ecotourism operations that generate significant local economic benefits, build local management capacity and business skills, or actively involve local communities in the planning, management and evaluation of associated biodiversity conservation.

There is a clear biodiversity business opportunity to invest in ecotourism companies that professionalize the management of tourism concessions in and around protected areas and areas of significant biodiversity. Another opportunity is to invest in or create 'chains' of ecotourism hotels and related operations – with well-designed facilities, professional management, common promotional strategies – to create biodiversity-responsible brands in the tourism sector.

Specific biodiversity business opportunities include:

- Investing in responsible ecotourism companies that can then take on the management of tourism concessions in national parks or buffer areas;
- Investing in joint ventures between local communities and the private sector based on participatory and equitable negotiations;
- Investing in existing or new eco-funds that include ecotourism in their portfolios; and

- Improving marketing from product development to distribution, biodiversity performance indicators, and knowledge transfers between different projects.

RECREATIONAL HUNTING AND SPORT FISHING

Recreational hunting and fishing are also significant sources of conservation funding in developed and developing countries. As international tourism continues to expand, the demand for recreational hunting and fishing in developing countries can be expected to increase.

Opportunities exist to work with responsible recreational hunting and fishing organizations with good records in supporting biodiversity conservation in developed countries, to open more chapters, or enter into mentoring relationships with similar organizations in developing countries, to implement conservation programmes.

INTERNATIONAL MARKETS FOR BIODIVERSITY BUSINESS

As this paper has shown, there is a biodiversity market space in which businesses can make money by conserving nature, using biological resources sustainable and ensuring that the benefits of this use are share equitably. A solid business case, biodiversity case and development case can also be made for developing and investing in businesses operating within this biodiversity market space. Furthermore, there is a large portfolio of biodiversity business opportunities in sectors ranging from forestry and fisheries to biocarbon and ecotourism.

Importantly, the biodiversity market space is a globalized space and the opportunities for foreign direct investment and export promotion schemes which can stimulate biodiversity business are tangible. Prospects for international trades which support sustainable development abound for biodiversity goods and services – ranging from organic agricultural products to biodiversity management services and to biodiversity offsets.