

ALSO IN THIS ISSUE: BUSINESS ON SBSTTA-12



# BUSINESS.2010

Vol.2 | Issue 3  
September 2007  
Technology transfer

*A newsletter on business and biodiversity by the Secretariat of the Convention on Biological Diversity*

The word 'TECHNO' is displayed in a stylized, 3D font. Each letter is contained within a red square. The letters are white with a dark blue outline, and the squares are slightly offset and tilted to create a sense of depth and movement.

Technology transfer  
and cooperation  
under the Convention

# In context: Technology transfer



*This note intends to help put technology transfer in context and give new readers a way into the Convention on Biological Diversity.*

## **In the Convention Text**

This issue of *Business.2010* focuses on technology transfer and cooperation – a key provision under the Convention, as reflected in Articles 16 to 19 [[www.cbd.int/convention/convention.shtml](http://www.cbd.int/convention/convention.shtml)].

In Article 16, Parties recognized that access to and transfer of technology among Contracting Parties are essential elements for achieving the objectives of the Convention. Articles 16 to 19 set out how access and transfer of technology and technical and scientific cooperation are to be carried out.

Technology transfer and technology cooperation is also of direct relevance to Article 15 on access and benefit-sharing: Parties have recognized in the *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization* [[www.cbd.int/abs/bonn.shtml](http://www.cbd.int/abs/bonn.shtml)], that non-monetary benefits to the provider of genetic resources could take the form of the transfer of knowledge and technology under fair and most favourable terms, in particular technology that makes use of genetic resources.

## **The Programme of Work**

At its fourth meeting, the Conference of the Parties decided that, as part of its long-term programme of work, transfer of technology and technology cooperation would be subject for in depth consideration at its seventh meeting.

Subsequently, in 2004 the Conference of the Parties adopted (in paragraph 1 of Decision VII/29) a programme of work on technology transfer and technical and scientific cooperation [[www.cbd.int/tech-transfer/pow.shtml](http://www.cbd.int/tech-transfer/pow.shtml)]. This consists of four main elements:

- Technology assessment;
- Information systems;
- Creating enabling environments; and
- Capacity-building and enhancement.

## **Defining ‘technology’**

Relevant technology under the Convention has generally been understood to not only include the so-called ‘hard’ technol-

ogy (*i.e.* the machinery and other physical hardware that is transferred) but also the category of ‘soft’ technology – technological information or know-how, necessary to, *inter alia*, produce such hardware. This knowledge is brought about both through research and innovation (moving ideas from invention to new products, processes and services in practical use) and through a complex and often costly process involving learning from others.

## **Indigenous and local communities**

Technologies of relevance to the Convention as stated in Article 16 (1) will not only include modern technologies, including modern biotechnologies, but also technologies that were developed and are used by indigenous and local communities embodying traditional lifestyles. There is thus a connection between the provisions of the Convention on technology transfer and scientific and technological cooperation and its Article 8 (j), which stipulates that each Contracting Party shall, as far as possible and as appropriate and subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

In this regard, the programme of work on technology transfer and technological and scientific cooperation invites the actors involved in its implementation to take into account two strategic considerations pertaining to traditional and local communities: (i) the participation, approval and involvement of indigenous and local communities and all relevant stakeholders is key for the successful transfer and diffusion of technology for conservation and sustainable use of biological diversity; (ii) mechanisms for ensuring that technology transfer and cooperation fully respect the rights of indigenous and local communities need to be taken into account in the implementation of the programme of work.

## **The Ad hoc Technical Expert Group**

In 2006, the Conference of the Parties (in paragraph 4 of Decision VIII/12) decided to

establish an Ad hoc Technical Expert Group (AHTEG) on Technology Transfer and Scientific and Technological Cooperation with a view to collect, analyze and identify ongoing tools, mechanisms, systems and initiatives to promote the implementation of Articles 16 to 19 of the Convention, and to propose strategies for practical implementation of the programme of work. The meeting of the AHTEG will take place on 10 - 12 September in Geneva, Switzerland [[www.cbd.int/doc/meeting.aspx?mtg=EGTTSTC-02](http://www.cbd.int/doc/meeting.aspx?mtg=EGTTSTC-02)].

In paragraph 10 of decision VIII/12, the Conference of the Parties indicated that the mandate of the AHTEG shall be as set out in Decision VII/29, paragraph 7. Further to the adoption of the programme of work by the same decision, in this paragraph, the Conference of the Parties requested the Executive Secretary to establish an expert group on technology transfer and scientific and technical cooperation. In addition to electronic consultations, members of the group met back-to-back to SBSTTA-11, on 27 November 2005, in Montreal.

## **Mandate**

According to paragraph 7 of decision VII/29, the expert group was to assist the Executive Secretary in:

(a) The Preparation of proposals on options to apply institutional, administrative, legislative and policy measures and mechanisms, including best practices, as well as to overcome barriers, to facilitate access to and adaptation of technologies on the public domain and to proprietary technologies by developing countries and countries with economies in transition; and in particular, on measures and mechanisms that:

(i) Foster an enabling environment in developing and developed countries for cooperation as well as the transfer, adaptation and diffusion of relevant technologies;

(ii) Provide, in accordance with existing international obligations, incentives to private-sector actors as well as public research institutions in developed country Parties, to encourage cooperation and transfer of technologies to developing countries, through, e.g., technology transfer programmes or joint ventures;

(iii) Promote and advance priority access for Parties to the results and benefits

arising from technologies based upon genetic resources provided by those Parties, in accordance with Article 19, paragraph 2, of the Convention, and to promote the effective participation in related technological research by those Parties;

(iv) Promote innovative approaches and means of technology transfer and cooperation such as Type 2 partnerships, in accordance with the outcome of the World Summit on Sustainable Development, or transfers among actors, involving in particular the private sector and civil society organizations;

(b) Exploration of possibilities and mechanisms of cooperation with processes in other Conventions and international organizations, such as the Expert Group on Technology Transfer (EGTT) under the United Nations Framework Convention on Climate Change.

### References to business

Engagement with business is particularly important in light of Article 16 (4), which prescribes that each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that the private sector facilitates access to, joint development and transfer of technology for conservation and sustainable use or that make use of genetic resources and does not cause significant harm to the environment, for the benefit of both governmental institutions and the private sector in developing countries.

In paragraph 9 of decision VIII/17, on private sector engagement, the Conference of the Parties invited the AHTEG to address the role of the private sector in achieving the three objectives of the Convention and to consider the relevance of decision VIII/17 for the work of the Expert Group, and to report thereon to the Conference of the Parties.

In paragraph 14 of recommendation 2/1, the Ad-hoc Open-ended Working Group on Review of Implementation of the Convention, adopted at its second meeting (9-13 July 2007), noted the need to provide Parties with additional information on guidance, initiatives, mechanisms, systems and tools to improve technology transfer and cooperation, including: (c) Guidance and initiatives to increase private sector engagement and strengthen enabling environment for investments at the national level.

[www.cbd.int/tech-transfer/default.shtml](http://www.cbd.int/tech-transfer/default.shtml)

# Message from the Secretariat



Photo © IISD/ENR, Franz Dejon

By AHMED DJOGHLA, Executive Secretary

Access to and transfer of technology among Contracting Parties are essential elements for attaining the objectives of the Convention on Biological Diversity – the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

### The range of relevant technologies

Looking at the range of relevant technologies explains why they are so important for the Convention: they range from soft tech-

nologies such as management techniques for *in-situ* conservation (for instance integrated pest management) or for the sustainable management of biodiversity resources (e.g. sustainable forest management or integrated water management), to hard technologies such as those used in *ex-situ* conservation (e.g. preservation and storage technologies used in gene banks), or monitoring technologies (e.g. remote sensing) for updated and accurate biodiversity information, which is a key precondition for effective and targeted policy and decision-making. Last but not least, many modern biotechnologies make use of genetic resources, and the effective participation in biotechnological research by countries which provide genetic resources, and their access to the research results, will be key mechanisms in implementing the third objective of the Convention.

The business community will be a key partner in achieving effective access to transfer of relevant technology – as it owns a large part of global technology. Partnerships will be even more important because it has been emphasized that technology transfer, in particular in the context of the third objective of the Convention, would be less or not effective as an on-off activity, but should rather be embedded in integrated, long-term mechanisms of technological cooperation, which would be key means to build capacity and enlarge the technology base and the national innovation systems of developing countries. Governments will need to create an environment which enables the private sector to facilitate access to, the joint development of, and the transfer of technology for the benefit of developing countries.

### An ambitious programme

The present issue of the business newsletter comes at a critical juncture of the Convention's work on technology transfer and cooperation. Since its inception, progress has been made through pertinent activities under the various thematic programmes of work of the Convention, in particular through bilateral and multilateral development cooperation. The reports of Parties indicate, however, that more needs to be

## *The business community will be a key partner in achieving effective access to transfer of relevant technology – as it owns a large part of global technology*

done at national and international levels. In order to foster effective implementation of the Convention's provision on technology transfer, the Conference of the Parties adopted an ambitious programme of work on technology transfer and cooperation. The September meeting of the Ad Hoc Technical Expert Group is to devise a strategy for effective implementation of the programme of work, including practical activities to promote effective partnerships with the business community on technology transfer and cooperation.

It is my hope that the present newsletter will kindle interest and enthusiasm among business leaders to deepen their engagement with governments and stakeholders in this critical area of the Convention.

# The benefit of technology for the utilization of genetic resources



Photo © IISD/ENB, Franz Dujon



**FERNANDO CASAS-CASTAÑEDA** reflects on the attributes of technology transfer which could help advance access and benefit-sharing provisions of the Convention.

The *Economist*, in a recent article, quoted Paul Horn, Senior vice-president and director, IBM Research, as saying that “Everything we do is aimed at avoiding a ‘handoff’—there is no ‘technology transfer’ and Intel executive Sean Maloney, reflecting that research is better “the closer the development is to the brutal market reality”. The article highlighted that for the world of computing, “innovation emerges from new ways of arranging today’s technologies rather than inventing new ones” [1].

## **Beyond polarized positions**

The above remarks seem to apply to a context where competition is fierce and time to market can be instantaneous. Would this be a valid observation when technologies are “relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment”? [2].

Should Parties to the CBD fall into a polarized position, common elsewhere, focusing on the struggle between ‘competitive’ and ‘collaborative’ approaches? Is there any merit in a combination of the two strategies? Certainly, encouraging cooperation between government authorities and a competitive, business community will contribute positively to the 2010 goals and targets of the Strategic Plan.

At least this was a common understanding arising from the very beginning of the Convention. A pragmatic consensus for technology provisions exists under the Convention which recognises the dynamic dependence between biodiversity and bio-

technology and the reality of a turbulent environment, such as that created by a high rate of innovation in products and processes based upon biological resources *vis-à-vis* issues such as environment protection, food security and public health.

What matters is achieving long-term scientific, technical and technological cooperation as the necessary means to the conservation and sustainable use of biodiversity, in addition to specific technology transfer in exchange for access to genetic resources under specific agreed terms, according to the relevant provisions of the CBD agreement. Therefore, since both technology cooperation and the transfer of technology are essential contributions for the attainment of the three objectives of the Convention, and in particular to its third objective, Parties, international institutions, the business community, centers of knowledge, indigenous and local communities and other stakeholders should give priority to the strengthening of a durable and trustful relationship in the framework of the fair and equitable distribution of benefits arising out of the utilization of genetic resources.

***What matters is achieving long-term scientific, technical and technological cooperation as the necessary means to the conservation and sustainable use of biodiversity, in addition to specific technology transfer in exchange for access to genetic resources under specific agreed terms, according to the relevant provisions of the CBD agreement***

## **ABS vision**

In the perspective of this long term relationship – one that has to ‘keep up’ or ‘evolve’ with advances in technology – the assemblage of a multilateral network of providers, users, intermediaries, researchers, regulators and other relevant stakeholders implies the strengthening of technical and organizational skills, both within the Conference of the Parties as such and in terms of the multiple links between Parties and specific providers and users.

The CBD acknowledges a reality with different developing countries at different levels of development, where access and the transfer of technology transfer, becomes the driving force of the economic,

social and environmental dimensions of sustainability.

Beyond the privileged position that the technologically advanced regions enjoy today, some developing countries are quickly becoming an alternative source of qualified workers and smart innovators and should soon be in a position to assist others in establishing a technological base associated to genetic resources within and between developing regions.

However, many others are lagging behind and cannot be isolated from the benefits of institutional capacity development and opportunities for sustainable development of those resources.

## **Scaling up**

A network of Parties and other relevant stakeholders is expected to strengthen their links in particular with public, private and community institutions, with a view to creating opportunities, developing capacity and distributing benefits. This can be done, directly or indirectly, by enhancing the already robust CBD network, that is, by improving its density, stability and

solidarity, and applying instruments on at least two interrelated levels:

- Incentives for partnerships, following the logic of economies of global scale, relatively free from geographic location but needed to be committed to the overall CBD success; and
- Incentives for partnerships, when highly territorialized problems and conditions of economies of agglomeration prevail, at the community level, including small to medium-sized enterprises.

In the interface of these two coping strategies, there is a need to scale-up concrete results in support of the CBD’s third objec-

tive:

- Investing in science and technology education, and engaging business to create incentives and promote an enabling environment for Foreign Direct Investment, as well as devising conducive mechanisms for building domestic technological capacity; and

- Training and support of traditional and experimental knowledge in order to improve the qualification and skills of local communities, as well as the traceability, monitoring and control of their resources and their knowledge back and forth in the value chain.

#### **Five success factors**

Sharing research results and technologies implies good reasons and specific motives. Among them, the flow of technology is an expected benefit arising out of authorized access to specific uses of genetic resources

which makes sense according to the importance and relative concentration of genetic resources and traditional knowledge. But, what type of transfer of technology is possible, practical or right for a successful Access and Benefit-sharing (ABS) relation? It probably depends upon a series of factors including the following ones:

- Magnitude of the use of genetic resources as physical samples or genetic information;
- Criticality of access to biological samples or genetic information;
- Degree of substitution of the resource or of the provider;
- Degree of concentration of technical and organizational knowledge; and
- Capacity to enforce the rights of con-

trol and/or ownership over resources and knowledge.

The above factors define a collaborative strategy in advancing common goals in science and technology as well as supporting partnerships between research institutions and industry to develop specific skills along with a long term vision in favour of sustainable development of biological resources and the public interest.

[1] *The Economist*, 1 March 2007. "The rise and fall of corporate R&D. Out of the dusty labs".

[2] Article 16, paragraph 1, Convention on Biological Diversity.

Fernando Casas-Castañeda is Senior Advisor, Instituto Alexander von Humboldt and Co-Chair, Ad Hoc Open-ended Working Group on Access and Benefit Sharing, Convention on Biological Diversity.

fccasas@gmail.com

# Bringing the Programme of Work into practice



Photo © Bundesamt für Naturschutz



**HORST FREIBERG** describes efforts in Germany to get technology transfer and cooperation moved through the Clearing-House Mechanism.

“From theory to action” is a meaningful saying – easily said but tough to realize. The implementation of the Programme of Work (PoW) on Technology Transfer and Technological and Scientific Cooperation requires much practical work indeed and a step-by-step approach.

## 40 shades of technology transfer

At the very beginning of the development of the Convention’s Clearing-House Mechanism (CHM), Germany initiated small steps to promote and facilitate technical and scientific cooperation. This helped us get a better understanding of the complexity of the task and to get a practical understanding on the role and niche the CHM could fill. The Bank of ideas for research projects cooperation, implemented in 1998, was aimed at facilitating information sharing and partnering identification between Colombian and German Research institutions on biodiversity projects, using the two national CHMs as a communication platform. This was the first interactive and jointly developed assessment of needs for biodiversity relevant to scientific cooperation of the CHM.

The paper ‘40 Shades of Technology Transfer’, published in 2004, illustrated the potential range of biodiversity-relevant technology transfer within the CBD [1]. In order to encourage discussion on technology transfer, a national framework analyzed the potential role of the CHM in this context [2]. One of the practical proposals in the study was to establish an information section on relevant national biodiversity technology providers. In addition, the study provided a checklist for selecting a technology within the scope of technology transfer.

In the study, several networks and institutions were identified as relevant to biodiversity. They range from traditional knowledge based networks, applied technology and genetic resources networks to biometrics, biotechnology focal points, renewable resources and ecosystem technology providers. Together, they provide, in fact, an initial stepping stone on biodiversity-relevant technology providers in Germany – either from business, the scientific community, or NGOs. For many stakeholders in Germany, this study also proved to be the first introduction with the Convention and its PoW on technology transfer.

## Technological cooperation

Small and Medium-sized Enterprises (SMEs) and university-based research groups were particularly interested in exploring the potential for technology cooperation under the CBD and many enquired for more information. Both groups are in favour of long-term partnerships which comprise training and capacity building, as well the sharing of the benefits arising out of a cooperation. Several examples from SMEs show the range of these promising technology areas of potential cooperation, e.g. innovative techniques on the use of bamboo, new wood-plastic-composite technologies and mineral-bound fibrous mats. An example of a university-based technological cooperation interest was presented on the use of biodiversity for bio-mechanical analysis. Any technology transfer activity should

that it contributes in a sustainable way to strengthening local economies, generating additional income and to reducing poverty.

## A Catalogue for SMEs

In order to systematically identify the existing national biodiversity-related and relevant technologies developed or under development by SMEs, as well universities, a Catalogue of national biodiversity-relevant technologies is currently being developed. The compilation commissioned by the German Ministry for the Environment is based on a questionnaire and complemented by telephone calls and face-to-face interviews. The Catalogue will constitute a first important information source for any biodiversity-related technology search and potential future technology cooperation activity. It is our aim to make the Catalogue publicly available through the German CHM.

A key activity in getting the PoW on technology transfer and technological and scientific cooperation implemented is to start national technology portfolio and needs assessments. Given that so many different technology transfer and technology cooperation activities are ongoing which, in some aspects, incorporate biodiversity aspects already, it is important to recognize the focus of the Convention’s technology transfer – i.e. “... technologies that are relevant to the conservation and sustain-

## *The implementation of the Programme of Work on Technology Transfer and Technological and Scientific Cooperation requires much practical work indeed and a step-by-step approach*

therefore ideally be implemented as technology cooperation, as follows:

The real value of any technology transfer (technology cooperation) lies in the local adaptation and integration of the technology on community or national level. The whole process integrates transfer of knowledge and hardware as well as capacity building, training and financial support. Technology transfer should enable the recipient to control and further develop the technology according to his needs so

able use of biological diversity or make use of genetic resources and do not cause significant damage to the environment” – and, as well, to clearly prioritise technology needs.

The most important challenge now, is to bring the PoW on technology transfer into practice and on the ground. Its general framework requires individual solutions and practical actions on how technology transfer can be implemented in the framework of the Convention.

[1] 'The 40 Shades of Biodiversity Technology Transfer' CBD, COP-7.

[2] BfN, 2005. *Technology Transfer via the Clearing-House Mechanism (CHM). A national study on actors, instruments, possible concepts and perspectives for the German CHM to facilitate technology transfer and cooperation in support to the Convention on Biological Diversity. Skript 160.*

Horst Freiberg is Senior Advisor, Federal Agency for Nature Conservation, Germany. He is CHM National Focal Point and a member of the CHM Informal Advisory Committee.

FreibergH@BfN.de

www.bfn.de

## SPOTLIGHT ON COP-9 PREPARATIONS

Starting with the October issue, *Business.2010* will run a regular column on COP-9 preparations, in collaboration with the Host Country. Send your questions to the editor, [nicolas.bertrand@cbd.int](mailto:nicolas.bertrand@cbd.int).

# Engaging people



Photo © The Monsanto Company

**ROGER KRUEGER** suggests that increased information flow and opportunities for personal contacts to explore all potential technology solutions are key to increasing technology transfer and cooperation.

**T**echnology transfer and cooperation means different things to different people. The demand or desire for new types of technologies will vary widely by region, country and even locality. In many, if not most, cases, however, business will play a critical role in effecting the technology transfer and scientific and technical cooperation necessary to meet the demands successfully. Accordingly, the International Chamber of Commerce's CBD Task Force (ICC Task Force) has identified this topic as among its top priorities.

### Improving access to information

Technology transfer and cooperation under the Convention on Biological Diversity (CBD) must be demand-driven. When a need for technological solutions and scientific and technical expertise is identified, there must be access to information about the technologies currently available, adaptations that can or have been made, and potential future solutions still under development. Relevant impact or risk assessments by regulatory authorities, along with information about the technologies, also must be made available. Increasing access to information about existing and future technologies as well as needs identified at the national and/or local level will play an instrumental role in increasing the frequency and quality of technology transfer and cooperation experiences. In the

view of the ICC Task Force, efforts under the Convention should begin by identifying all possible options to make full use of various information systems, including the CBD's Clearing-House and other web-based mechanisms. International organizations also could be invited to more systematically feature information about new technologies on the margins of symposia and workshops concerning various aspects of the conservation and sustainable use of biodiversity by including brief presentations of technologies relevant to the subject matter of the meetings or dissemination of compilations and/or brochures identifying electronic information sources.

### Personal touch required

Even with full information at our fingertips, however, we will not succeed in increasing technology transfer and cooperation unless we find ways to involve people on an individual basis. Case studies indicate that

### Avoiding red tape

The ICC Task Force also believes that efforts undertaken to facilitate and increase technology transfer and cooperation should ensure that those with technological and scientific needs have access to all potential solutions and assistance. In accordance with Article 16 of the CBD, this means that work under the CBD should promote and facilitate access to all technologies "that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment." We would therefore caution against the creation of any restrictions in this area, including unintentional barriers or administrative burdens that may be created through efforts to create harmonization in approach among the countries party to the Convention. Countries, and their citizens, should be free to identify, evaluate and seek access to new technologies, in line

## Efforts under the Convention should begin by identifying all possible options to make full use of various information systems, including the CBD's Clearing-House and other web-based mechanisms

personal contacts and direct exposure to new ideas and technological choices often are the catalyst for real technology transfer and cooperation. The ICC Task Force therefore welcomes opportunities to profile technology transfer in the context of the next meeting of the Conference of the Parties. Technology fairs or exhibits, for instance, can help to disseminate information about available technologies and, importantly, create the opportunity to bring together technology providers and potential users on a personal level. Such events also could contribute to a greater appreciation for the role of technology and business in achieving the Convention's objectives and expose more business representatives to the important work of the CBD.

with Article 16 and other provisions of the Convention, without screening or steering from the international community.

With improved information flow and opportunities to showcase, through personal interactions, all available technologies, the business community looks forward to helping meet the demand for increased technology transfer and cooperation.

Roger Krueger serves as the Chairman of the International Chamber of Commerce's Task Force on the CBD. He is responsible for Seed Regulatory, Seed Policy and Stewardship at The Monsanto Company.

[roger.w.krueger@monsanto.com](mailto:roger.w.krueger@monsanto.com)

[www.monsanto.com](http://www.monsanto.com)

[www.iccwbo.org](http://www.iccwbo.org)

# Quadruple partnerships for technology transfer



Photo © IISD/ENB, Franz Deyan

**GUNN PAULSEN** discusses the potential for technology transfer and capacity building as a means to achieve sustainable development, in general, and, more specifically, in the context of the CBD and UNCCD.

**T**echnology transfer (from those who have it to those who need it), capacity building and cooperation are topics of fundamental importance for the implementation of the Convention on Biological Diversity (CBD). This applies, in particular, to obligations under Articles 16 through 19 which address technology transfer, exchange of information, scientific co-operation and biotechnology.

In the United Nations Convention to Combat Desertification (UNCCD), obligations also exist with respect to the provision of enabling environments, the promotion

and facilitation of access by particularly affected developing country Parties to appropriate technology, knowledge and know-how. Funding responsibilities also include encouraging the mobilization of private sector as well other non-governmental resources.

## **The Trondheim conference**

The Trondheim Conference on Technology Transfer and Capacity Building, which took place in Trondheim, Norway in June 2003, made its deliberations on definitions of technology transfer as well as strategic considerations and operational aspects thereof.

Technology transfer was defined as the transfer of systematic knowledge, skills and innovations for the development and use of products, application of processes or rendering of services. Capacity building was seen as the development of the ability in a nation's people and institutions to understand, absorb, apply, modify, and further develop the knowledge and technologies available for the implementation of the Convention and the achievement of its goals. Technology transfer was also seen as relating to knowledge, methods and technologies within the various economic sectors (*i.e.* agriculture, forestry and fisheries) that might be essential to achieve the objectives of the CBD.

Several challenges were identified that needed to be overcome in order to enable a better understanding and use of available and potential opportunities and benefits deriving from technology transfer and capacity building. These include: (1) insufficiently receptive social and economic conditions to allow successful technology transfer and capacity building; (2) inadequate information on available technologies; (3) uncertainty with respect to terms under which technology transfer could and should be undertaken; and (4) lack of appropriate regulatory, financial and institutional frameworks at the local, national, regional and international levels.

Achieving improved and better-targeted technology transfer and capacity building would require developing concrete targets and improved synergies between biodiversity and development policies, with obligations and needs under other conventions, and between sectors at the national level.

It was agreed, in Trondheim, that these needs will require different technologies and be used by different users. Transferring or acquiring technologies relevant for the conservation of biological diversity requires appropriate economic incentives. Such technologies are not necessarily available on the market, and usually also need to be developed and refined locally.

As an operational principle, the Parties to the CBD and bodies and entities established by the Conference of the Parties should engage in technology transfer and capacity building in co-operation and in partnerships with intergovernmental, governmental, non-governmental and private sector organizations.

The conference identified three key areas for further analysis and work as well as where operational measures should be identified, tested and evaluated. These areas were related to technology needs, capacity building needs and enabling environments.

### **Keys areas of analysis**

Technology needs assessments should be country driven, primarily by the receiving country, and should be based on the obligations under the Convention and other needs relevant to conservation and sustainable use of biodiversity. A more proactive use of the Clearing-House Mechanism (CHM) could play an important role. The assessment process should involve relevant stakeholders such as business, the research community and non-governmental organisations.

Capacity building needs assessments should include needs related to information and communication, public awareness, networks and partnerships, safety science and management, including risk assessments (for biotechnology and biodiversity in general), education and research, and inventory and monitoring. The role of business would also be essential here.

Such assessments related to technology and capacity building needs should be made transparent and involve all relevant stakeholders as far as possible. Assessments should also aim at stimulating increased interest in biodiversity-relevant issues from a wider audience, such as improving the understanding of the fundamental role of biodiversity in sustainable development and the provision of ecosystem services. A necessary focus should be put on the economic value of these resources and services, as key economic interests and business will be expected to adapt to the risks and opportunities related to these values. Greater public and political awareness could increase the demand and supply for science and technology relevant to the CBD.

Last, the enabling environment is crucial for successful technology transfer and capacity building. Important elements were identified for improving the enabling en-

## ***The considerable technological resources of the business community should be engaged more actively to contribute to the implementation of the Convention. Improved communication with and involvement of business is therefore essential***

vironment, inter alia, promotion and in some cases revision of legal frameworks, fostering and strengthening of their implementation, and developing workable law-enforcement (compliance) mechanisms that foster responsible transfer and clarify the rights and responsibilities involved.

Other important aspects related to an enabling environment include establishing national institutions related to the conservation of biodiversity and sustainable use of biological resources, the development of mechanisms for co-ordination and oversight of biodiversity-related or biodiversity-affecting technology transfer within a country or region, establishing suitable mechanisms and standards for participation of relevant stakeholders, developing appropriate incentives both economic and others, and establishing mechanisms for monitoring and evaluating the state of biodiversity. There is also a need to facilitate institutional synergies and policy integration. The need to build the necessary institutional framework at various levels for continued work on technology transfer and capacity building was stressed.

### **Moving forward**

Subsequent to the 2003 Trondheim conference, a Programme of Work on technology transfer and technological and scientific cooperation has been established under the Convention, and important steps for its implementation are under way. The fifth Trondheim Conference on Biodiversity, hosted by the Norwegian government in collaboration with the United Nations Environment Programme (UNEP), will be held on 29 October - 2 November 2007, under the title "Ecosystems and people – biodiversity for development – the road to 2010 and beyond", it will focus on the importance of biodiversity for poverty alleviation and for moving towards sustainable development as well as on the difficult trade-offs that often result.

Technology transfer should be viewed in a broad sense, not only to include installation of hard technology, but also be coupled to long-term needs of the recipient country regarding developing and maintaining an enabling environment. This is important in order for the recipients to

have a wide overview with respect to the design of their own incentives and is invariably connected to having good governance and management structures in place. This again implies that, in the concept of technology transfer and cooperation, is also included the transfer of competence regarding management and governance, e.g. development and implementation of rules and regulations, cooperation at the local, sub-national and national level, including horizontal cooperation at the ministerial level.

Besides technology transfer related to management issues, mostly related to institutional capacity building of environment institutions at the national level, there is a growing awareness among other sector institutions at the national level of their specific needs to consider the environmental impacts of their own policies and actions. National and provincial government sector institutions are therefore also gradually building the capacity to manage the environment through technology transfer cooperation programmes in accordance with Article 6 (b) of the Convention.

The considerable technological resources of the business community should be engaged more actively to contribute to the implementation of the Convention. Improved communication with and involvement of business is therefore essential. At the same time, when it comes to technology transfer, there is a need for engagement from the government authorities in both donor and recipient countries in order to underpin the development of an enabling environment for policy and decision making relative to the conservation and sustainable use of biological diversity.

'Quadruple partnerships' involving long-term commitments from the private and public sector in both donor and recipient countries could thus be of utmost importance in carrying out activities relevant for achieving the objectives of the Convention.

*Gunn M. Paulsen is Head, International Division, Directorate for Nature Management (Norway).*

*Gunn.Paulsen@dirnat.no*

*www.dirnat.no*

# Engaging business in trade liberalization negotiations



Photo © UNEP

**HUSSEIN ABAZA** looks at the potential of trade agreements for improving access to environmental technology.

Recent international focus on the liberalization of trade in environmental technologies offers the promise of increasing the availability of these technologies and services by making their movement across borders cheaper and easier. Businesses are expected to be key beneficiaries of this increased access, through the creation of new opportunities for growth and cost savings. Society at large is also expected to benefit as increased adoption and use of these technologies provides a critical tool for addressing environmental challenges, including biodiversity loss.

## Removing barriers

While tariffs do not represent the only – nor, perhaps, the most significant – obstacle to the transfer and implementation of environmental technologies, their elimination or reduction is a step in the right direction to improving access to these technologies. Even more promising, is the possibility of streamlining non-tariff barriers, such as testing and certification processes, customs procedures, and product standards and technical regulations, which can impede the movement of technologies more than tariffs. From a business perspective, the liberalization of trade in these technologies means technology can be obtained more cheaply and easily. If environmentally-friendly technologies are specifically targeted for tariff reductions, these may become competitive relative to less environmentally-friendly alternatives. Businesses profit, while the adoption of such technology produces environmentally positive outcomes, including reduced demand on environmental resources, decreased generation of waste, and ultimately less pressure on the ecosystems that protect biodiversity.

At the international level, negotiations on

the liberalization of environmental technologies are currently taking place at the World Trade Organization (WTO), referred to there as Environmental Goods and Services (EGS) negotiations. Discussions by the trade delegates are currently deadlocked on whether the environmental technologies should be liberalized on a product-by-product basis or as a package of technologies associated with a particular environmental project, such as a waste-water

amounts of sewage enter rivers, lakes, and coastal waters. The efforts of hotels have reduced water consumption by 10% in some cases and, overall, have reduced the burden on municipal treatment systems. To the extent that liberalization can make such environmentally friendly technologies more affordable in Kenya or elsewhere, this is a positive outcome for threatened ecosystems.

*Although many companies have much to gain from these negotiations, they have been largely silent. This is unfortunate given that they no doubt have much to say about the barriers they face in accessing environmentally-friendly technologies necessary to their work*

treatment facility. Although many companies have much to gain from these negotiations, they have been largely silent. This is unfortunate given that they no doubt have much to say about the barriers they face in accessing environmentally-friendly technologies necessary to their work. Such information would allow negotiators to direct final trade agreements toward the most positive outcomes for both business and the environment. Regardless of the outcome of the WTO negotiations, many governments will likely continue to pursue liberalization of environmental technologies through other negotiating fora, such as bilateral or regional trade agreements. For this reason, businesses – especially those involved directly in conservation activities – should stay engaged in national deliberations on trade liberalization.

## Emerging examples

Cheaper, more accessible environmentally-friendly technologies can be win-win situations for both business and the environment, with concrete impacts on local biodiversity. We see examples, such as in the tourism sector, where businesses face increased demand for environmentally-responsible business practices.

In Kenya, hotels have begun to invest significantly in energy- and water-saving technology, water-management systems, and sewage treatment facilities [1]. Kenyan cities, Nairobi in particular, face considerable constraints on their ability to manage municipal waste, and considerable

## Harmonizing standards

The benefits of trade agreements can go beyond simply reducing the cost of importing environmentally-sound technology. Trade agreements can also help to create a business environment that supports businesses through a process of streamlining and harmonization of customs procedures and certification processes. For instance, a business selling its good or service consistent with a harmonized regional standard is able to access all countries within that regional market without having to comply with varying national standards. In some cases, the need for consistency with a harmonized standard will create a business opportunity, a niche from which a business can grow rapidly in the region.

MERCOSUR, a trade bloc including Argentina, Brazil, Paraguay, Uruguay, and Venezuela has begun to create these kinds of impacts in the region [2]. Under an environmental section of the agreement, countries agreed to work toward harmonization of their environmental standards. When Brazil took the lead in developing regulations limiting emissions, for example, other members followed suit. This creates opportunities for businesses manufacturing technology or selling services related to emissions control to expand their operations around the region [3].

Trade agreements and liberalization of EGS may appear limited in their impact on the broad challenge of preserving the Earth's biodiversity. Yet, trade liberalization and its resultant technology transfer can be

come quite significant, particularly in the context of global climate change – which the Millennium Ecosystem Assessment predicts will become the dominant direct driver of biodiversity loss by the end of this century. Transfer of technology, such as energy technologies, will be critical to mitigating the effects of climate change. Whether trade barriers are eliminated through WTO negotiations, or as a part of an international agreement on climate change following the expiration of the Kyoto Protocol, or simply via regional and bilateral agreements, a serious response to climate change is likely to include efforts to make these green energy technologies more available via trade liberalization [4].

Business must be aware of and engaged in these developments, not only because of the enormous trade and investment opportunities these changes represent for the business world, but also for the momentous potential to contribute to the protection of the world's ecosystems and biodiversity.

[1] Moses Muriira Ikiria and John M. Mutua, 2006. "Identifying Complementary Measures to Ensure the Maximum Realisation of Benefits from the Liberalization of Trade in Environmental Goods and Services, Case Study: Kenya", OECD Trade and Environment Working Paper No. 2004-02 ([www.oecd.org/dataoecd/32/27/37324543.pdf](http://www.oecd.org/dataoecd/32/27/37324543.pdf)).

[2] In addition to these Full Members, MERCOSUR also includes Bolivia, Chile, Colombia, Ecuador and Peru as Associate Members.

[3] See Oswaldo Lucon and Fernando Rei, 2006. "Identifying Complementary Measures to Ensure the Maximum Realisation of Benefits from the Liberalization of Trade in Environmental Goods and Services, Case Study: Brazil", OECD Trade and Environment Working Paper No. 2004-04 ([www.oecd.org/dataoecd/18/53/37325499.pdf](http://www.oecd.org/dataoecd/18/53/37325499.pdf)). See also OECD Joint Working Party on Trade and Environment, 2007. "Regional Trade Agreements and the Environment" (COM/ENV/TD(2006)47/FINAL) ([www.oecd.org/dataoecd/54/27/38599779.pdf](http://www.oecd.org/dataoecd/54/27/38599779.pdf)).

[4] Note, for example, the EU Trade Commissioner's call, on 18 December 2006, for a WTO agreement to totally eliminate tariffs on clean power generation ([http://ec.europa.eu/trade/issues/global/environment/pr181206\\_en.htm](http://ec.europa.eu/trade/issues/global/environment/pr181206_en.htm)).

Hussein Abaza is Chief, Economics and Trade Branch, UNEP Division of Technology, Industry, and Economics.

[hussein.abaza@unep.ch](mailto:hussein.abaza@unep.ch)

[www.unep.fr/en/branches/etb.htm](http://www.unep.fr/en/branches/etb.htm)



# Helping nations help themselves



Photo © UNCTAD

**MONGI HAMD** and **VICTOR KONDE** examine the global trade in knowledge assets and its implications for development [1].

The late President John F. Kennedy, in 1962, underscored the catalytic role successful technology transfer can play in the development of poorer countries when he said: “There is not enough money in all America to relieve the misery of the underdeveloped world in a giant and endless soup kitchen.... But there is enough know-how and knowledgeable people to help those nations help themselves” [2]. From this perspective, technology transfer is seen as key in enabling developing countries meet their health and nutritional needs, improve their productivity, diversify their exports and create jobs and wealth, among others, in a sustainable manner.

However, technology transfer is largely a transaction between the transferor and the transferee for their mutual benefit. This trade (or transaction) in technology products or services has increased in value and importance. Developed and developing countries alike are increasingly interested in gaining a share of this trade. As a result, a conflict of interest has emerged between trade in technology assets and facilitating technology transfer to developing countries to enable them to protect and exploit their biodiversity in a sustainable manner.

## Valuing global transactions

It is difficult to measure the total global value of technology transactions. However, it is possible, using a number of proxies, to provide an indication of the rate of growth. It has been observed that royalty and licensing fee payments, a proxy for trade in knowledge assets, increased from USD 61bn in 1998 to USD 120bn in 2004, globally [3]. This is almost a two-fold increase in trade over a 5 year period. Although France, Germany, Japan, the UK and the United

States of America accounted for 82% of royalty and licensing fee receipts in 2004, there are also other emerging exporters of technology, such as Canada, the Republic of Korea and Sweden.

At the regional level, Asia’s royalty and licensing fee payments have increased almost 3-fold between 1998 and 2004 while those of Latin America and the Caribbean increased about 2-fold. Africa’s payments for royalties fell from about USD 0.84bn to USD 0.77bn during the same period.

Another indirect trade in knowledge assets may take place through the export and import of sophisticated machinery needed to manufacture goods or deliver services (also referred to as capital goods). In a way, capital goods imports are one way of benefiting from the Research and Development (R&D) investments of and knowledge accumulated by others through the ‘knowledge’ content of machines.

The United Nations Conference on Trade and Development (UNCTAD) has also observed that, between 1983 and 2003, capital goods imports increased 8-fold

---

***Technology transfer is seen as key in enabling developing countries meet their health and nutritional needs, improve their productivity, diversify their exports and create jobs and wealth, among others, in a sustainable manner***

---

for Asia, 7-fold for North America, 6-fold for both the EU-15 and Latin America and the Caribbean, and 2-fold for Africa. In absolute terms, imports of capital goods by Asia and Latin America in 2003 were about USD 164bn and USD 30bn, respectively, while that of the EU-15 and North America reached USD 202bn and USD 111bn, respectively [4].

Technology transfer through trade in services is difficult to measure and data is often not available. Based on United States of America’s data, trade in other technology related services such as architecture, engineering, consulting, installation, management, operational leasing, financial and analytical testing services (also referred to as business and professional services), among others, grew rapidly: exports grew from USD 58.9bn to USD 71bn and imports from USD 30.4bn

to USD 40.7bn between 2001 and 2005. Europe accounts for over a third of the exports to and about 40% of the imports from the United States [5].

## The key drivers

There are several drivers of these trends. The rapid developments in information and communication technologies and transport systems have reduced distance and time between places. They have enabled firms to operate almost virtually and deliver goods and services on demand, cutting down costs considerably. These trends have also allowed firms to work with less expensive knowledge centres abroad and to coordinate ‘satellite’ facilities in real time, irrespective of the location or distance.

The liberalization of trade rules and investment policies has promoted investment. This has led to more conducive business environments in many countries. However, it is important to point out that investors seem to prefer countries where firms they know have already performed well than countries simply promising a good business environment.

## Opportunities and concerns

The global trade in knowledge assets presents many opportunities for those developing countries that are rich in biodiversity. Such opportunities may include partnerships and alliances with technology owners to develop and own technologies based on their natural endowment, develop alternative energy sources (e.g. biofuels) and new production systems (e.g. water saving technologies), among others. Environmentally sound technologies thus developed could benefit both developed and developing countries. Technology transfer could also enhance biodiversity-based sectors in the isolation, processing, production, distribution and marketing of their products and services. It may also help biodiversity-based industries in the evaluation and registration of their products on domestic and international



Photo courtesy of ian21081 www.flickr.com

markets as well as ownership and protection of the knowledge generated in these processes.

These are easier to attain in countries such as Brazil, China and India that are benefiting from this global trade in technology. These countries are also favoured destinations for R&D projects and performance. The technologies developed in such countries by subsidiaries of transnational corporations (TNCs) will help build up their technology stock and enable them, in future, to compete in the global trade. These are largely countries that have developed some technological base of their own.

There are, however, two major concerns:

- Most of the technology is transferred or traded within the network of TNCs (*i.e.* intra-firm). Over 70% of the royalties and licensing fees received by the major technology exporters are intra-firm. That is not necessarily bad at a global level if all regions were benefiting from foreign direct investment (FDI) in a similar fashion. For example, Africa accounts for about or just below 3% of global FDI, GDP and trade but its proportion of royalty and licensing payments is only 0.7%.

- Very few countries are benefiting from this trade. Most developing countries that do not have a technological base

or do not represent a major market for technology owners are likely to be further marginalized.

Traditionally, public institutions were largely seen as centres for the development of substantial environmentally friendly technologies. Currently, most of the technologies related to industries such as agriculture, biotechnology, information and communication technologies and energy are largely in the hands of or are being commercialized by TNCs. Given the current concerns on climate change, a large market is likely to be created for environmentally sound technologies. Most of the transfers are likely to be intra-firm and the price tag may be high for many developing countries. Such technologies are becoming part of corporate strategies and represent the competitive edge of the firm.

There is little doubt that technology transfer has had a positive an impact on trade and national development. Countries that are major importers of technology, such as Japan and the Republic of Korea, traditionally with large royalty and licensing payment bills for use of intangible assets have grown rapidly. Today, the Republic of Korea is emerging as an exporter of technology (even though it is still a net importer) while Japan has, since 2003, graduated as a net exporter of technology.

There are concerns that the emphasis on trade in knowledge assets may overshadow the needs of poor countries to access technology for development. It is perhaps important that efforts to help developing countries build a sound and dynamic technological base may be needed to enable them integrate in the global economy and develop in a sustainable manner.

[1] This article is based on a forthcoming study by UNCTAD on "Trends in cross-border flows of technology".

[2] See *Staffing a Foreign Policy for Peace*, Speech of Senator John F. Kennedy, Cow Palace, San Francisco, CA, *The American Presidency Project* [[www.presidency.ucsb.edu/ws/index.php?pid=25927](http://www.presidency.ucsb.edu/ws/index.php?pid=25927)]. Santa Barbara, CA: University of California.

[3] Based on *World Development Indicators*, 2006.

[4] Based on *UNCTAD International Handbook of Statistics*.

[5] Based on *United States Bureau of Economic Analysis*, Table 7 (*Business, professional, and technical services*).

Mongi Hamdi is Chief, Science and Technology Section, Policy and Capacity Building Branch, Division on Investment, Technology and Enterprise Development, United Nations Conference on Trade and Development (UNCTAD). Victor Konde is Economic Affairs Officer, UNCTAD.

[mongi.hamdi@unctad.org](mailto:mongi.hamdi@unctad.org)

[victor.konde@unctad.org](mailto:victor.konde@unctad.org)

[www.unctad.org/dite](http://www.unctad.org/dite)

# The university link



Photo © Peter Stewart



*Are efforts to monitor and protect the world's biodiversity benefiting as much as they should from the transfer of available technology? JONATHAN HODRIEN calls for closer links between universities and business in order to achieve greater impact.*

**D**eriving income from know-how and developing technology to meet business needs is of increasing importance to balance the budgets of UK universities and this understanding influences research priorities. Promoting rapid technological innovation is best achieved through commercial markets that offer incentives for entrepreneurs and inventors. As such, universities look to create spin-out companies and licence patents which encourage early investment in new findings and can translate them into products and services for public benefit.

## Lucrative markets

A range of technologies can be applied to help monitor and protect biodiversity. At the University of Surrey, we can point to how our GBP 70m spin-out Modern Water tackles some of the sustainable water issues that impact upon biodiversity or how DMC International Imaging Ltd has won a European Space Agency award to provide satellite imagery that will be used to monitor Europe's environment and land use, including natural resources such as forestry. But the underlying technology might not have been developed had other, more lucrative, markets not provided the initial incentive.

Where technology is being developed which could be utilised for biodiversity management, universities assess the market demand for the certification / assurance which the technology would provide. It is difficult to gain adoption unless there is a perceived market demand by consum-

ers. For this reason, there is a need for close cooperation between business and academia to identify the research that universities can provide and, more importantly, the requirements, opportunities or impacts of industry that need to be addressed.

## Existing know-how

Although collaboration is required between universities and business to identify new technological applications, it is also evident that the application of existing research and know-how needs to be improved. Too much university research remains unused on library shelves or tied up in unutilised patents. Tourism, one of the world's largest economic sectors, provides one example.

Tourism places direct and indirect pressures on species and habitats and thereby threatens their conservation. An estimated 50 percent of international travellers visit protected areas during their holidays and the industry is therefore a major stakeholder, benefiting from the maintenance of healthy environments.

The Corporate Responsibility Manager of

## *Too much university research remains unused on library shelves or tied up in unutilised patents*

Thomson, one of the UK's largest tour operators, wrote in the travel trade press earlier this year, expressing surprise and concern at the volume of university generated research in the field of sustainable tourism that is not reaching, or being adopted by, the travel industry.

Even in a well established business sector, strong networks are required to benefit from current academic research. The need for better networks has increasing importance in developing countries.

## Networks

Academic staff in the UK are required to achieve 'Full Economic Costing' when entering into research contracts. The quality of their work is assessed by the Research Assessment Exercise which measures the quality of research conducted against international standards of excellence. This enables the funding bodies to distribute public funds on the basis of quality. Nei-

ther of these considerations are seen by my colleagues as obstacles to transferring technical know-how or collaborating with companies and researchers in developing countries. This fits with arguments that the single most important factor is not the need for adequate funding for relevant research and development.

A PhD student returning to Botswana advised me that for multi-national companies operating in Africa with headquarters in Europe and America, accessing technical know-how is not a challenge. For smaller local or even regional companies, it is different; there is no established culture of private industry seeking technical know-how from local universities, or the universities volunteering technical know-how to private industry. Where local universities work with their European and American counterparts, most of the collaborations are created by personal networks, and so the ease or difficulty of establishing the relationships is based on who knows who and how influential these people are.

There is a role for business in building and facilitating these networks. Their lack means that many able and competent sci-

entists in developing countries do not have the channels of communication to talk to major companies to help commercialise their findings. This is particularly evident in the use of indigenous plants for drug development where scientists have isolated and identified compounds with medicinal properties but been unable to commercialise this knowledge.

Natural products have provided many major new drugs. Their use has been perhaps the single most successful strategy in the discovery of modern medicines. Many drugs from natural products would be inaccessible by standard 'medicinal chemistry' and a recent statistical study of over 200,000 medicinal compounds, suggested that over 40% of the natural products are not represented by synthetic compounds. Academics at the University of Surrey have suffered the disappointment of returning to the field to find that forest clearance has destroyed rare plants and their habitat.



↑  
 SSTL was formed in 1985 by the University of Surrey to commercialise the results of its innovative small satellite engineering research. Its imagery has been used to monitor the world's natural resources. Photo © Surrey Satellite Technology Ltd (SSTL).

To protect biodiversity the key issues, as they see them, include the need for business to ensure that all communities protecting rare plants benefit from their commercial exploitation.

### **Charity models**

A disproportional burden of transferring technology to protect biodiversity is carried by charitable organisations. Their work can provide a useful model for others. Activities often focus upon strengthening networks and acknowledge that small-scale locally replicable technology is likely to diffuse faster and have greater benefits

to biodiversity protection and poverty alleviation than the importation of large-scale sophisticated technology. Earthwatch offers a Capacity Building Programme which aims to bring together conservationists, scientists and research staff to share ideas, best practise and to learn by examples. The Technologies for Conservation & Development project (t4cd) aims to deliver clear biodiversity and livelihoods gains by promoting (and implementing) the appropriate application of certain technologies to conservation and development issues. Their website is a large component of the initiative.

Even within industrial sectors such as pharmaceuticals, biotechnology or telecommunications, where technological innovation is essential, university researchers and their industrial counterparts often find difficulty in identifying each others interests

and matching available technology with business needs. Working internationally and in less established markets, such as technology for the monitoring and protection of biodiversity, the issues are compounded.

There is no doubt that the application of existing and new technologies developed for other markets could be adapted to enhance the management of biodiversity. To benefit there is a need for business to engage in the creation of stronger international networks that match technical know-how with practical needs. To do so will have benefits for all parties.

*Jonathan Hodrien is Technology Transfer Manager, University of Surrey.*

[j.hodrien@surrey.ac.uk](mailto:j.hodrien@surrey.ac.uk)

[www.unisdirect.com](http://www.unisdirect.com)



## Conservation data for smarter business decisions



Photo © UNEP



**CHARLES BESANÇON** provides an update on a partnership initiative to create a decentralized system for storing, managing and reporting on trends in coverage for the world's protected areas.

**N**ational Parks and other protected areas not only provide a safe haven for biodiversity, they provide benefits to local communities and preserve some of the most beautiful places on our planet. 'Coverage of protected areas' is

also a specific indicator in the 2010 Target of the Convention. Obtaining the data necessary to monitor trends in protected areas requires a massive effort by national authorities to compile, analyse and then distribute this data to the centralised depository of the World Database on Protected Areas (WDPA). With a living and growing system of protected areas that now exceed 100,000 sites covering 19 million square kilometres, you can imagine that this is no small task!

### **Business and protected areas**

Business has a different, but also very compelling need for this information – to aid in decision-making. Companies need to know the precise boundaries of protected areas, including UNESCO World Heritage Sites and other sensitive areas (coral reefs, mangroves, etc.), for risk analysis in planning and because some of these places are 'no-go' areas for drilling, mining, and other forms of development.

In a number of sectors, companies have adopted limitations on how they operate in and around protected areas. For example, member companies of the International Council on Mining and Metals (ICMM) have agreed not to explore in UNESCO World Heritage Sites [see article page 32]. In the oil and gas sector, Shell has also stated that it will not explore in World Heritage Sites. In fact, Shell goes further by requiring that a Biodiversity Action Plan be developed before exploring within IUCN Category I-IV protected areas. In the financial services sector, Goldman Sachs and JP Morgan Chase and Co. have stated that they will not fund extractive enterprises that lie within World Heritage Sites. JP Morgan says, in fact, that it will not finance any project or provide loans where the use of proceeds is designated within critical natural habitats, which include existing protected areas and areas officially proposed by governments as protected areas.



Photo © Charles Besançon

But where exactly are these elusive protected areas and World Heritage Sites? Pipeline planning and offshore drilling require very precise planning boundaries as the difference between a few hundred meters could cost thousands or millions of dollars to rectify if mistakes are made. Writing a high quality environmental impact analysis also requires good data.

### *Pipeline planning and offshore drilling require very precise planning boundaries as the difference between a few hundred meters could cost thousands or millions of dollars to rectify if mistakes are made*

#### **Technology to the rescue**

UNEP World Conservation Monitoring Centre (WCMC) is the custodian of the World Database on Protected Areas (WDPA), which it maintains in partnership with the World Conservation Union (IUCN). UNEP-WCMC has been in the vanguard of using technology to support conservation decision-making for the past 25 years, for example by being the first conservation organization to develop an online mapping

system for conservation data. This edge rapidly fell by the way-side, however, as many conservation organizations invested in the overhaul of their information technology infrastructure. Today, UNEP-WCMC is back, though, with the Proteus project. Developed in partnership with business, this aims at taking our IT system to the next generation by rebuilding the WDPA

and, thereby, assisting our business partners as well as, more generally, the Parties to the Convention [1]. Which brings me to the point of this article: technology and its transfer.

#### **All singing, all dancing?**

With a line-up of mining and oil majors, including Anglo American, BP, Chevron, IHS Energy, Premier Oil, Repsol, Rio Tinto, Shell, Statoil and Total all eager to have

better protected areas data as well as mechanisms to seamlessly bring this data into their own Geographic Information Systems (GIS) – the Proteus Partners have shown their commitment to this redevelopment and put their money where their mouth is by making a significant investment. ESRI, the market leader in the development of GIS software and tools is also fully behind this venture as it allows them to tackle real world conservation problems and to extend their own product line.

At the heart of the system now being developed is a flexible database design that will allow both National Focal Points and other conservation partners to, effortlessly, serve or upload their own data from their own national systems and have it become part of the WDPA. Another key feature is the built-in system that will allow authorised experts to review and validate submissions. To most people however, what they will see is much improved higher resolution data for decision-making. This will be made available through the latest interactive technologies like digital globes, 2-D web map viewers with Wikipedia-like functions and, of course, standard query functions through web interfaces.

#### **Tech transfer for conservation**

The technology transfer is moving in many different directions with this project. Protected areas data is transferred from UNEP and other conservation organizations to business for sound environmental decision-making. Data standards and technical expertise, in the form of guidance and best practice, is transferred from UNEP, IUCN and the Organization for the Advancement of Structured Information Standards (OASIS) to countries. From country to country, and from countries to a central repository goes information about the entire world's protected areas, vital information on what some have described as the greatest legacy we can leave our children.

Improving conservation decision-making is the overall purpose of this technology transfer project. By engaging with our corporate partners and delivering what they need when they need it, we are at the same time developing a platform on which everyone with an interest in conservation can get better information. We think this is a recipe for success.

[1] <http://proteus.unep-wcmc.org>

Charles Besançon is Head, Protected Areas Programme, UNEP World Conservation Monitoring Centre.

[charles.besancon@unep-wcmc.org](mailto:charles.besancon@unep-wcmc.org)

[www.unep-wcmc.org](http://www.unep-wcmc.org)

# How to enter the matrix



Photo © Syngenta

**JOAQUIM MACHADO** reviews technology transfer initiatives in Brazil and stresses the need for building effective dialogue between government, research institutes and the business community.

**W**illiam Gibson, in his book *Pattern Recognition*, describes the scenario pertaining to the impacts of technology on human society in the following way: “We have no future because our present is too volatile. We have only risk management. The spinning of the given moment’s scenarios. Pattern recognition...”. Few descriptions are as appropriate for both the characterization of the speed at which gains in scientific and technological knowledge are taking place and their ensuing effects.

## *A permanent revolution*

Since such knowledge and speed are no doubt fundamental for the production of contemporary society’s goods, it seems very opportune that we examine the risks of the establishment of, in extreme cases, detachment between technological development and its environmental and socio-economic context. The array of expressions of Corporate Social Responsibility (CSR) certainly indicate the intention to promote a re-signification and a re-contextualization of this scientific and technological development.

Fernando Almeida, Executive President of the Brazilian chapter of the World Business Council for Sustainable Development (CEBDS), proposes – in his book *Os Desafios da Sustentabilidade: uma ruptura urgente (The Challenges of Sustainability: An Urgent Rupture)* [1] – what can be considered as a ‘permanent revolution’ in CSR practices. It is imperative not to make such practices static, and thus inefficient, but to continually transform them by breaking with outdated assumptions so as to, in fact, create effective instruments

of interaction between business and its environmental and socio-economic ecosystems which are an integrated part of and elements indispensable to its functionality – as stated in COP Decision VIII/17 of the Convention on Biological Diversity (CBD).

The best model for this insertion, adaptation and adjustment of business is precisely that area of human knowledge that deals with Information Technology, whose software applications that consumers find most attractive are precisely those that most efficiently adopt the ecosystem design approach, combining communication, entertainment, capacity of calculation and spatial-temporal orientation, in a world that is more and more post-geographic.

Therefore, technology transfer should be optimized as a tool for sharing the benefits associated with access to biodiversity. The question is how to ‘enter the matrix’ so that we may combine evolutions, perceptions, rights and developments that manifest and express themselves at different speeds, as William Gibson points out.

It is worth highlighting that Decision VIII/12,

---

***It is imperative not to make CSR practices static, and thus inefficient, but to continually transform them by breaking with outdated assumptions so as to, in fact, create effective instruments of interaction between business and its environmental and socio-economic ecosystems***

---

which addresses technology transfer and cooperation, notes “the importance of guidance and initiatives to promote private sector engagement in technology transfer and technological and scientific cooperation and to strengthen enabling environments for investment in Convention implementation at the national level”.

Similarly, Article 13 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) highlights various ways and means by which it is possible to promote technology transfer, including:

- Tax and other economic incentives in supplier Parties to encourage exports and, in recipient Parties, to encourage imports;
- Reforming foreign investment laws;
- Trade assistance;

- Expanded intellectual property rights protection;
- Collaborative research and development arrangements;
- Establishing national, regional or global technology clearing-houses or other enabling mechanisms;
- Grants; and
- The purchase of intellectual property rights on behalf of another Party.

## **Examples from Brazil**

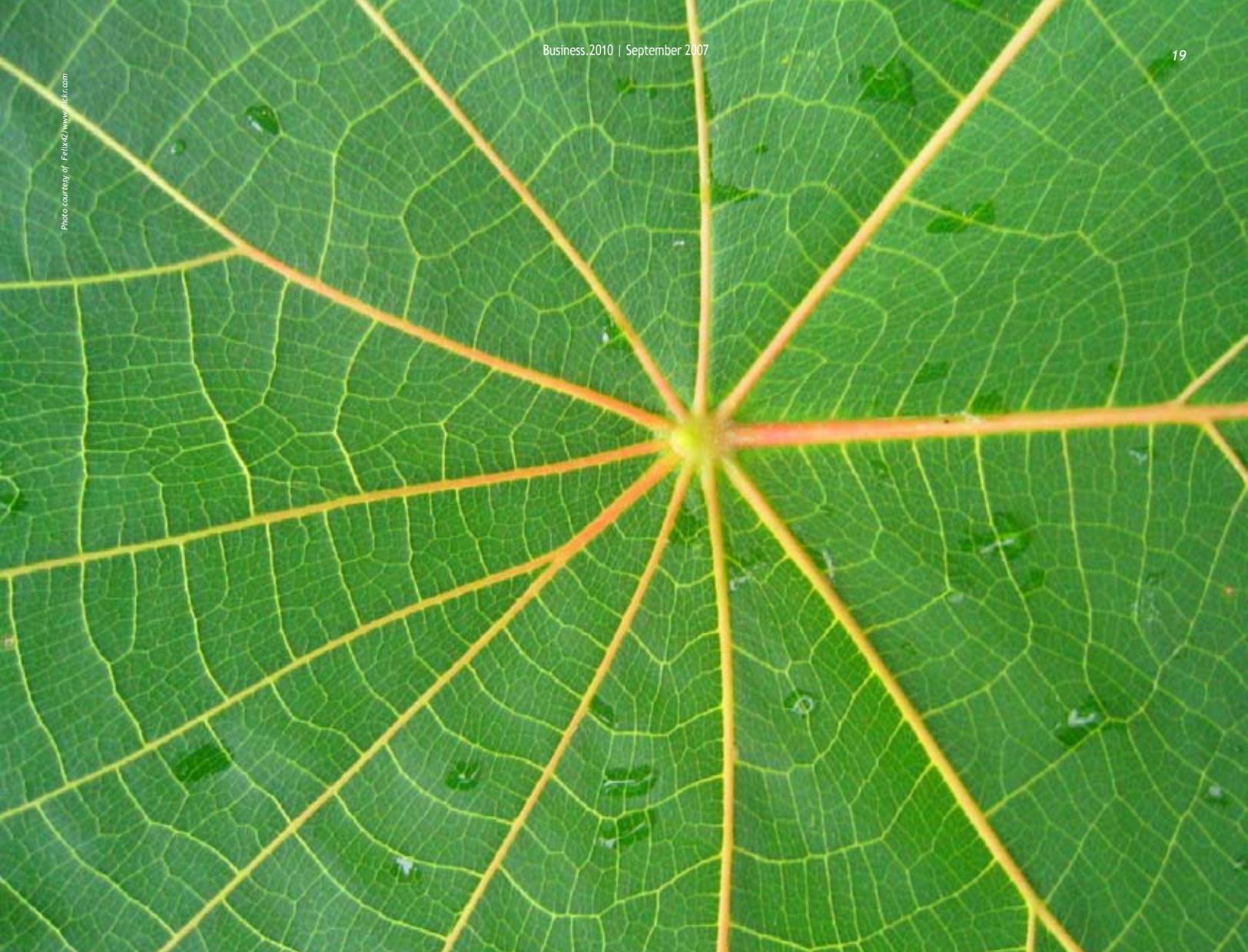
Several Brazilian initiatives have focused on how to ‘enter the matrix’ and deserve greater attention from the international community and, more specifically, the business world. These include:

- The Biota programme, implemented by the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) in partnership with the Centre of Reference on Environmental Information (CRIA), develops and transfers technologies for strengthening the knowledge and valuation of the biodiversity of the Atlantic Forest, through the investment of highly significant sums of public funds by São Paulo, one of the most developed states in the nation.

- The Natura Campus project, which brings together cosmetics manufacturer Natura, FAPESP and public universities, invests in building the capacity of students, researchers and providers of biological resources.

- Reservas do Brasil is a small technology-based firm which works, in association with NGOs and through the use of remote sensing technologies, towards the conservation of natural landscapes in rural properties.

- In central Brazil (the ‘cerrados’ savannah region), The Nature Conservancy is partnering with local NGOs, the Brazilian Agricultural Research Corporation (Embrapa) and several companies to carry out very significant work on landscape recovery; rational use of agrichemicals; and sustaina-



ble management of water and soil through the transfer of technology and training.

- In support of beekeepers and the production of honey, Project Elo – a joint effort between the Syngenta Foundation for Sustainable Agriculture and the Brazil Ministry of Agrarian Development's Project Dom Helder Câmara – finances technology transfer for the recovery and conservation of native vegetation of the semi-arid ('caatinga') settlements of small-holder growers in the Rio Grande do Norte state.

### **Learning to dialogue**

Still, some additional steps remain to be made for making technology transfer an effective and fair mechanism for entering the matrix. I believe, for instance, that government, research institutes and business need to learn to better dialogue. Such negotiations would allow for the better valuation of biodiversity – a way of encouraging the elaboration of fair and mutually interesting contracts between providers and users of biodiversity, without

the excessive intervention of government.

With all those involved, however, lies a responsibility to develop and inform on the rights, duties and values that emanate from the sustainable use of biodiversity. Arguably, in no other area is it more important to discuss synergies between environmental conventions. In this regard, we need to highlight the importance of genetics and pre-breeding sciences and their contribution – which remains to be fully explored – for the improvement of plant species designed to perform better in new climate conditions.

CEBDS wholeheartedly embraces the call, expressed in Decision VIII/17, for business to actively participate in the building of scenarios proposed by the Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation. These could include new technologies such as in vitro evolution (molecular breeding) whose capacity to innovate and optimize molecules provides greater room

for the establishment of new definitions and concepts regarding genetic diversity. It also presents new possible scenarios in Intellectual Property which should surely impact both developed and developing economies if analyzed with the necessary acuity. Certainly, the Convention should be able to include and rely on, whenever possible in the Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation, specialists in Evolution, Systems Genetics and Systems Ecology.

[1] [www.cebds.org.br/cebds/noticias.asp?ID=205](http://www.cebds.org.br/cebds/noticias.asp?ID=205)

*Joaquim Machado is President, Chamber on Biodiversity and Biotechnology, Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável (CEBDS) and is Director, Governmental Affairs on Biodiversity and Biotechnology, Syngenta .*

[joaquim.machado@syngenta.com](mailto:joaquim.machado@syngenta.com)

[www.cebds.org.br](http://www.cebds.org.br)

## My dream for Africa's entrepreneurs



Photo © ATDF

**CONSTANTINE BARTEL** explains his motivations for launching an African platform for technology transfer and shares his dreams of replicating this model across the continent.

**T**hree and a half years ago, Victor Konde and I created the African Technology Development Forum (ATDF). I was convinced then, that there was a real need for developing a mechanism to assist aspiring entrepreneurs in Africa to realize their ambitions. I continue to believe this. By providing direct financial, administrative and technical support, the Forum aims at creating jobs and wealth. In my mind, it provides a modest, true, but nonetheless concrete alternative for fighting poverty.

### *The birth of a journal*

The Forum was initially conceived in 2003 as a virtual centre dedicated to facilitating information exchange related to technology and development in Africa. In September 2004, the Forum was formally launched, focussing primarily on linking industry, research and development institutions, as well as government agencies by providing space for the exchange of experiences on the internet. Established as a not-for-profit organization, the Forum provides a platform for the exchange and dis-

semination of information on inventions, technologies and business opportunities as well as trends in global trade.

Key to our efforts, right from the start, was a quarterly newsletter which provided briefs for policy makers, the business community and others on emerging trends in technology, trade, investment and development. Since its launch, the newsletter has slowly transformed itself, from simply providing an online presence for technology, trade and innovation stories to actually becoming a fully-fledged journal, covering the enhancement of the necessary aspects of human, institutional and capacity in innovation and technology transfer [1].

I think it is fair to say that it is now considered as an authoritative publication on African issues. The Journal carries papers that address challenges of the continent and offer solutions to them. The main goal is to identify a challenge or opportunity, analyse it and design or suggest measures to overcome or realize it.

### **A hub for business**

ATDF also provides direct support to African business through its Entrepreneurship Hub, an independent corporate unit based in Lusaka, Zambia. The Hub was established to promote entrepreneurship and innovation, and to facilitate the development of businesses, products and services as a practical way of reducing poverty. It is currently funded by one of its directors. The Hub is involved in five main activities:

- **Entrepreneurship Support Investment** – An equity financing facility designed to promote African men and women entrepreneurs, especially those below the age of 40, with innovative business ideas and the necessary discipline and skills to convert their ideas and concepts into successful companies. Investments are typically up to USD 50,000 (or less than 30% of a firm's share capital); in exceptional cases, the Hub may invest up to USD 100,000. The conditions and size of the investments are dictated by the needs of the business proposals.
- **Entrepreneurship Challenge Award** – A prize designed to help young people (below the age of 40) to refine their business concepts, conduct market research and interact with seasoned entrepreneurs. Successful projects may also apply for Entrepreneurship Support Investment.
- **Business incubation and commercialization** – The Hub also offers on-site and off-site incubation services to firms it supports or that may need space and technical

assistance, in particular spin-offs of firms and Research & Development centres.

- **Business Intelligence Support** – A new product that will focus on monitoring, collecting, analyzing and disseminating trends in the technology, trade and investment areas. It will also provide a depository of creative, marketable and thoughtful business ideas.
- **Entrepreneurship Course** – Designed to stimulate entrepreneurial creativity and innovation, facilitate commercialization of research output and encourage the development of private and public enterprises.

### **Sharing the dream**

The Hub invests in and promotes entrepre-

---

*I was convinced then, that there was a real need for developing a mechanism to assist aspiring entrepreneurs in Africa to realize their ambitions. I continue to believe this*

---

neurship, initially in Zambia and, later on, in other African countries, depending on availability of resources, performance and the response of local individuals that share our dream of poverty reduction through entrepreneurship. The Hub does not favour any particular sector but selects projects based on their ability to grow, commercial and technical viability and the contribution to development and the creation of jobs.

The Forum held its first technology fair in August, in Lusaka. The Fair offered innovative firms, institutes and independent inventors an opportunity to display their concepts, designs, products and services; facilitate the formation of business partnerships and technology alliances; and attract investment. It also offered participants to address some of the thorny issues that may be holding back the technological development of Africa as well as an opportunity to scout for talents and potential entrepreneurs of interest.

The Forum is a very lean organization that depends totally on the in-kind contributions of its small army of directors, editors, advisors, members of the steering committee, authors and well-wishers to implement its programmes at near-zero cost to the organization. I am extremely grateful to all those that have believed in our ideas and supported the organization in the past and continue to support it to this day.

### **Biodiversity businesses**

With regards to biodiversity, I think there is need for a support system for investment in individuals – ones with the skills and/or the discipline to run successful biodiversity-based companies in a sustainable manner – taking into account the science, technical, financial and development stage of their business. The application of biodiversity business tools ('biotools') to investment processes will enable biodiversity objectives to be incorporated into sustainable business models. This will enable the integration of biodiversity and financial objectives to enable the emergence of firms that use biodiversity sustainably.

Also, in the absence of legislation and regulation that allows a value to be placed on

biodiversity, governments require a hand from private businesses and financiers to generate revenues that will support both the government and the community at large. The question is not what the role of business is in advancing the goals of the Convention, but how. ATDF is finding innovative ways to harness resources and knowledge through partnerships to develop biodiversity businesses. For example, the hub is currently looking at a number of environmental technologies and two biodiversity projects, one on perfume producing plants and the other on Jetropha, a plant oil that may have a much higher ignition point and viscosity than kerosene.

The preliminary results of the Forum, as well as the amazing feedback we are getting in Africa and elsewhere, give me hope in the huge task that lays ahead of us. I believe that the model provided by the Forum is worth considering for the development of technology transfer to and from Africa and the development, in particular, of 'biodiversity businesses'.

[1] ISSN: 1817-2008. Official abbreviation: *Afr. Technol. Dev. Forum j.*

Constantine Bartel is Assistant Programmes Director, International Center for Trade and Sustainable Development (ICTSD) and Co-Founder, African Technology Development Forum.

[cbartel@ictsd.ch](mailto:cbartel@ictsd.ch)  
[info@atdf.org](mailto:info@atdf.org)

[www.atdforum.org](http://www.atdforum.org)



## Iraq marshes recovering, thanks to technology



**SURYA CHANDAK** and **CHIZURU AOKI** summarize their approach to technology support, with a focus on the promotion of environmentally sound technologies and present ongoing experience from Iraq.

**T**echnology transfer (which we refer to as technology support), encompasses the diffusion/adoption of technologies and technology cooperation across and within countries. Specifically, it comprises the process of learning to understand, utilize and replicate a given technology, including the capacity to choose it, adapt it to local conditions and integrate it with indigenous technologies. Technology support activities involve various stakeholders, including governments, business, non-governmental

organizations, research and education institutions, as well as the ultimate users of the technologies.

### *Beyond individual technologies*

Environmentally Sound Technologies (ESTs) have long been recognized in the international arena as an important means to promote sustainable development in both developed and developing countries. The Johannesburg Plan of Implementation, for example, encourages the exchange of best practices and know-how on environmentally sound technologies between public and private institutions. Agenda 21 defines them as technologies that: “protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes”.

ESTs go beyond individual technologies, and encompass total systems that include know-how, procedures, as well as organizational and managerial procedures. The need to facilitate EST transfer and accessibility, and to build capacity for EST deployment and use, particularly in developing countries, are clearly set out in Agenda 21.

We understand comprehensive technology support processes to cover:

- Technology needs assessment – To assess what are the technology needs of the potential recipient, what are its technology support needs, what are systemic/capacity building/financial/policy needs *etc.*;
- Technology assessment and selection – To identify what technology options are available, what are their strengths and weaknesses, and to do a techno-economic-social-environmental assessment of the options to identify the most suitable one;
- Transaction and contractual aspects – To reduce the costs of initial transactions in a sector and to identify and fulfil the contractual aspects between various stakeholders such as technology supplier, technology recipient, financier, and the government, giving due recognition to intellectual property rights and patents, national and international rules and regulations;
- Technology implementation – Procurement, installation and commissioning of various equipment and the overall system and ensuring stable operating conditions;
- Capacity building – To ensure that technology recipients to effectively operate and maintain the technology system and respective components in a sustainable manner; and
- Performance assessment – To ensure

that the technology will perform as per the claims made by the supplier.

### Tools

Various tools may be utilized to support technology support, including:

- Needs assessment methodologies such as Strengths, Weakness, Opportunities and Threats (SWOT) analysis, GAP analysis, and PEST (Political, Economic, Social, and Technological) Analysis;
- Technology assessment methodologies such as Life Cycle Assessment (LCA), Environmental Technology Assessment (EnTA), Cleaner Production - Energy Efficiency (CPEE) assessment, and Cost Benefit Analysis (CBA);
- Information networks;
- Technology data bases and case study data bases;
- Policy framework with well-defined and effectively implemented rules and regulations, and other incentives for adoption of ESTs;
- Training and capacity building tools – this should include tools and activities which enhance the capacity of countries to repair and maintain ESTs, including by local production of spare parts; and
- Performance assessment tools, such as Environmental Technology Verification, and a comparison of performance against Performance Codes and Standards.

### An Example from Iraq

As part of a larger USD 15m portfolio, one of our most exciting projects looks at supporting environmental management of the Iraqi Marshlands. The latter constitute the largest wetland ecosystem in the Middle East. Located at the confluence of the Tigris and Euphrates Rivers, the area is home to a 5,000-year civilization and has sustained rich biodiversity. By 2003, the area had suffered extensive ecological damage, with the accompanying displacement of much of the indigenous population.

Since 2004, we have been implementing a project to help the Iraqi partners to preserve the area's ecosystem and biodiversity, and to protect human health and livelihoods, as requested by the Iraqi authorities. This project demonstrates the applications and transfer of environmentally sound technologies to provide basic services to the local residents and to implement wetland management practices. In particular, the project has implemented the following activities for EST technology support:

- Providing basic services in an ecologically sensitive area using an EST - The provision of basic services to the local

residents, particularly safe drinking water, has been identified as a number one priority. Conventional water supply means were evaluated to be unsuitable for rural communities within the Marshlands, due to the high level of total dissolved solids and other pollutants in the water, geographical characteristics, settlement patterns, and other factors. Based on field assessments and evaluations of alternatives, the project utilized the advanced reverse osmosis technology for water provision.

- Using native plants for wastewater treatment - The project has implemented the constructed wetland technology for wastewater treatment in a small community, which was facing public health threats from untreated sewage. In the constructed wetland, the water flows through gravel beds that are planted with reeds. Pollutants are removed through micro-biological oxidation in the root zone, and also through the uptake of nutrients for growth of reeds. The constructed wetland technology was appropriate for the Marshlands due to the technology's smaller land requirements, minimization of human contact with wastewater, and acceptance by the local community.

- Rehabilitating the Marshlands using ESTs – The project has also identified key work required for rehabilitation of the Marshlands, including restoration of marshland interconnections and flow regulations through channel connection and irrigation management, application of phytotechnology for replanting and water quality improvement, separation of domestic wastewater, and dredging and cleaning of canals to manage water flow and quantities. These technological measures can rehabilitate damaged marshland areas, and support the restoration of biodiversity.

- Evaluating vegetative and water recovery – The use of satellite imagery, coupled with groundtruthing exercises, has been utilized to assess and report on the level of vegetative and water recovery in the Marshland area on regular intervals.

The project has also established a web-based information system to enable data and information exchange among the local and international stakeholders, and has provided various capacity building and local environmental initiatives to create an enabling environment and human capital to continue with marshland management. We feel that this project is complementary to the approach adopted under the CBD, which recognizes that both access to and transfer of technology are essential elements for the attainment of the objectives of the Convention.

### The way forward

UNEP's experiences illustrate the important role for technology support, particularly with ESTs, for the protection and sustainable management of ecologically sensitive areas. Clearly, business has a crucial role to play in EST technology support. Such opportunities may include the identification and application of technologies that can help to reduce negative impacts of human activities on biodiversity, utilization of technologies that help assess and delineate baseline conditions, and implementation of technologies that can provide basic services in areas where conventional means are not appropriate.

Technology support is expected to play an increasingly important role to enable countries to address emerging environmental challenges that lay ahead of us. For example, addressing the threats of climate change on biodiversity and other vulnerable subjects will certainly require technological response, both from mitigation and adaptation perspectives. An emerging need of developing countries is to be able to assess various technology options available and select the one that is most suitable, in terms of economic, environmental and social performance, for the local application. This requires development of appropriate tools and building capacity at the local level in using those tools. The UNEP Sustainability Assessment of Technologies (SAT) methodology is one such tool.

With the growing importance of business engagement and the developments of Technology Transfer and Scientific and Technological Cooperation under the Convention, we see many areas of ongoing and future collaboration. In this regard, we look forward to providing feedback from our activities and projects which are relevant to the work of the Convention.

*Surya Chandak is Deputy Director, International Environmental Technology Centre, UNEP Division of Technology, Industry and Economics and Chizuru Aoki is Iraq Project Coordinator, International Environmental Technology Centre, UNEP Division of Technology, Industry and Economics.*

*Surya.Chandak@unep.or.jp*

*Chizuru.Aoki@unep.or.jp*

[www.unep.or.jp](http://www.unep.or.jp)

[www.marshlands.unep.or.jp](http://www.marshlands.unep.or.jp)

# Enabling environments for technology transfer



Photo © Finston Consulting, LLC



Based on a range of examples around the world, **SUSAN KLING FINSTON** details the way in which governments can create enabling frameworks for technology transfer.

**T**echnology Transfer and Cooperation are recognized as key elements for the successful implementation of all three pillars of the CBD. Through adoption of advanced technologies, Parties may reduce reliance on primary or extractive industries in favour of environmentally sustainable economic activities. Tech Transfer can also assist indigenous communities to engage in the global economy while remaining in their home communities and may also allow the sharing of benefits relating to genetic resources and traditional knowledge through the development of new products. These things and much more are possible with development of an enabling environment for technology transfer.

Those CBD Parties that have succeeded in establishing a positive climate for technology transfer demonstrate a durable commitment to science and science infrastructure, provide a strong rule-of-law culture, and implement economic policies that reward innovation in the marketplace.

## Understanding the drivers

More generally, developing and developed countries alike have relied on technology transfer, e.g. the dissemination and diffusion of new technologies, to promote social and economic benefits of innovation. Increasingly, this involves the sharing of know-how and business methods, as much or more than machinery or hardware. In the 21st century, one of the biggest drivers of technology transfer in the developing world has been engagement in the global economy through active partnerships be-

tween governments, research institutes/universities, and regional or multinational companies. In addition, individuals who have moved abroad to pursue education or R&D industry careers have proven to be great assets, resulting in 'brain-gain' for developing countries who have developed communication networks with their diaspora populations.

The Convention is renewing its efforts to promote technology transfer both within and among Parties, with an emphasis on developing country members. At the second meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention (WGRI-2), I overheard a comment somewhat along the lines of: "will the CBD finally mandate technology transfer and make it happen?" This reflects the confusion over what technology transfer is, and how it occurs.

So what really drives technology transfer? And more fundamentally, what is it we are trying to measure in even benchmarking whether it is taking place, increasing or decreasing?

In the second half of the 20th century, governments sought technology transfer from

were well-intended and meant to improve the technology base of the developing country. However, the outcomes were not positive, and countries with these policies did not, on average, grow faster economically or provide greater social benefits to their populations.

This was for two reasons: first, the growth in value of intangible assets and related technology transfer has far out-paced the importance of any individual manufacturing plant or hardware in spurring development of local industries and knowledge-based sectors that can bring sustainable economic growth. It is estimated that over the last twenty years alone, the growth of intangible assets in the U.S. economy has increased to 70% of all assets – far outstripping so-called 'hard assets' including real estate, manufacturing equipment and commodities.

Second, and equally importantly, while governments can succeed in placing local-working and other stumbling blocks in front of foreign (and indigenous) industry, technology transfer needs an enabling, cooperative environment to thrive. Technology transfer now is as much about the 'know-how' and trade secrets associated

---

*Technology transfer now is as much about the 'know-how' and trade secrets associated with patented technologies as hardware or infrastructure. It isn't something sitting in a room or behind a wall, but instead represents the value of collaborative working relationships, e.g. scientific exchange, innovative business methods, and the like*

---

industry as a condition of allowing foreign investment. Technology transfer was commonly viewed as the establishment of a manufacturing site or other 'bricks and mortar' facilities that would create jobs for growing populations. And governments created these so-called 'local working' requirements as a condition of respecting intellectual property or even allowing a company to enter the local market. Other requirements included the obligation to enter into a partnership with a local partner and not to allow 100% foreign ownership of the enterprise. All of these policies

with patented technologies as hardware or infrastructure. It isn't something sitting in a room or behind a wall, but instead represents the value of collaborative working relationships, e.g. scientific exchange, innovative business methods, and the like.

It is also not one-sided, and may involve a multinational company learning about a unique local natural resource that may hold the key to development of a novel product for international sale. Technology transfer may take years of collaboration and cooperation and is unlikely to suc-

ceed via government fiat. And those governments that have succeeded in creating economic and social benefits through the assimilation of new technologies have created enabling environments to encourage technology transfer among public institutions and private companies.

### **Three legs, all necessary**

So, what does it mean to establish an enabling environment for technology transfer and cooperation? There are three areas in which governments can pro-actively engage to create this enabling environment and all are of critical importance to ultimate success: (1) a durable government commitment to science education, research, and related infrastructure; (2) broad rule-of-law protections, including enforceability of contracts and strong IP protections; and (3) reliance on markets as the engine of growth for technology transfer. These three pillars of technology transfer are like the three legs of a stool: all are necessary, and none of them is sufficient by itself.

When there is a durable government commitment, authorities provide the core building blocks for technological advancement, both in terms of physical infrastructure, education, and primary and early applied science research dollars, either through donor resources or government revenues. This investment in education and training (both at home and abroad, at secondary and university levels) creates an enabling environment for science and technology.

Rule-of-law protections give individuals and corporations alike the ability to enter into enforceable agreements or contracts with others; they promise predictable and timely judicial remedies in case these agreements or contracts are breached. Intellectual property protection is another rule-of-law protection recognized not just by OECD-level countries but also by a growing number of developing countries around the world as critical to provide incentives for investment and growth.

### **Market-oriented policies**

And increasingly, CBD developing country members are turning towards market-oriented policies to encourage the risk taking needed to create new enterprises and promote technology transfer at home. I can not tell you how many times I have met with senior officials in ministries of industry and trade only to be told that country X realizes that the government is not the appropriate engine of growth for new technologies, and they need to attract investment and build more sustainable economic growth based on market-friendly policies.

Even in the United States of America, technology transfer stagnated in the cold-war period. In the mid-20th century, the U.S. Government weakened the environment for technology transfer by placing restrictive conditions on access to federally funded research, and did not grant exclusive rights to publicly funded inventions. Although this policy was well-intended, the impact was to undermine any incentive for an individual to invest his or her assets in the commercialization of a technology that would be available freely to third parties. This resulted, in the mid to late-1970s, in economic stagnation and fears that the USA was losing its technology edge, resulting in a number of proposals to improve the situation.

The Bayh-Dole Act of 1980 created exclusive rights for commercialization of federally funded research, and also included special incentives for small and medium enterprises and the requirement that public interest benchmarks also be met in the process of commercialization. And following the Bayh-Dole Act and a 1980 landmark U.S. Supreme Court case providing patent protection for biotechnology inventions, the United States witnessed an explosion of innovation, resulting in important contributions with new technologies in the areas of health, agriculture, and even highway safety.

### **Three examples**

I would like to highlight three geographically diverse examples where technology transfer has played a direct role in promoting the goals of the Convention.

As a result of a decade-long (and continuing) programme of economic and social reforms, Jordan has created a highly-enabling environment for knowledge-based sectors, including information and communication technologies (ICT) and pharmaceutical clinical research and development that rely both on market oriented policies and strong rule-of-law and Intellectual Property protections. Until very recently, Jordan's number one industry and source of foreign exchange was the extraction of minerals from the Dead Sea. This was both environmentally unsustainable and socially unproductive, providing few opportunities for technological advancement and movement up the value chain.

Arguably, the greatest single benefit to Jordan has been the role of multinational companies that have transferred critical 'doing-business' technologies in the areas of information technology and contract clinical research. As a result, the World Intellectual Property Organization now rec-

ognizes Jordan as the centre of the knowledge economy among Arab states in the region. In addition, Jordan had developed a successful, innovative medical-tourism sector, providing traditional medicinal treatments to tourists in state-of-the-art spa facilities near the Dead Sea and other natural wonders.

In Brazil, Natura provides an example of the importance of allowing market forces to guide technology transfer. Natura is an indigenous Brazilian company with sales in excess of USD 1bn annually and a regional leader in the development and marketing of cosmetics, personal hygiene products and perfumes based on natural products in collaboration with indigenous peoples. Natura's Ekos product line, launched in 2001, includes products developed from traditional plants found in the Amazonian Rainforest and based on Brazilian biodiversity in collaboration with indigenous communities in Brazil. For example, the breu Branco resin is used by Natura in its Perfume do Brasil. This is one of the first ABS contractual agreements between a company and a traditional community in Brazil, as approved in 2004 by the Generic Heritage Management Council (CGEN).

Since that time, Natura reports that it has entered into ABS agreements with a total of 20 traditional communities in Brazil. Benefits provided by Natura include a focus on technology transfer, capacity building, improved livelihood, skills and education, as well as support for local conservation efforts. Indigenous communities have benefited by gaining new skills, a greater understanding of sustainable economic activities relating to biodiverse genetic resources, and are participating in new economic relationships with Natura that contribute to greater social stability in their communities.

China demonstrates the value of a durable government commitment to science. In the late 20th century, there was substantial cause for concern that important medicinal plants and other herbs in China would be lost to extinction. Instead, the Chinese Government has made a durable investment in the protection and study of these traditional plants through the Institute of Medicinal Plant Development (IM-PLAD). The Institute's systematic study of traditional medicines from Chinese herbs and plant extracts for commercial development supports related clinical research relating to Traditional Chinese Medicine (TCM). IMPLAD activities include ethnography to rescue plants from the threat of extinction, cultivation of medicinal plants to establish germplasm – and gene-pool for development of medicines, R&D, ●●●

●●● patenting, and commercial development and production of drugs along the Western model. IMPLAD's accomplishments to date include joint ventures with three commercial companies in China, three branch institutes in sub-tropical southern China, and more than 1,000 papers and 30 monographs.

The commercialization of Chinese medicinal herbs could provide significantly more meaningful incentives for the conservation and sustainable use of genetic resources. In addition to Chinese and foreign government investment in TCM, major multinational biopharmaceutical companies, like Novartis, are also investing in clinical research in China on TCM, relying on strong intellectual property protections to ensure a return on their investment.

These and many other technology success stories have been made possible through durable government commitments to create an enabling environment through support for basic science and related infrastructure, strong rule-of-law and intellectual property protections, and reliance on market forces to direct technology transfer activities. In each case, companies have played a key role in providing technological 'know-how' to local communities and promoting the retention of local populations.

Successful technology-transfer models also offer incentives to national diasporas in the United States and Europe to contribute to home-grown success stories. In the 21st century digital technologies can enable a new connectedness of individual across borders, promoting 'virtual brain-gain' to bring technology transfer and development benefits regardless of the physical location of expatriates.

Now, more than ever, as the CBD launches a new technology transfer Programme of Work, there are important opportunities to learn from these and other technology transfer success in developing countries in varied regions and with different social and economic structures.

*Susan Kling Finston is Founder, Finston Consulting, LLC and Board Member, BayhDole25, Inc., she also serves as Executive Director to the American BioIndustry Alliance (ABIA).*

[susan@finstonconsulting.com](mailto:susan@finstonconsulting.com)

[www.bayhdole25.org](http://www.bayhdole25.org)

[www.abialliance.com](http://www.abialliance.com)



Photo © Carlos Ibarra

## Business engagement under CITES



Photo © CITES

**JUAN CARLOS VASQUEZ** details recent efforts under CITES to engage with business.

**Could you outline what the business related decisions adopted at CITES CoP14 (which took place in The Hague, The Netherlands, from 3 to 15 June) cover?**

The Conference of the Parties to CITES adopted a decision on stakeholder engagement. The decision directs Parties to consider practical ways to enhance stakeholder engagement in the implementation of the Convention (e.g. promoting good practices and codes of conduct that facilitate the work of CITES authorities, help to reduce time-frames for the completion of CITES procedures and enhance the role of business in intelligence-gathering to identify and prosecute illegal traders). Another important decision directs the CITES Secretariat to continue its cooperation with the BioTrade Initiative

of UNCTAD under a signed MoU. This cooperation aims to achieve two basic goals: first, to ensure the conservation of wild species subject to international trade and, second, to promote private sector compliance with CITES requirements and national legislation. These two decisions are subject to external funding, and if they materialize, may represent a turning point in the way that CITES rules are discussed, adopted and implemented.

**Is there a strong involvement of business in CITES?**

Business is, of course, a major stakeholder in wildlife trade that is authorized under the Convention. It is in its interest to get involved in CITES processes and attend major meetings, such as those of the Conference of the Parties to CITES. In fact, members of the business community have regular contact with CITES authorities and often communicate with the Secretariat as well. Several private sector organizations are regularly represented at the CITES meetings, including the CoPs. However, they still only represent a small part of the whole wildlife trade industry. Some of these organizations make important contributions to the CITES decision making process but most adopt a defensive attitude towards CITES measures. At CoP14, for the first time UNCTAD, the CBD and CITES Secretariats organized a side-event on business engagement. The response was very positive.

### **Why is business not participating more massively and visibly?**

There are several possible explanations but let's mention three. First, there is a risk factor by turning up - you attract attention - and companies want to avoid stigmatization and 'blaming campaigns' that will affect their reputation. The risk is the result of an unfortunate misperception in the business community, in the markets and in the public opinion that CITES is here to prohibit all types of trade in wild fauna and flora. We need to work hard with business companies and the media to remove this misperception. Second, wildlife-trade enterprises are generally small to medium sized and lack the resources to participate. It is expensive for them to stay two weeks away from their business, covering a meeting where their opinions might not be taken into account. Third, CITES forum is seen by an important part of the business community as not conducive to their participation. According to this perception, CITES is dominated by environmentalists - mainly animal welfare and animal rights NGOs - that see sustainable use as a coded word to rip off nature and that do not allow any rational debate about the best way to manage and protect species.

### **How does the Secretariat currently deal with business engagement?**

The CITES Secretariat is exploring ways to better cooperate with other partners. With business, the aim of the exercise is primarily to ensure compliance with CITES requirements and national legislation. Historically, CITES has recognized the important role of civil society in wildlife conservation but has failed to recognize local communities and business as an important constituent in its decision-making process. Discussions have often been tense between animal welfare NGOs and business representatives about the role of trade and business in the conservation of wild fauna and flora. The traditional view of an important part of the CITES community has been that "business is more part of the problem than the solution".

There are also those misperceptions that need to be removed from the side of the business community that looks at CITES as simply an obstacle or trade barrier. When business is good for conservation, CITES should not be seen as an obstacle but a guarantee. CITES is exploring ways to engage business constructively to support the implementation of the Convention.

### **Why do you think further business engagement is required?**

Since legal and illegal trade in wild fauna and flora are driven by economic and social

factors, business participation is a crucial element to understand the main drivers and identify the best solutions in a rational and well-informed manner. Learning more about the social and economic drivers that push or influence a particular behaviour is essential to designing and implementing effective wildlife trade policies, including an effective combination of good legislation, voluntary instruments, public-private partnerships and promoting good practice. Business engagement is also essential to increase the likelihood of the recommendations arising from the

food, economic and other human needs. The approach will need a great deal of innovation and flexibility from CITES, allowing it to transcend its traditional role as a last-resort regulatory tool and become part of a more integrated management effort - providing Parties the processes and mechanisms necessary to complement and strengthen their own national policies and legislation. There is a lot of resistance from the producing countries and business to include fish and timber species in CITES but I do not see how this trend can be avoided in the near future.

## ***Business participation is a crucial element to understand the main drivers and identify the best solutions in a rational and well-informed manner***

Conference of the Parties being accepted and implemented.

I must say that further engagement is not only required from the business community but also from a larger range of stakeholders, including rural poor organizations, cooperatives and community-level committees, representatives of indigenous people, as well as non-governmental organizations, individuals, relevant national and multilateral organizations and government bodies responsible for external trade and public finance.

### **What do you feel is needed to encourage greater participation from the business community in CITES?**

Business requires predictable rules, legal security and political stability to play the game. It also needs a platform to officially convey their arguments to the CITES community and other relevant stakeholders. What kind of platform is the most appropriate? This is exactly what the Parties have to decide, based on the proposals received from different stakeholders. My feeling is that the degree of engagement of the business community is going to be related to its capacity to influence the CITES process. Of course, it is essential to receive technical and financial input from the business community to materialize this. We are working in partnership with other MEA Secretariats and relevant organizations on the most practical and cost-effective ways to facilitate this dialogue.

Concerning timber and fish, I believe that there is a need to move beyond an 'endangered species' approach when addressing trade in these species. The focus should not only be on the continued survival of the species but also on ensuring their security as wild resources that meet

### **You have been involved in informal discussions with other MEA Secretariats regarding business engagement - where do you see possible synergies?**

The UNCTAD BioTrade Initiative and UNEP are doing a tremendous work in facilitating cooperation and dialogue among the Secretariats of the biodiversity-related conventions. In November 2006, for instance, UNCTAD organized a workshop in Geneva bringing together representatives from CBD, CITES, Ramsar, the Global Mechanism of the UNCCD, UNEP and other stakeholder organizations to exchange experiences and discuss a common strategy for three key areas: business engagement, incentive measures and international trade. An informal network has been created as a result. We are making progress in identifying practical synergies and concrete steps to engage business. However, we are obliged to be very careful in respecting the different mandates that Parties have given to each Convention. I believe more in partnerships than in synergies. We can work together to reduce costs and be more cost effective in achieving different but interconnected mandates.

### **What would you like to see achieved by CITES CoP15?**

I would like to see private sector involved in a proactive manner, feeling as part of the solution, conveying their ideas through a structured and representative platform, reinvesting in conservation and committed to respect CITES rules.

Juan Carlos Vasquez is Legal Affairs Officer, CITES Secretariat.

[juan.vasquez@cites.org](mailto:juan.vasquez@cites.org)

[www.cites.org](http://www.cites.org)

# Synergies for business engagement



Photo © UNCTAD

**LUCAS ASSUNÇÃO** provides an update on several business and biodiversity initiatives led by UNCTAD in recent months.

The time has come to better frame business engagement towards the conservation and sustainable use of biodiversity. Our experience, over the years, in the United Nations Conference on Trade and Development (UNCTAD) BioTrade Initiative shows that these goals can and should be mutually supportive. We have worked closely with the CBD and other biodiversity-related convention secretariats to share experiences and create synergies on business engagement, notably through a series of events organised with the business community dealing with cosmetics, functional foods, and endangered species.

## Cosmetics and functional foods

In May, UNCTAD and the International Finance Corporation (IFC) held a forum in Geneva on business engagement in the cosmetics and functional food industries. Business representatives noted that consumers are showing growing interest in natural health products. Consumers increasingly value ethical business practices and are interested in novel products. However, biodiversity still remains a relatively unknown concept for business and difficult to communicate with the public at large. It will therefore be some time before there is widespread consumer demand for biodiversity-friendly (and pro-poor) products as such. It was clear that biodiversity conservation and sustainable use are on a trend to become important aspects for markets, and that such market segments will become increasingly lucrative for products that follow the BioTrade Principles and Criteria [1]. We now need to find ways to work even closer with business to see how we can encourage the up-take of these principles, which closely follow the CBD objectives.

During the UNCTAD/IFC forum, businesses

also provided their views on the role that national governments, through their CBD Focal Points, could play in search of business engagement. It was noted that few companies are actually familiar with the CBD and that awareness-raising efforts by national focal points need to be stepped up. Examples taken from developed countries showed that, at least for the cosmetics and food industries, national focal points are typically not very active in pursuing business engagement. Most governmental efforts in these countries appear to be focused on other sectors, big business, or activities that affect their domestic biodiversity, and mostly follow philanthropic or assistance models rather than investment-oriented approaches. Small and medium-sized enterprises involved in cross-border BioTrade are normally not considered.

This is an interesting outcome. Historically, UNCTAD BioTrade has worked primarily

---

*This is an interesting outcome. Historically, UNCTAD BioTrade has worked primarily with Focal Points in developing (exporting) countries, but now we will also start to explore ways to collaborate much more with Focal Points in developed (importing) countries*

---

with Focal Points in developing (exporting) countries, but now we will also start to explore ways to collaborate much more with Focal Points in developed (importing) countries. We hope to be able to test this approach with a few countries before COP-9 and report back on this at the COP and through future issues of *Business.2010*.

Finally, several forum participants recommended that the recently created Union for Ethical Bio Trade (UEBT) could become a vehicle for facilitating business engagement in the CBD in the area of natural products. As reported here previously, this membership-based association brings together organizations from different industries around the globe that are working in the field of native biodiversity [2]. This platform was just created this year, and I hope it can play a leading role in business engagement from both developed and developing countries in this sector.

## Endangered species

In June, during CITES CoP 14 in The Hague,

UNCTAD and the secretariats of CBD and CITES organised an exchange meeting with business groups. The importance of income generation for local communities was stressed when Uganda's Minister of State for Tourism, Wildlife and Antiquities, the Honourable Serapio Rukundo stated "We are in government to create income and job opportunities for local communities" and emphasised the importance of growth led by small and medium-sized enterprises with support from the public sector to reduce poverty and generate sustainable incomes to improve living conditions.

It became clear, however, that the perceived role of business in the context of CITES is very different than that in the CBD. Representatives of some economic sectors explained, for example, that they view CITES as more of a threat than an opportunity for businesses that are truly engaged in sustainable use practices. Some

of the business representatives argued that not only did their trade improve local livelihoods, but that regulated trade was more effective in achieving conservation objectives than outright bans, especially as illegal trade often accompanied such bans. Despite this, they believe there is a general tendency among many NGOs that follow the CITES process to prefer the prohibition of trade in wildlife species over their sustainable use. We do not think this should be seen as an either-or policy option. Based on our experience with the UNCTAD BioTrade Initiative, there is real benefit in providing policy space to make trade and sustainable use and conservation of biodiversity mutually supportive policy options.

It is evident that in the CITES community more effort is still needed to demonstrate how business can contribute to the implementation of CITES and local sustainable development. Also, the business community should be more pro-active in looking for solutions, for example by adopting voluntary measures such as codes of conduct



Photo © BioTrade Bolivia

or certification.

### ***Merging conservation and business plans***

The CBD Focal point for business was also present and explained the approach of the Convention towards business engagement. Business representatives noted that provisions found in the CBD seemed more conducive to pro-active business engagement than provisions found within CITES. It would seem to me that much could be gained from having both secretariats continue to liaise on business engagement. In light of the outcome of this meeting,

UNCTAD BioTrade will certainly try to facilitate the creation of a platform for regular communication between the CITES secretariat, traders and other business groups. We will also see how this can be linked to ongoing processes within the CBD.

Overall, there is reason to feel optimistic about the future of increased business involvement in biodiversity-related issues. New private and public sector initiatives seem to blossom every day. With adequate support from all interested stakeholders and an effort to exchange best practices through the CBD and other fora, at the

next CBD COP, we may see a stronger business commitment to integrating biodiversity considerations into individual business plans.

[1] For meeting reports and additional information on BioTrade, see [www.biotrade.org](http://www.biotrade.org).

[2] [www.uebt.ch](http://www.uebt.ch)

Lucas Assunção is Chief of Section, Biodiversity and Climate Change, United Nations Conference on Trade and Development (UNCTAD).

[lucas.assuncao@unctad.org](mailto:lucas.assuncao@unctad.org)

[www.unctad.org](http://www.unctad.org)

# Rethinking business and biodiversity linkages



Photo © Orée and IFB

**JOËL HOUDET** and **JACQUES WEBER** outline the efforts of the Orée and Institut Français de la Biodiversité joint working group on business and biodiversity and argue that we need to rethink the way we approach the integration of biodiversity into corporate strategies.

**H**umans, as living organisms, are an integral part of biodiversity, and thus participate, whether as individuals or organizations, in the dynamics of interactions and interdependences between all living organisms and their abiotic environment. Though often unknown or unexpected, links between biodiversity and companies, whether small, medium-sized or with global reach, are diverse and numerous. Besides substantial financial or reputational risks readily cited by environmental managers, biodiversity may be important for production processes (e.g. fermentation of dairy products), the development of new technology (e.g. biotechnology) or in terms of new investment opportunities (e.g. fast rising ecotourism market). In France, a working group of approximately 20 organisations - established in 2006 and convening companies, research institutes, NGOs and public institutions -- has been working on uncovering and valuing business and biodiversity inter-relationships. This has been made possible thanks to the close cooperation between the Institut Français de la Biodiversité (IFB), Orée - Entreprises, territoires et environnement (Orée) and Veolia Environment.

## **Participatory science in action**

Coming from various communities of practice, participants of the working group have been sharing, through regular meetings, their perceptions, experience and challenges regarding the integration of biodiversity into business strategies. For

instance, best practice include Séché Global Solutions' management and restoration of biodiversity across all its waste storage sites – with a strong emphasis on blending within the surrounding agro-ecosystems and regular monitoring of key biota, such as birds and amphibians. PhytoStore's highly innovative 'filtering gardens' that depollute water, soil and even air by using micro-organisms and plants is also worthy of mention.

In parallel to the gathering of best practice from member organisations, efforts have also focused on assessing the interdependency of French business sectors [1] with biodiversity against four criteria.

## ***We need to think beyond the frontiers of individual schools of thought, in an interdisciplinary way, linking functional and evolutionary ecology to environmental management, financial management and reporting, and strategic decision-making***

This constitutes a preliminary step towards building a typology of positive and negative links across sectors and criteria. Feedbacks from the working group have allowed the methodology to evolve towards the Indicator of Interdependency of a Corporation to Biodiversity (IICB). Work is now underway to assess individual companies' perceptions of their interrelationships with respect to biodiversity. Five groups of criteria are currently being used, namely 'strategy', 'compensation', 'impacts', 'direct links with biodiversity' and 'market valuations'. This is essential to enable us to better grasp the complexity of interrelationships and suggest key areas for further analysis, so as to make biodiversity an integral building block of the firm – and not an external constraint or the mere sum of species that need to be conserved. The aim for the working group is, ultimately, to develop a guide on integrating biodiversity into business strategies, targeting both companies and their stakeholders, away from a patrimonial approach that focuses on impacts management, conservation and / or restoration of remarkable / threatened species, habitats or ecosystem services. Experiences from companies will hence reflect the integration of biodiversity as an internal component of the evolving firm, with companies constantly interacting with it and within it, being able to seize opportunities through the appro-

priate management of their interdependences.

## **Unravelling complex issues**

Integrating biodiversity into business strategies and practices is no easy task. At best a marginal or emerging issue within the scope of a broader corporate social responsibility agenda, the extent to which activities are linked directly and indirectly to biodiversity is very difficult to apprehend by company managers. The complexity of issues and processes embodied within the concept of 'biodiversity' cannot be simplified into a single variable for communication or financial purposes, in contrast to

what is done for climate change (*i.e.* Carbon Dioxide Equivalent or CO<sub>2</sub> Eq). Much research still needs to be undertaken to understand the links between ecosystem functions, processes and services, including the implications of temporal and spatial variability. Assessing and formalising their relevance to business activities and strategic choices is a key challenge. This seems to give weight to the proposal to further develop expertise at the international level, e.g. through the creation of an International Mechanism on Scientific Expertise on Biodiversity (IMoSEB) [2].

Nevertheless, companies – or at least multinationals – are increasingly aware of the importance of tackling biodiversity loss as a long-term strategic necessity for sustained growth. Most efforts in France tend to focus on the management of impacts of production processes on particular species or habitats, especially in industrial sectors where the license to operate is at stake. Even in the context of operationalizing engagements taken in response to stakeholder pressure, difficulties quickly emerge, notably in terms of determining realistic goals, defining the appropriate indicators with respect to varying organisational levels, or developing effective and efficient management tools. Investment in research, especially ecological engineering, should thus be actively promoted,



and so should close cooperation between research institutions and business. We believe that an independent institution, jointly managed by public research and business organizations, should be created to coordinate such endeavours.

### **What is at stake?**

Looking beyond impact management or single species-driven agendas, our research framework intends to explore how companies can rethink their strategies at all levels, with biodiversity as an element of firm dynamics, whether in terms of research and development or supply chain management. We need to think beyond the frontiers of individual schools of thought, in an interdisciplinary way, linking functional and evolutionary ecology to environmental management, financial management and reporting, and strategic decision-making. To bridge differing perceptions and put words into action, it is essential to propose solutions that take into account uncertain-

ties intrinsic to biodiversity and ensuing risks and opportunities for business – both translated in terms that are understandable to decision makers.

Our ultimate aim is to propose innovative mechanisms, away from a system of external constraints based exclusively on national or international public policies (e.g. regulatory mechanisms), towards one with reciprocal interrelationships between the evolution of ecosystems and the growth of companies. Taking into consideration existing mechanisms, we hope to analyse and construct new ones, at the level of individual firms and between companies interacting within markets and landscapes [3]. These would contribute to the internalisation of environmental externalities, reshaping the value creation process.

The issue is clearly not to develop a unique or universal tool which would replace other approaches to conserving biodiversity.

On the contrary, within the diverse toolbox necessary for biodiversity conservation such as protected areas and international conventions, we would argue that biodiversity can also be taken into consideration in a language of costs and benefits understandable by companies and all relevant stakeholders. Reciprocal co-evolution of business and biodiversity is an achievable vision. One we should all abide to.

[1] According to the nomenclature of the Institut National de la Statistique et des Etudes Economiques (INSEE).

[2] [www.imoseb.net](http://www.imoseb.net)

[3] Spatial associations of industrial sites with respect to biodiversity needs to be explored, borrowing from the field of industrial ecology.

Joël Houdet is Biodiversity advisor and PhD student, Orée - Entreprises, territoires et environnement. [www.oree.org](http://www.oree.org)  
[houdet@oree.org](mailto:houdet@oree.org)

Jacques Weber is Director, Institut Français de la Biodiversité. [www.gis-ifb.org](http://www.gis-ifb.org)  
[weber@mnhn.fr](mailto:weber@mnhn.fr)



## Recognizing our global responsibilities

Photo © Mining Association of Canada



**PIERRE GRATTON** reflects on the shifting values within the mining industry which have encouraged the recent adoption of biodiversity policies at the international and national level.

Only a decade ago, it would have been inconceivable that a grouping of mining companies adopt a policy on mining and biodiversity that included, among other commitments, a ‘no-go’ pledge. The mining industry has historically viewed protected areas as anathema to its business interest, as an unjustifiable limit on its need for access to as much land as possible to enable successful mineral exploration.

### **Shifting values**

In 2003, a tangible shift in industry values was made evident with the release, by the International Council on Mining and Metals (ICMM), of a groundbreaking Position Statement on Mining and Protected Areas [1]. This statement followed the launch, in 2002, of an important dialogue between the World Conservation Union (IUCN) and ICMM that endures to this day [2]. This year, members of the Mining Association of Canada (MAC) followed suit with the adoption of a Mining and Biodiversity Policy Framework [3].

The MAC framework was developed over 2006-2007, in consultation with the industry’s key communities of interest (or stakeholders) that included, among others, the Secretariat of the Convention on Biological Diversity, the IUCN Canada Office, the Canadian Boreal Initiative and MAC’s own Community of Interest Advisory Panel. A workshop, held in Ottawa in October 2006, involved over forty

participants in a review of a draft policy framework, a discussion of case studies and the development of recommendations for MAC on actions that would help support implementation of the framework. Additional consultations on the framework followed until its adoption by the MAC Board in June 2007.

### **Commitments on biodiversity**

In addition to the pledge to recognize World Heritage properties as ‘no-go’ areas, the framework includes several commitments regarding steps the industry will take to integrate biodiversity conservation considerations into all stages of the mining cycle, from exploration through to closure. The commitments include:

- Integrating the importance of biodiversity conservation, including respect for critical habitat, into mining and land-use planning and management strategies, including considering the option of not proceeding with a project;

## *Biodiversity conservation in industry planning has evolved from an abstract concept to practical application with real business value*

will serve the needs of post-mining use, recognizing that mining can permanently alter landscapes and that other desirable land uses may be considered in reclamation plans when justified by site-specific circumstances.

### **Through the biodiversity lens**

Like the 'no-go' pledge, these commitments reflect a change in industry values and, more importantly, an improvement in industry practices. Biodiversity conservation in industry planning has evolved from an abstract concept to practical application with real business value. The *Good Practice Guidance for Mining and Biodiversity*, published by ICMM last year [4] provides the mining sector with a practical, how-to manual for managing biodiversity conservation issues throughout the mining cycle.

A business case for biodiversity conservation in the mining industry has clearly emerged. This comprises the less direct but powerful 'social license': those companies that demonstrate leadership on biodiversity are less likely to face opposition. There are direct benefits as well. Managing for biodiversity means planning for less disturbance, *i.e.* having a smaller 'footprint', which translates into lower reclamation costs. Active monitoring programmes for biodiversity, including ecological effects monitoring, can also help companies anticipate and avoid potential negative, and costly, impacts. There are many examples where a biodiversity 'lens' focused on the management of mine site activities provides win-win opportunities that achieve biodiversity goals and meet local community needs in a cost-effective manner.

### **Facing the hard realities**

The change in industry thinking is essential, since we are faced with two hard realities on a potential collision course. The Millennium Ecosystem Assessment found that human actions are depleting the Earth's natural capital, putting at risk the ability of the planet's ecosystems to sustain future generations. At the same time, the demand for minerals and metals

is surging, driven by the rapidly developing economies of China, India and Brazil, to name just three.

The Chinese economy, for example, has been growing at approximately 10 percent per year for the past quarter century, with no signs of slowing down. China is building 50 coal-fired plants per year, the equivalent of the entire Spanish grid. Its population of 1.3 billion has 3 cars per 100 people, compared to 90 in the United States of America. Clearly, as China grows, the demand for mineral and metal products will intensify, as will the need for new mineral discoveries which, increasingly, are found in the more remote parts of the globe, where biodiversity is rich, and historically free from human development. The potential clash between humanity's need for minerals and metals and its need for healthy ecosystems is clear.

Hence, it has become plain that for this clash to be avoided or minimized in the minerals and metals industry, good practices, and continual improvement, are essential. Increased and improved recycling – a rapidly growing business line for integrated metal producers in Canada and elsewhere – is also important. And lastly, so is the need to recognize that there are places of high conservation value that should be left undisturbed.

ICMM's Statement on Protected Areas and MAC's new framework are demonstrations that an increasing segment of the global mining industry recognizes its global responsibilities.

View of Cape Sable Island, an Important Bird Area in Nova Scotia, Canada that has been supported by a conservation partnership between Nature Canada and BHP Billiton Base Metals. Photo © Pierre Gratton.

- Assessing and monitoring the state of biodiversity throughout the project cycle;
- Avoiding, minimizing, mitigating and/or compensating for significant adverse biodiversity effects;
- Complying with the requirements of legally-designated protected areas and working with key communities of interest to develop transparent, inclusive, informed and equitable decision-making processes for the establishment of protected areas; and
- Establishing, financing and implementing comprehensive reclamation plans that, wherever practicable, return mine sites to viable and diverse ecosystems that

[1] [www.icmm.com](http://www.icmm.com)

[2] [www.iucn.org/themes/business/mining](http://www.iucn.org/themes/business/mining)

[3] [www.mining.ca/www/Towards\\_Sustaining\\_Mining](http://www.mining.ca/www/Towards_Sustaining_Mining)

[4] [www.icmm.com/library\\_publicat.php?rcd=256](http://www.icmm.com/library_publicat.php?rcd=256)

Pierre Gratton is Vice President - Sustainable Development and Public Affairs, The Mining Association of Canada.

[pgratton@mining.ca](mailto:pgratton@mining.ca)

[www.mining.ca](http://www.mining.ca)

# Report from Paris

Photo © USCIB



**ALIX HEYWOOD** provides a brief report on the recent SBSTTA-12 meeting and suggests ways of further facilitating business engagement in future CBD meetings.

The two key issues for the business community at the twelfth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-12), which took place in Paris on 2-6 July, were climate change and biofuels. Both these items provoked a wide range of views amongst the Parties, and the final recommendations reflect how debate ranged from technical aspects of the issue to concerns with mandate and interaction with other international bodies. From a business perspective, strong coordination between international bodies, and clarity on the appropriate forum for addressing various aspects of an issue, is extremely helpful – both in preparing, and in finding appropriate volunteers willing and able to attend meetings.

## *Climate change and biofuels*

Climate change and especially biofuels are new topics within the CBD, and our interest was mainly in tracking how the discussion developed and how they will become incorporated into existing work. The business representatives made an intervention in the biofuels debate, stressing the importance of coordination with other inter-governmental bodies, including the

## *The biofuels issue demonstrates one of the challenges of business participation in the Convention, which is that 'business' covers a vast range of interests, varying by sector, by country, and by size*

OECD, and calling for all possible technologies to be included in information gathering and assessment. Everyone agrees that the situation of biofuel production and use is in flux, responding, in large part, to a changing policy and market environment. Innovation is vital to realize the potential benefits of biofuels, while dealing with the

possible risks – both sides were captured in the final recommendation on this issue (Recommendation XII/7). It would seem counter-productive to attempt to pick technologies at this early stage of bio-energy evolution, rather than promoting the objectives that underpin biofuel interest.

Creating a policy framework that enables such positive innovation is a highly complex endeavour. It seems likely that, like the ecosystem approach, successful implementation of measures to promote sustainable production and use of biofuels will – at least initially – need to be context-specific, while common overarching principles and goals are being discussed. Considering such goals and principles will require engagement and coordination of expert agencies at national and international level, acknowledging that this topic has implications for policy on energy, climate change, agriculture, environment, food, innovation, commercialization and trade – and probably more.

## *Business participation*

The biofuels issue demonstrates one of the challenges of business participation in the Convention, which is that 'business' covers a vast range of interests, varying by sector, by country, and by size. One mechanism that facilitates coordination is the Task Force on the CBD at the International Chamber of Commerce (ICC). Established in 2005, this supports business-to-business and business-to-CBD Secretariat communication and participation in CBD work, as appropriate, and is in addition to the direct engagement by companies and other business groups. Participation in the CBD Task Force is open to all members of ICC national committees around the world [1].

Of course, the more opportunities for participation, the more companies see a benefit in sending an employee to engage. The most important discussions are probably those that take place at national level between companies and their government: the CBD Secretariat makes all national government focal point contact information

available on its website [2], and companies should avail of this.

## *Sharing information*

In the context of a meeting such as SBSTTA, it might be interesting to explore opportunities for panel discussions between representatives of major groups, or discussions of actual experiences on the ground by a representative cluster of stakeholders – local and national government, scientists, businesses, conservation NGOs and civil society. These do occasionally take place in side events already, and the most successful formats could perhaps be considered for more formal inclusion in the schedule as another mode of information sharing. Where relevant to the agenda, it may even be appropriate to invite a senior corporate representative to present, to the Parties, work on biodiversity.

Having a dedicated business liaison at the CBD Secretariat is extremely beneficial, and very much welcomed. This function not only greatly facilitates actions by the CBD to engage with business, it also ensures that business can indeed participate and provide input across the extensive work programme undertaken by the CBD. Given that innovation is necessary for society's adaptation to sustainable living and that business is the engine of economic development, it is vital that this important stakeholder is present, and its voice is heard.

The agenda of SBSTTA-13 is substantial, and with direct relevance to business activities, especially the in-depth review of the Agriculture and Forest Programmes of Work, and also the revised discussion of climate change. It is anticipated that there will be good participation by private sector representatives, and planning and scheduling for side events should begin later this year, as well as communication with governments regarding their expectations.

[1] For more information on how to participate in the Task Force, contact the relevant national ICC Committee ([www.iccwbo.org/id100/index.html](http://www.iccwbo.org/id100/index.html)) or Carlos Busquets ([carlos.busquets@iccwbo.org](mailto:carlos.busquets@iccwbo.org)) directly.

[2] [www.cbd.int/convention/parties/nfp.shtml](http://www.cbd.int/convention/parties/nfp.shtml)

Alix Heywood is manager for biotechnology, nanotechnology, health care and emerging markets at the International Chamber of Commerce's U.S. affiliate, the United States Council for International Business

[aheywood@uscib.org](mailto:aheywood@uscib.org)

[www.uscib.org](http://www.uscib.org)



# Making sure business does not miss 2010



Photo © Nippon Keidanren

As a follow-up to two articles focusing on recent business and biodiversity developments in Japan, published in the last issue of *Business.2010*, **YOSHIHITO IWAMA** highlights efforts by the Japanese business federation (Nippon Keidanren) to mobilize its own members on biodiversity.

**N**ippon Keidanren is a comprehensive economic organization established to accelerate the growth of Japan's and the world's economy and to strengthen corporations to create additional value. Its membership of 1,662 is comprised of companies, industrial associations and regional economic organizations.

## **Charters for the business world**

Nippon Keidanren published its Global Environment Charter in April 1991. In its introduction, the charter states that "By showing that it takes environmental issues seriously, the business world can gain the trust and sympathy of the public. This will foster a mutually beneficial relationship between producers and consumers, thereby encouraging the healthy development of the economy." The charter's underlying philosophy is that "Each company must aim at being a good global corporate citizen, recognizing that grappling with environmental issues is essential to its own existence and its activities".

In order to turn these aspirations into action, Keidanren provides the following guiding principles:

- Protect the global environment and improve the local life environment;
- Protect ecosystems and conserve resources;
- Ensure the environmental soundness of products; and
- Protect the health and safety of employees and citizens.

To achieve these, we request member companies to establish and maintain a management system.

In September 1991, Nippon Keidanren also released a Charter for Good Corporate Behaviour to help build trust with stakeholders. This charter emphasizes the importance of combating global warming; working toward the realization of a sound material-cycle society; and conserving biodiversity. The charter also calls on companies to own up to their corporate social responsibilities.

## **A fund for nature**

As a follow-up to its Environment Charter, Keidanren established, in 1992, the Keidanren Nature Conservation Fund (KNCF) for supporting the NGO work on conservation. The creation of the Fund was well received by various environmental platforms, including the 1992 Rio de Janeiro 'Earth Summit' as well as from various international organizations, such as the World Conservation Union (IUCN). KNCF also attended the First IUCN World Conservation Congress (Montreal, 1996).

Until the establishment of the KNCF, relationships between corporations and NGOs in Japan were often antagonistic. The establishment of the fund helped alleviate these tensions by providing concrete opportunities for the corporate world and

declaration as well as guidelines for concrete actions to promote a 'society in which the economy and the environment exist in harmony'. The declaration promotes raising the awareness of companies on their impacts biodiversity; the exchange of information and knowledge between the business world and environmental organizations; and the use of management and technical skills available within the companies to address environmental challenges.

NKCNC has organized several activities to enhance partnerships between business and environmental groups including: Holding a symposium to present joint projects; Hosting workshops and poster sessions to promote technical exchange; Providing regular opportunities for NGOs to report back on progress of KNCF supported projects; Sponsoring meetings on nature conservation, as organized by the World Bank, IUCN and others.

In February 2006, KNCF and NKNC organized the 'Mottainai' and nature conservation symposium, with the participation of Nobel Peace Prize winner Wangari Maathai. Her message, namely that world peace can be attained through the conservation of

---

## ***The tenth meeting of the Conference of the Parties – which Japan has offered to host – provides an important platform which we cannot miss***

---

environmental organizations to cooperate. Nippon Keidanren Committee on Nature Conservation (NKNC), which administers the Fund, continues to encourage its members to develop partnerships, including biodiversity. Testimony to the importance of our shift towards addressing environmental issues, in 1996, NKNC became an IUCN member.

KNCF receives over 150 applications for funds each year with requests coming from all over the world, especially from developing countries in Asia and the Pacific. A steering committee is in charge of judging and selecting projects. To date, the Fund has supported 676 projects, representing JPY 2bn (at the end of 2006 fiscal year).

## **Partnerships**

In 2003, KNCF and NKNC celebrated the 10th anniversary of the Fund by issuing a

nature, was a source of inspiration for all in attendance.

## **Examples of supported projects**

NKCNC member corporations also support the projects and cooperate with NGOs by providing additional funds, techniques and human resources, e.g. voluntary participation of employees.

- Conservation of dormice and popularization of animal pathway (Hokuto-city, Yamanashi prefecture, Japan) – The Japanese Dormouse Preservation and Research Group works to protect the endangered Japanese dormouse, through research and surveys on dormouse behaviour; the development of innovative forest management initiatives; and environmental awareness. Research (in Japan and the UK) involves observation of dormice living and climbing patterns. This has allowed for the design



*Conservation of dormice and popularization of animal pathway, Hokuto-city, Yamanashi prefecture, Japan.*

*Photo © Shimizu Corporation*

of a low-cost bridge on treetops that enables animals to cross roads safely on sites where a road or railroad has interrupted forest habitat. Japanese construction corporations, Taisei Corporation and Shimizu Corporation, have been participating in the Animal-Pathway project by providing expertise.

- Biodiversity conservation programme at the World Heritage Site Three Parallel Rivers of Yunnan Protected Areas (Lijiang and Lao-Jun Mountain, Yunnan province, China) – This project, led by the Asian Green-Culture Association (China), aims at raising local people's awareness of the environment, conserving and maintaining endangered fauna and flora, as well as improving the quality of life and contributing to the development of the sound-material cycle society. The project site, located in the highlands at an altitude above 2,000m, is rich in forests, grasslands, wetlands, and lakes but rapid tourism development and land and water management practices

threaten these ecosystems. Richo Company, Ltd. has started supporting this project from 2007.

- The Green Carpet project in Nakhon Si Thammarat (Thailand) – Since the late 1980s, mangrove forests on the coastline of southern Thailand have been in decline to allow for the construction of shrimp nursery ponds. Programmes to improve the quality of local people's life environment and restore the rich biodiversity in the lost mangroves have been developed by the Research Association for Global Mangrove (Japan) and the Thai Union for Mangrove Rehabilitation and Conservation (Thailand). This covers planting mangroves, following-up surveys and analyzing CO2 levels. Sekisui Chemical Co., Ltd. and others have supported planting mangroves in the past.

#### **The road to 2010**

Earlier this year, NKCNC was pleased to participate in the symposium on business and biodiversity organized by Biodiversity Network Japan and the Japan Committee for IUCN in Tokyo. We also organized a very fruitful dialogue between NKCNC and the CBD Secretariat Focal point for business. Based on the positive feedback received

by our member companies, we are, for instance, looking into organizing a business and biodiversity conference. Clearly, Nippon Keidanren is determined to play a key role as this important agenda unfolds.

I see two other major opportunities for the Japanese business community in the near future. The first has to do with the Japanese government's own efforts to engage more actively with the business community in the framework of the National Biodiversity Strategy. Our members have responded very favourably to this move. Secondly, the tenth meeting of the Conference of the Parties – which Japan has offered to host – provides an important platform which we cannot miss. Keidanren looks forward to showcasing, in 2010, the concrete steps taken by its members to better aligning their policies and practices with the objectives of the Convention.

*Yoshihito Iwama is Executive Director, Nippon Keidanren Committee on Nature Conservation.*

[iwama@keidanren.or.jp](mailto:iwama@keidanren.or.jp)

[www.keidanren.or.jp/kncf](http://www.keidanren.or.jp/kncf)

# News in brief

This section provides an update on various business and biodiversity initiatives. Please send your contributions to the editor.

## BIODIVERSITY BASED BUSINESS

The European Centre for Nature Conservation (ECNC) is coordinating a project for establishing pro-biodiversity business opportunities in Bulgaria and Croatia – funded by the Dutch government BBI-MATRA programme. The aim of the project is to work with SMEs and local financing institutions to identify a range of pro-biodiversity companies and to create appropriate financing opportunities.

Contact Vineta Goba ([goba@ecnc.org](mailto:goba@ecnc.org)) for more information.

## BIOFUELS

The Secretariat organized a side event on 'biofuel production and its impact on biodiversity' during SBSTTA-12 (2-6 July, Paris, France) – Jacques Blondy (Director of Agriculture Development, Total), provided a business perspective.

See also: Recommendation XII/7 – Biodiversity and biofuel production ([www.cbd.int/doc/meetings/sbstta/sbstta-12/official/sbstta-12-xx-en.pdf](http://www.cbd.int/doc/meetings/sbstta/sbstta-12/official/sbstta-12-xx-en.pdf)).

## CBD MEETINGS

The Secretariat has posted online advance unedited versions of the recommendations adopted by (a) the twelfth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-12, [www.cbd.int/doc/meetings/sbstta/sbstta-12/official/sbstta-12-xx-en.pdf](http://www.cbd.int/doc/meetings/sbstta/sbstta-12/official/sbstta-12-xx-en.pdf)) and (b) the second meeting of the Working Group on Review of Implementation of the Convention (WGRI-2, [www.cbd.int/doc/meetings/wgri/wgri-02/official/wgri-02-xx-en.doc](http://www.cbd.int/doc/meetings/wgri/wgri-02/official/wgri-02-xx-en.doc)).

## CONSERVATION FINANCE

On 15 June, the Global Environment Facility (GEF) Council endorsed the launch of a Public Private Partnership for the Global Environment. The PPP, expected to grow to USD 200m, is a "strategic investment programme to foster innovative technological and financial solutions to intractable environmental problems in developing countries".

[www.gefweb.org/interior.aspx?id=120&ekmense=c580fa7b\\_48\\_50\\_120\\_7](http://www.gefweb.org/interior.aspx?id=120&ekmense=c580fa7b_48_50_120_7)

## PAYMENTS FOR ECOSYSTEM SERVICES

On 11 July, UNEP and IUCN, in close collaboration with the CBD Secretariat, hosted a side event on "Developing International

Payments for Ecosystem Services: Avoided Deforestation" at second meeting of the Ad Hoc Working Group on Review of Implementation of the Convention (WGRI-2) in Paris, France. The purpose of this event was to enable CBD Parties to better understand the opportunities and challenges associated with Avoided Deforestation, an emerging form of International Payments for Ecosystem Payments (IPES).

Contact Louise Gallagher ([louise.gallagher@unep.ch](mailto:louise.gallagher@unep.ch)) or David Huberman ([david.huberman@iucn.org](mailto:david.huberman@iucn.org)) for more information.

[www.unep.ch/etb/areas/](http://www.unep.ch/etb/areas/)

## TOURISM

Building on the outcomes of the Oslo Global Ecotourism conference and on the previous Arendal Workshop on Linking Tourism and Protected Areas, UNEP, SCBD, IUCN's World Commission on Protected Areas, and others are developing 3 project proposals to address some of the gaps and needs identified in these events. The first proposes to compile and analyze information related to the economic significance of tourism to protected areas, as a means to raise awareness and allocate sufficient resources for their protection. The second focuses on identifying and disseminating best practices and innovative approaches. The third will organize a series of regional workshops to negotiate investment opportunities where sustainable tourism development is linked to the creation, establishment and management of protected areas.

Contact [oliver.hillel@cbd.int](mailto:oliver.hillel@cbd.int) for further information.

## GLOBAL GOVERNANCE

As part of the Global Environmental Governance (GEG) Project – a joint effort between the College of William & Mary and the Yale Center for Environmental Law and Policy – a mapping of business involvement in global environmental governance is currently being undertaken. The goal is to better understand who is active in the environmental field, how to become active, and what opportunities for synergies might be explored. The GEG Project is seeking information on how businesses can and do participate in various global environmental regimes, including biodiversity.

Contact David Gordon ([drdord@wm.edu](mailto:drdord@wm.edu)) for more information.

[www.environmentalgovernance.com](http://www.environmentalgovernance.com)

## OIL & GAS

Shell International and the World Conservation Union (IUCN) signed, on 30 May, a 'Head of Agreement' outlining the concepts and principles for moving their 7 year collaboration to the next stage. A formal agreement is expected to be signed later this year.

[www.iucn.org/en/news/archive/2007/05/30\\_shell.htm](http://www.iucn.org/en/news/archive/2007/05/30_shell.htm)

## COMINGS AND GOINGS

CHRISTINE COPLEY joined the International Council on Mining & Metals (ICMM) in June 2007. She is responsible for ICMM's environment, safety and health programmes. Chris spent the previous 5 years as Senior Manager at the World Coal Institute in London, representing the industry at international energy and environment meetings and policy fora, and authoring a number of reports on energy and coal. From 1998 to 2002 Chris worked as an Environmental Specialist in the energy, mining and urban environment sectors at the World Bank in Washington DC. Chris has degrees in Geology and Environmental Science.

[Christine.Copley@ICMM.com](mailto:Christine.Copley@ICMM.com)  
[www.icmm.com](http://www.icmm.com)

ANDREW PARSONS was appointed Environmental Policy Advisor at AngloGold Ashanti in Johannesburg, South Africa. He will be helping to define and develop the company's environmental policies, strategies, guidelines and responses to environmental issues. He was previously Programme Director at the International Council on Mining & Metals (ICMM).

[AParsons@AngloGoldAshanti.com](mailto:AParsons@AngloGoldAshanti.com)  
[www.anglogoldashanti.com](http://www.anglogoldashanti.com)

VINETA GOBA was appointed Programme Manager, Business and Biodiversity at the European Centre for Nature Conservation (ECNC).

[goba@ecnc.org](mailto:goba@ecnc.org)  
[www.ecnc.org/BusinessAndBiodivers/Index\\_3.html](http://www.ecnc.org/BusinessAndBiodivers/Index_3.html)

MIRA INBAR has started an MBA at the Haas School of Business at the University of California, Berkeley. She was previously managing the Business and Biodiversity Offsets Programme (BBOP) at Forest Trends.

[www.haas.berkeley.edu](http://www.haas.berkeley.edu)

# Publications

Please send information on new titles and upcoming events to the editor.

## AGRIBUSINESS

**Liz Marshall, June 2007. Thirst for Corn: What 2007 Plantings Could Mean for the Environment. WRI Policy Note, Energy: Biofuels No.2.** World Resources Institute. [http://pdf.wri.org/policynote\\_thirstforcorn.pdf](http://pdf.wri.org/policynote_thirstforcorn.pdf)

## BUSINESS AND BIODIVERSITY (GENERAL)

**Meindert Brouwer, June 2007. Amazon your business. Opportunities and solutions in the rainforest.** [www.amazonyourbusiness.nl](http://www.amazonyourbusiness.nl)

**International Finance Corporation (IFC), May 2007. Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets.** [www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/p\\_StakeholderEngagement\\_Full/\\$FILE/IFC\\_StakeholderEngagement.pdf](http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/p_StakeholderEngagement_Full/$FILE/IFC_StakeholderEngagement.pdf)

**Frances Irwin and Janet Ranganathan, May 2007. Restoring Nature's Capital. An Action Agenda to Sustain Ecosystem Services.** World Resources Institute (WRI). [http://pdf.wri.org/restoring\\_natures\\_capital.pdf](http://pdf.wri.org/restoring_natures_capital.pdf)

**Organisation for Economic Co-operation and Development (OECD), Working Party**

**on Global and Structural Policies, August 2007. Business contribution to MEAs: Suggestions for further action.** [www.oecd.org/olis/2007doc.nsf/87fae4004d4fa67ac125685d005300b3/6cf3d91a21354f41c12573320040a717/\\$FILE/JT03230848.PDF](http://www.oecd.org/olis/2007doc.nsf/87fae4004d4fa67ac125685d005300b3/6cf3d91a21354f41c12573320040a717/$FILE/JT03230848.PDF)

## ENERGY

**Chris Greenwood, Alice Hohler, George Hunt, Michael Liebreich, Virginia Sonntag-O'Brien, Eric Usher, June 2007. Global Trends in Sustainable Energy Investment 2007. Analysis of trends and issues in the financing of renewable energy and energy efficiency in OECD and developing countries.** United Nations Environment Programme (UNEP) and New Energy Finance Ltd, [www.unep.org/pdf/SEFI\\_report-GlobalTrend-sinSustainableEnergyInvestment07.pdf](http://www.unep.org/pdf/SEFI_report-GlobalTrend-sinSustainableEnergyInvestment07.pdf)

## FINANCIAL SERVICES

**Ivo Mulder, June 2007. Biodiversity, the Next Challenge for Financial Institutions?** IUCN. [www.biodiversityeconomics.org/document.rm?id=1092](http://www.biodiversityeconomics.org/document.rm?id=1092)

## MINING

**National Roundtables on Corporate Social Responsibility (CSR) and the Canadian Extractive Industry in Developing Countries, March 2007. Advisory Group Report.** <http://geo.international.gc.ca/cip-pic/library/Advisory%20Group%20Report%20-%20March%202007.pdf>



## PAYMENTS FOR ECOSYSTEM SERVICES

**David Huberman and Louise Gallagher, July 2007. Developing International**

**Payments for Ecosystem Services. Towards a Greener economy.** IUCN and UNEP. [www.iucn.org/en/news/archive/2007/07/ipes\\_brochure\\_0607.pdf](http://www.iucn.org/en/news/archive/2007/07/ipes_brochure_0607.pdf)



## TOURISM

**United Nations Environment Programme (UNEP) and The International Ecotourism Society (TIES), June 2007. Tourism in the Polar Regions,** [www.unep.fr/pc/tourism/documents/Polar\\_Tourism\\_EN.pdf](http://www.unep.fr/pc/tourism/documents/Polar_Tourism_EN.pdf)

# Upcoming events

**13-14 September**, Jouy-en-Josas, France. Net Impact HEC Sustainable Development Conference 2007, [www.hecmba.com/netimpact/conf07/index.php](http://www.hecmba.com/netimpact/conf07/index.php) ●● **14-15 September**, Geneva, Switzerland. Ethics, Finance & Responsibility, [www.obsfin.ch/english/ethics-finance-responsibility.htm](http://www.obsfin.ch/english/ethics-finance-responsibility.htm) ●● **17-20 September**, Salzburg, Austria (and 2-5 October, Sydney, Australia and 29 October - 1 November, New York, USA). The Prince of Wales's Business & the Environment Programme, [www.cpi.cam.ac.uk/pdf/BEP%20\(Australia\).pdf](http://www.cpi.cam.ac.uk/pdf/BEP%20(Australia).pdf) ●● **18-19 September**, London, UK. The Sustainable Finance Summit, [www.ethical-corp.com/climatefinance2007](http://www.ethical-corp.com/climatefinance2007) ●● **26-28 September**, Madison, USA. 2007 North American Conference on Ecotourism, [www.ecotourism-conference.org](http://www.ecotourism-conference.org) ●● **4-5 October**, Amsterdam, The Netherlands. Setting the course for the next wave of biofuels, [www.greenpowerconferences.com/biofuelsmarkets/NextGeneration\\_amsterdam07.html](http://www.greenpowerconferences.com/biofuelsmarkets/NextGeneration_amsterdam07.html) ●● **23-26 October**,

San Francisco, USA. Designing a sustainable future, [www.bsr.org/BSRConferences/2007/index.cfm](http://www.bsr.org/BSRConferences/2007/index.cfm) ●● **24-25 October**, Melbourne, Australia. UNEP FI 2007 Global Roundtable, [www.unepfi.org/events/2007/roundtable/](http://www.unepfi.org/events/2007/roundtable/) ●● **29 October - 2 November**, Trondheim, Norway. The fifth Trondheim Conference on Biodiversity, [www.trondheimconference.org](http://www.trondheimconference.org) ●● **5-7 November**, Cape Town, South Africa. Biofuelsmarkets Africa, [www.greenpowerconferences.com/biofuelsmarkets/Biofuelsafrica\\_capetown07.html](http://www.greenpowerconferences.com/biofuelsmarkets/Biofuelsafrica_capetown07.html) ●● **12-13 November**, Lisbon, Portugal. Business and Biodiversity Conference, [www.countdown2010.org/business](http://www.countdown2010.org/business) ●● **25-29 February 2008**, Panama City, Panama. Climate change and biodiversity in the Americas, [www.climate-changeandbiodiversity.ca](http://www.climate-changeandbiodiversity.ca) ●● **5-14 October**, Barcelona, Spain. 4th IUCN World Conservation Congress, [www.iucn.org/congress](http://www.iucn.org/congress).

## CBD MEETINGS

**10 - 12 September**, Geneva, Switzerland. Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation ●● **8 - 12 October**, Montreal, Canada. Fifth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing

(ABSWG-5) ●● **15 - 19 October**, Montreal, Canada. Fifth meeting of the Ad Hoc Open-ended Working Group on Article 8(j) and Related Provisions (WG8J-5) ●● **22 - 26 October 2007**, Montreal, Canada. Fourth meeting of the Ad Hoc Open-ended Working Group of Legal and Technical Experts on Liability and Redress in the context of the Protocol ●● **21 - 25 January 2008**, Geneva, Switzerland. Sixth meeting of the Open-ended Working Group on Access and Benefit-sharing (ABSWG-6). ●● **11-15 February**, Rome, Italy. Second meeting of the Ad Hoc Open-ended Working Group on Protected Areas (WGPA-2) ●● **18-22 February**, Rome, Italy Thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-13) ●● **12-16 May**, Bonn, Germany. Fourth meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (COP/MOP-4) ●● **19-30 May**, Bonn, Germany. Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP-9).

Details of all CBD meetings are available at: [www.biodiv.org/meetings](http://www.biodiv.org/meetings).

# Last words

## Table of contents

*Business.2010*, Vol.2, No.3

### Feature: Technology transfer

- 2 In context: Technology transfer  
Ahmed Djoghlaif  
Message from the Secretariat  
Fernando Casas-Castañeda
- 4 The benefit of technology for the utilization of genetic resources  
Horst Freiberg  
Bringing the Programme of Work into practice
- 7 Roger Krueger  
Engaging people  
Gunn M. Paulsen
- 8 Quadruple partnerships for technology transfer  
Hussein Abaza
- 10 Engaging business in trade liberalization negotiations  
Mongi Hamdi and Victor Konde
- 12 Helping nations help themselves  
Jonathan Hodrien  
The university link  
Charles Besançon
- 16 Conservation data for smarter business decisions  
Joaquim Machado  
How to enter the matrix
- 20 Constantine Bartel  
My dream for Africa's entrepreneurs  
Surya Chandak and Chizuru Aoki
- 22 Iraq marshes recovering, thanks to technology  
Susan Kling Finston
- 24 Enabling environments for technology transfer

### Business and biodiversity updates

- 26 Juan Carlos Vasquez  
Business engagement under CITES
- 28 Lucas Assunção  
Synergies for business engagement
- 30 Joël Houdet and Jacques Weber  
Rethinking business and biodiversity linkages
- 32 Pierre Gratton  
Recognizing our global responsibilities  
Alix Heywood
- 34 Report from Paris  
Yoshihito Iwama
- 36 Making sure business does not miss 2010

### Regular columns

- 38 News in brief
- 39 Publications and events

← All pictures used for the front cover illustration courtesy of Leo Reynolds ([www.flickr.com/lwr/](http://www.flickr.com/lwr/))

## Committee formed

**W**ith a view to strengthening the content and reach of this newsletter, the Secretariat established an informal Advisory Committee – it is grateful to the following individuals who have accepted to join the Committee: Mr. Juan Marco Alvarez (SalvaNATURA, El Salvador); Ms. Catherine Cassagne (International Finance Corporation, USA); Mr. Saliem Fakir (University of Stellenbosch, South Africa); Ms. Johanne Gélina (Samson Bélair / Deloitte & Touche s.e.n.c.r.l., Canada); Mr. James Griffiths (World Business Council for Sustainable Development, Switzerland); Prof. Anil K. Gupta (Indian Institute of Management, India); Ms. Kristina Jahn (PricewaterhouseCoopers, Germany); Mr. Raji Maasri (Delta Association, Lebanon); Ms. Mary L. Shelman (Harvard Business School, USA); and Ms. Laura van der Meer (International Environmental Resources SPRL, Belgium). Two additional members are expected to join. The work of the Committee will be reported here.

## Update on submissions

Further to Notifications 2007-037 and 2007-038 of 23 March 2007, the Secretariat has received, to date, submissions from:

- Australia; the BAT Biodiversity Partnership; Columbia; CREM BV; CropLife International; the Department of Industry, Tourism and Resources (Australia); the Department for International Development (UK); Fieldfare International Ecological Development plc; Germany and the European Commission, on behalf of the European Community and its Member States (as well as additional information from France and The Netherlands); Grand Perfect Plantation Company; Inter-American Biodiversity Information Network (IABIN); International Petroleum Industry Environmental Conservation Association (IPIECA); International Seed Federation; Marine Aquarium Council; O Boticário Foundation for Nature Protection; Rainforest Alliance; Rio Tinto plc.; the Sultanate of Oman; Sweden; Thailand; Trinidad and Tobago; UNCTAD BioTrade Initiative; Unilever; Union for Ethical BioTrade; the United Kingdom of Great Britain and Northern Ireland; the World Business Council for Sustainable Development (WBCSD); and World Resources Institute.

## Call for contributions

Subsequent issues of the *Business.2010* newsletter will focus on:

- The financial services sector.
- Access and benefit-sharing (deadline for submissions 1 November);
- Agribusiness (deadline 1 December).
- A general issue will be published prior to COP-9 (deadline 1 March 2008).

For more information, visit [www.cbd.int/business/newsletter.shtml](http://www.cbd.int/business/newsletter.shtml)

In addition to papers covering the above issues, the Secretariat welcomes contribution focusing, more generally, on business and biodiversity and the implementation of Decision VIII/17.

For additional information, contact:  
Nicolas Bertrand  
Focal point for business  
[nicolas.bertrand@cbd.int](mailto:nicolas.bertrand@cbd.int)  
+1 514 287 8723

## BUSINESS.2010

Director of publication: Ahmed Djoghlaif  
Editor: Nicolas Bertrand

With support, for this issue, of: Markus Lehmann

Disclaimer: The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Convention on Biological Diversity concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The views expressed in this publication are those of the authors and do not necessarily reflect those of the Secretariat, nor does citing of trade names or commercial processes constitute endorsement.

Archived issues available at  
[www.cbd.int/business/newsletter.shtml](http://www.cbd.int/business/newsletter.shtml)

Comments and suggestions for future columns are welcome and should be addressed to the editor.

Secretariat of the  
Convention on Biological Diversity  
413 Rue St. Jacques, Suite 800  
Montréal, Québec, H2Y 1N9 Canada  
Tel. +1 514 288 2220 / Fax: +1 514 288 6588  
[www.cbd.int](http://www.cbd.int)  
[secretariat@cbd.int](mailto:secretariat@cbd.int)

© 2007. All rights reserved.



Printed on Rolland Enviro100, which contains 100% recycled post-consumer fibre, is EcoLogo, Processed Chlorine Free and manufactured using biogas energy.