ALSO IN THIS ISSUE: THE LISBON MESSAGE

CBD

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ABS

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

A contribution to WG-ABS-6

The 3rd objective of the Convention

Views on access and benefit-sharing from the plant science, biotechnology, pharmaceutical, horticultural and seed industries

A word from the Co-chairs

Photo courtesy of IISD / ENB

The Co-chairs at WG-ABS-5 (October 2007)

By **TIMOTHY HODGES** *and* **FERNANDO CASAS**, *Co-chairs, Working Group on Access and Benefit-sharing*

No one should underestimate the difficult road that lies ahead in the International Regime negotiations. As many of the contributors to this issue of *Business.2010* note, the Regime talks have been characterized by polarized views, discordant debate and insufficient input from key stakeholders such as relevant industry sectors and the academic research community.

However, there are indicators of a new, more positive trend emerging. With the encouragement of the COP and the heightened efforts of the SCBD, business participation at recent Working Group meetings has improved markedly.

It is clear that industry representatives are rising to the Co-chairs' challenge of providing concrete recommendations to the Working Group on substantive issues.

If the trend towards greater industry involvement in ABS policy making continues, at both the national and international level, the work of the Regime negotiators could be greatly facilitated — as current realities and fresh on-the-ground solutions are brought forward by the business sectors.

In our view, optimal ABS policy will inevitably lead to win-win outcomes for users and providers alike.

There should be no losers.

ABS is about opportunity and we urge business to seize this opportunity, for the benefit of the bottom line and benefit of global biodiversity.

From the Secretariat

By **AHMED DJOGHLAF**, *Executive Secretary*

At its eighth meeting, the COP urged the subsidiary body mandated to negotiate the international regime to complete its work by 2010. The countdown has now started with approximately 2 years left for the finalization of the international regime.

The business community should participate actively in this process to ensure that its concerns are taken into account, in order to develop an international regime which will meet the needs of all stakeholders by 2010.

Constructive proposals should be put forward to ensure that the international regime responds to the needs of all those involved in access and benefit-sharing, from the initial provider, through the various intermediaries involved, to the final user of genetic resources which may be involved in the commercialization of a product based on genetic resources and perhaps associated traditional knowledge.

The current situation is characterized by a growing feeling of mistrust between users and providers of genetic resources. The ongoing negotiations provide the opportunity to develop an international system of access and benefit-sharing which provides certainty to both users and providers: certainty to providers that benefits from the use of their genetic resources will be shared in a fair and equitable manner; certainty for users that clear, transparent and simple rules and procedures for access to genetic resources and benefit-sharing will be established.

The business community, as an important user of genetic resources in various

Photo courtesy of IUCN/Webster Harding

Ahmed Djoghlaf at the Lisbon High level Conference on Business and Biodiversity *(see page 36)*

"The ongoing negotiations provide the opportunity to develop an international system of access and benefit-sharing which provides certainty to both users and providers"

Ahmed Djoghlaf

sectors, has an important role to play in these negotiations in order to ensure that the outcomes will be pragmatic and practical, and that the international regime will facilitate the process of access and benefit-sharing while ensuring that the providers of genetic resources get the assurance that they will be receiving a fair and equitable share of benefits arising out of the use of their resources.

Views from several companies in a number of sectors, and others, are expressed in this issue of the newsletter. I am sure this will prove a useful contribution to WG-ABS-6. A common thread amongst many of the articles is the need for strengthening dialogue — I am thus extremely grateful to The Netherlands for the funding, through a Letter of Intent signed in December 2007, of two meetings on ABS and business in 2009 and 2010. We will report on progress on this initiative in subsequent issues of the newsletter.

The Secretariat welcomes feedback on the newsletter. Please contact the editor (nicolas.bertrand@cbd.int).

"ABS is about opportunity and we urge business to seize this opportunity, for the benefit of the bottom line and benefit of global biodiversity"

Timothy Hodges and Fernando Casas

In context: the third objective of the Convention

By VALERIE NORMAND

Almost 15 years since the entry into force of the Convention, the operationalization of the third objective of the Convention remains a challenge. Indeed out of 190 Parties to the Convention, only approximately sixty have either adopted or are in the process of adopting access and benefit-sharing measures.

One might ask, what has impeded the implementation of the third objective of the Convention? The complexity of the issue which touches upon different types of genetic resources (*e.g.* plant, animal, micro-organisms) used by different actors (scientists, private companies) for different purposes (research, commercialization) in different sectors (*e.g.* agriculture, pharmaceutical, cosmetics, horticulture) certainly has contributed to the challenge. In addition, lack of awareness at the national level, including at the level of decision makers, has likely contributed to absence of progress with implementation. Lack of human and institutional capacity as well as the absence of adequate infrastructure in a number of developing countries has also impeded further developments.

The 2010 deadline for the negotiation of the International Regime on access to genetic resources and benefit-sharing is considered by many as a test for the Convention.

Provisions of the Convention

The Convention on Biological Diversity is a framework agreement. The objectives of the Convention are 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 [1].

The main provisions addressing the issue of access to genetic resources and the equitable sharing of benefits arising out of the utilization of genetic resources are contained in articles 15, 16, and 19 of the Convention, which set out the obligations of Parties as providers and users of genetic resources. Article 8(j) addressing the protection, preservation and maintenance of traditional knowledge of indigenous and local communities, also addresses access and benefit-sharing as it relates to traditional knowledge associated with genetic resources.

As providers of genetic resources, Parties to the Convention are to take measures to facilitate access to their genetic resources. The Convention clearly establishes that States have sovereignty over their natural resources [2] and therefore have the authority to determine access to their genetic resources through national legislation. The Convention provides that Parties are "to create conditions to facilitate access to genetic resources for environmentally sound uses" [3]. "Access shall be subject to prior informed consent of the Contracting Party providing such resources" [4] and shall be granted on the basis of "mutually agreed terms" [5] between the user and the provider.

When acting as users of genetic resources, Parties to the Convention also have obligations to ensure the fair and equitable sharing of benefits arising out of the utilization of genetic resources. Measures are to be taken "with the aim

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One might ask, what has impeded the implementation of the third objective of the Convention?

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Attracting research and business investment

GEOFF BURTON *interviews the Competent National Authority for Australia's Northern Territory and describes its ABS system.*

More famous for its frontier reputation, wild scenery and crocodiles, the Territory nevertheless has a sophisticated research community [1]. Research and commercial development in the Territory is further supported by Australia's world-class intellectual property system and its broad experience in international commercial law.

Unlike many jurisdictions around the world struggling to match local requirements to the needs of an increasingly international business and scientific community, the Northern Territory was successful in taking a consciously business and science friendly approach to bioprospecting or biodiscovery [2]. It has put that approach into law. Mutual confidence is thus anchored in the legal framework created by its Biological Resources Act. It implements the *Bonn Guidelines* and the Territory's responsibilities under Australia's intergovernmental agreement on genetic resources [3]. It also aligns with the Australian Government's own ABS legislation that applies to the World Heritage Areas of Kakadu and Uluru Kata -Juta National Parks.

Commenting on the success of the November 2007 Northern Territory Bioindustry Forum, Murray Hird, the Northern Territory CBD Competent National Authority and Director of the Industry Development Section of the Territory's Department of Business, Economic and Regional Development said: "The Northern Territory Government facilitates public and private sector research and investment into our wonderful biodiversity. We are determined to widen this research investment and to continue to attract domestic and international interest and partners. Implementing the *Bonn Guidelines* has given the Northern Territory the opportunity to link conservation management and scientific research with modern biotechnology in clear, simple terms. Best of all, our strong and certain legal framework, gives Indigenous communities in the Territory the opportunity to share their traditional biodiversity knowledge on fair terms".

Big land, small population

Australia is a megadiverse country: it has 10% of the world's species with 80% of that biodiversity endemic to Australia, often ancient, unique or rare and as many as half of Australia's species are yet to be identified. The Northern Territory, with its rich biodiversity across freshwater, marine, tropical wetland and desert habits potentially coupled with negotiated management rights over species found in federal (Commonwealth) waters out to the EEZ can lay claim to perhaps 30 to 40% of the nation's species [4].

> *"This is one of the few places in the world where the person you talk to in government is likely to be the decision maker. We understand the importance of avoiding delay and minimising cost" — Murray Hird*

Many aspects of Australia are big. In the case of the Northern Territory, at 1,346m km2 of land and 6.000 km of coastline, the Territory is about the size of Spain, France and Italy put together. At the same time, its population is small at 213,000. Murray Hird explains the benefits of this situation: "The reality of the Territory is that for it to prosper, we have to be practical and forward looking. Our small population means smaller government. This is one of the few places in the world where the person you talk to in government is likely to be the decision maker. We understand the importance of avoiding delay and minimising cost".

Prior to joining the Northern Territory Government, Murray Hird spent considerable time in commercial banking and corporate agribusiness. This drives a very commercial approach to biodiscovery in the Territory. "It's about our partners and how we can add value to their business proposition. What can we offer our partners that will, in turn, allow them to add value to their customers? That's a key element for us; understanding our partners' business and viewpoint" he continued.

ABS with confidence

Australia approaches ABS issues with confidence. There are now Competent National Authorities for every Australian state, territory and the national government. Specific purpose ABS legislation exists for Queensland (2004), the Northern Territory (2006) and at the national level (2005). Australia's remaining states are proceeding with their ABS legislation — with most indicating introduction in 2008. This legislative effort is part of a nationally consistent approach to implementing the *Bonn Guidelines*. More recently, the Australian government has released two model ABS contracts to assist parties in negotiation for access to biological resources in federally managed areas [5].

Australia has taken a methodical approach to exploring ABS issues. In 1999, it conducted a national public inquiry into what form of Australian ABS system would balance conservation with the needs of the research and business community while protecting indigenous peoples' interests and ensuring equitable benefit-sharing for all involved. Known as the Voumard Inquiry [6], the inquiry travelled

Key features of the Northern Territory ABS system

- Provides facilitated access to biological resources
- Is non-discriminatory
- Provides legal certainty to users
- Minimises administrative costs for researchers engaged in biodiscovery
- Secures the ecologically sustainable use of biological resources
- Recognises the special knowledge held by Indigenous peoples about biological resources
- Respects private property rights
- Seeks to ensure that social, economic and environmental benefits are shared with the Territory
- Contributes to Australia's nationally consistent approach to bioprospecting

the country, held hearings and took submissions. Its 2000 Report laid down the basis for Australia's subsequent approach to ABS and for Australia's strong support of the *Bonn Guidelines*. In 2001, the development of draft national legislation followed. 2002 saw the agreement on a nationally consistent approach by all nine Australian governments and the creation of a Commonwealth State and Territory administration and policy coordinating committee in 2003.

Continuous improvement

Central to this process has been the identification and removal of obstacles to researchers undertaking biodiscovery and to its subsequent development. In 2005, the Prime Minister's Science Engineering and Innovation Council (PMSEIC) reviewed the state of biodiscovery in Australia [7]. It supported actions already taken, recommended completing the regulatory roll-out, and emphasized the importance of identifying Australia's species. In 2006, the Australian Government announced a strategic investment in the creation of the Atlas of Living Australia to accelerate the task of mapping and identifying Australia's megadiversity.

In 2006, the Australian Government introduced a system of electronic verification of any grant of access to its biological resources (Prior Informed Consent or PIC) and ABS agreements (Mutually Agreed Terms or MAT). This publicly accessible electronic database supports the due diligence needs of researchers and industry by providing, at no cost, an initial means to verify the legal provenance of biological material collected from Australian Government managed land or waters.

The Northern Territory has also addressed the issue of legal provenance. It issues permit holders with a Certificate of Legal Provenance (CoP) for material collected within the Territory. This Certificate is an original document, issued by the Northern Territory Government stating that the listed bioactive substances and/or extracts from a named Territory organism have been collected in such a way as to minimise negative impacts on biodiversity; were collected with full prior informed consent of access providers and a mutually agreed benefit sharing instrument has been negotiated and is in place.

The objective here is to give formal, government endorsed legitimacy to the process of bioprospecting and subsequent biodiscovery, consistent with the *Bonn Guidelines* and best practice.

Importantly, the CoP provides assurance to subsequent users and purchasers of the discovered bio-products that the products have been obtained in a fair, equitable and transparent manner and are therefore free from any taint of biopiracy or inappropriate procurement. This protects the interests of the providers of the resource, the researchers and subsequent development partners while also protecting the reputation of the Northern Territory.

Another innovation included in the Territory's ABS system is recognition of the fact that many scientific discoveries are unexpected and unplanned. Accordingly, there is provision for material taken for another purpose to be approved with retrospective effect if the parties involved enter into a benefit sharing agreement with the resource provider.

An applicant applies for a permit to take biological material for the purpose of research into any genetic resources or biochemical compounds found in the biological resources. This will be granted if there is no environmental harm and a valid benefit sharing agreement has been made with the prior informed consent of the owner or manager of the resource.

Where traditional Indigenous knowledge is involved, the benefit sharing arrangements must provide: protection for, recognition of and valuing of, any Indigenous people's knowledge to be used and details authenticating the source of the traditional knowledge [8].

To quote Murray Hird again: "We are interested in maximising the amount of scientific research. We are realistic about the likelihood of any individual collection producing a significant outcome, but the more that we learn about what we have the better we can manage it. It's also clear from published research undertaken by staff at the US National Institutes of Health that nature is still the most significant source of truly novel therapeutic compounds. Here in the Territory, we have the scientific and biological resources to find the unexpected. We have truly only begun to scratch the surface".

A green ant (*Oecophylla smaragdina*) exploring *Abrus precatorius*

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Anyone interested in opportunities in Australia's Northern Territory can contact Murray Hird (murray.hird@nt.gov.au / +61 8 8999 7162) or write to Industry Development, the Department of Business, Economic and Regional Development, Development House, 76 The Esplanade Darwin, GPO Box 3200, NT 0801, Australia.

[1] This community includes Charles Darwin University, the Menzies School of Health Research, research facilities of the Commonwealth Scientific Industrial Research Organisation (CSIRO), the Australian Institute of Marine Science (AIMS) and the recently formed Bioscience North Australia consortium.

[2] Biodiscovery aims to identify new materials or biologically active molecules that can be developed as drugs, insecticides, herbicides or industrial enzymes.

[3] This is the Nationally Consistent Approach for Access to and Utilisation of Australia's Native Genetic and Biochemical Resources: Natural Resources Ministerial Council: October 2002.

[4] Northern Territory Herbarium Biodiversity Conservation Group, 2007. Estimates are difficult given the amount of unexplored biodiversity in the Territory.

[5] www.environment.gov.au/biodiversity/science/access/model-agreements/index.html

[6] www.environment.gov.au/biodiversity/publications/inquiry

[7] www.dest.gov.au/sectors/science_innovation/science_agencies_committees/prime_ministers_science_engineering_innovation_council/meetings/fourteenth.htm

[8] Section 29 of the Biological Resources Act 2006.

[9] Newman and Cragg, March 2007. Journal of Natural Products. This research demonstrates nature is the pre-eminent inspiration for drugs; with nature leading to the development of 73% of anti-cancer drugs over the last 21 years and to the development of half of all drugs over the last half-century.

The views expressed in this article are those of the author and do not necessarily represent the views of the Australian Government.

Business needs to develop a positive agenda on ABS

Photo courtesy of IISD/ENB

MATTHIAS BUCK *profiles efforts within the European Union to advance the ABS agenda; urges business to contribute more actively to the discussions.*

The adoption and entry into force of the CBD has changed the context for all those using or potentially interested in using genetic resources. It is therefore not surprising that actual and potential providers and users of genetic resources have confronted governments promoting the implementation of the Convention's provisions on ABS with a range of concerns: definitions are regarded as too vague, existing access frameworks as overly burdensome, decisions taken by national authorities appear unreliable, existing mechanisms to support compliance with user obligations as insufficient to generate confidence with providers, *etc*. Some of these concerns have been reinforced by highly politicised and symbolic discourses on 'biopiracy' and the misappropriation of traditional knowledge associated with genetic resources and the alleged inadequacy of the current patent systems to prevent the granting of 'bad patents'.

Back on track

The adoption of the *Bonn Guidelines* proved insufficient to take some political heat out of the ABS debate. Between COP-7 and COP-8, the ABS negotiations stalled over a few 'hot' political issues, such as the nature of the international regime, potential disclosure requirements in patent applications and issues related to traditional knowledge. This reinforced rather than helped to overcome existing differences. COP-8 in Brazil, in March 2006, was important to put the ABS negotiations back on track.

The commitment to intensify and move the negotiations forward is shown by the establishment of a 2010-deadline as well as by the designation of Fernando Casas from Colombia and Timothy Hodges from Canada as permanent Co-Chairs of the ABS working group.

European proposals

The EU supported the ABS decision at COP-8, fully conscious that the 2010 deadline would force the European Community and its 27 Member States to rapidly develop and politically agree on concrete proposals in response to key concerns of its partners. To facilitate this discussion, the European Commission has, since COP-8, convened a series of expert meetings with ABS stakeholders and government negotiators. These meetings have been instrumental for moving beyond symbolic discussions and for better understanding the interests of stakeholders as well as practical challenges in the development and implementation of concrete ABS arrangements between specific providers and specific users of genetic resources. EU stakeholders are both major providers and users of genetic resources and do indeed share many interests in relation to ABS. This includes interests in legal certainty, enhancing transparency about transactions of genetic resources and associated rights and obligations as well as lowering transaction costs. Furthermore, providers and users face specific and additional challenges if they are located in different jurisdictions.

In the run-up to and during WG-ABS-5, the EU suggested a range of specific elements for inclusion in the further negotiation [1]. Most importantly, the EU has identified the need for the ABS negotiations to explicitly address the link between national access frameworks and discussions on additional measures to support compliance with ABS requirements. In this respect, the EU proposes developing international standards on national access law and practice and suggests essential elements of such standards. It also proposes that the further negotiations consider a range of additional and more specific international obligations of all Parties to support compliance with ABS requirements *vis à vis* Parties whose national access frameworks meet international access standards.

The EU proposes, for instance, developing an international definition of what constitutes "misappropriation" of genetic resources, building on ABS-related codes of conduct and a more formal engagement with public research funding agencies. It also suggests initiating work to develop menus of model clauses for potential inclusion in material transfer agreements and makes the case that the ABS negotiations need to reflect and build on existing technological possibilities to ensure that rules and instruments of the international ABS regime are crafted in a way that maximises the utility of modern IT-tools to ABS governance.

With the ABS negotiations moving forward, however, it is less and less rational to remain sitting on the fence, hoping that the negotiations might eventually break down

At COP-8, the 2010 deadline might have seemed far away. At the time of writing this article, shortly before WG-ABS-6, it seems already very close. Few months remain until COP-9. To meet the 2010 deadline, it is essential that COP-9 identifies the main components of the international ABS regime that will be subject to technical, text-based negotiations. The EU has come a long way in developing its own perspective on the potential ingredients of a COP-9 decision on ABS. Clearly, its proposals will not be sufficient to bridge existing differences on some of the fundamental political issues such as disclosure or misappropriation of traditional knowledge. One should expect, however, that the EU's proposals for the further ABS negotiations will help to identify common ground and potential areas of consensus that have for quite some time been clouded by a largely symbolic discourse over 'hot' political issues.

Business perceptions

Business perceives the ABS negotiations mainly from a 'user perspective'. Potential outcomes are often characterised as 'over-

regulating' activities that currently function well. There seems to be little appreciation of the potential of this negotiation to significantly improve the operative environment of companies interested in using genetic resources. With the ABS negotiations moving forward, however, it is less and less rational to remain sitting on the fence, hoping that the negotiations might eventually break down.

The EU works towards a COP-9 decision on ABS that identifies the main components of the international ABS regime. These components should then be subject to technical, text-based negotiations with the objective to complete negotiations on operational text at the earliest possible time before COP-10. At this point, there is still much appreciation, at least within the EU, for fresh, practical and pragmatic ideas that should be considered in the further negotiation of the international ABS regime as well as for constructive criticism. Responsible governments and their negotiators, tasked with balancing the interests of providers and users of genetic resources will make every effort to listen and understand. This window of opportunity might close already in early 2009. It will be too late to bring forward new ideas when negotiations have moved to a technical, text-based *modus*. Time has come for business to develop a positive agenda on access and benefit-sharing.

The views expressed in this article are those of the author and do not necessarily reflect those of the European Commission.

[1] The main suggestions made in the run-up to and during WG-ABS-5 have been formally endorsed by the Council of the European Union on 28 June 2007. They are explained in more detail in the EU's submission of 28 November 2007 on concrete options on issues on the agenda of WG-ABS-5 and WG-ABS-6 (www.cbd.int/doc/meeting.aspx?mtg=ABSWG-05&tab=1).

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http://ec.europa.eu/dgs/environment/index_en.htm

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Our engagement towards 2010

The plant science industry is committed to a continued participation in the ABS negotiations says **HOWARD MINIGH**.

While CropLife International (CLI) primarily contributes to ABS discussions important to the agricultural biotechnology industry, our contributions are often characteristic of the broader concerns of industry. One such common concern is that ABS discussions have become dominated by approaches which limit access — such as disclosure of the source of genetic resources and certificates — while often neglecting the ultimate goal: the sharing of benefits. This emphasis on approaches which limit access detracts from discussing important issues in benefit sharing, such as the development of effective national ABS regimes; material transfer agreements, capacity building; and the management of commensurate required resources.

I BELIEVE INDUSTRY PROVIDES IMPORTANT INTELLECTUAL CAPACITY, AND PRAGMATIC LEADERSHIP, WHICH CAN HELP BRIDGE THE BEST IDEAS AND PRACTICES IN BOTH TRADITIONAL KNOWLEDGE AND SCIENCE-BASED AGRICULTURAL INNOVATION

As we press forward toward 2010, I believe we should not overlook the valuable efforts and accomplishments of past negotiations. The *Bonn Guidelines* provide an excellent roadmap to develop and maintain national ABS regimes; yet, we have strayed from emphasizing the value of that important document. The inter-relation of national regimes, created and functioning in the spirit of Bonn, should be a principal focus in our international regime discussions. Similarly, given the countless challenges in the ABS issue and limited time available, our previous efforts on gap analysis should be revisited. Our gap analysis has already determined the priority areas that require our attention between now and COP-9.

Moving forward, CLI will continue to participate in the ABS negotiations and remains steadfastly supportive of the CBD objectives. I believe industry provides important intellectual capacity, and pragmatic leadership, which can help bridge the best ideas and practices in both traditional knowledge and science-based agricultural innovation. Reconciling the structural issues related to the creation of information and development of knowledge must be a priority for the CBD and industry moving forward. The benefit to the global community is clear. The need for action to meet our 2010 goals is also clear. We, as stakeholders must mutually promote innovation while fostering a transparent equitable sharing of benefits from the development of biological resources. CropLife International, as a dedicated partner in this global convention remains eager to meet the new challenges which arise as we move forward in our international regime discussions.

Summary of recommendations

- Industry representatives can add value by helping in the development of clear frameworks, the clarification and promotion of the commercial and societal value of genetic resources, and the raising of consumer awareness of ABS.
- As we proceed forward, CLI and industry representatives can effectively provide input (both independently as well as through other delegations) to the more substantive discussions concerning disclosure and certificates.
- The *Bonn Guidelines* remain an excellent roadmap for the development and sustainability of national ABS regimes. The inter-relation of national regimes, created and functioning in the spirit of Bonn should be a principal focus in our continued international regime discussions.

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"We're just scratching the surface of biotechnology"

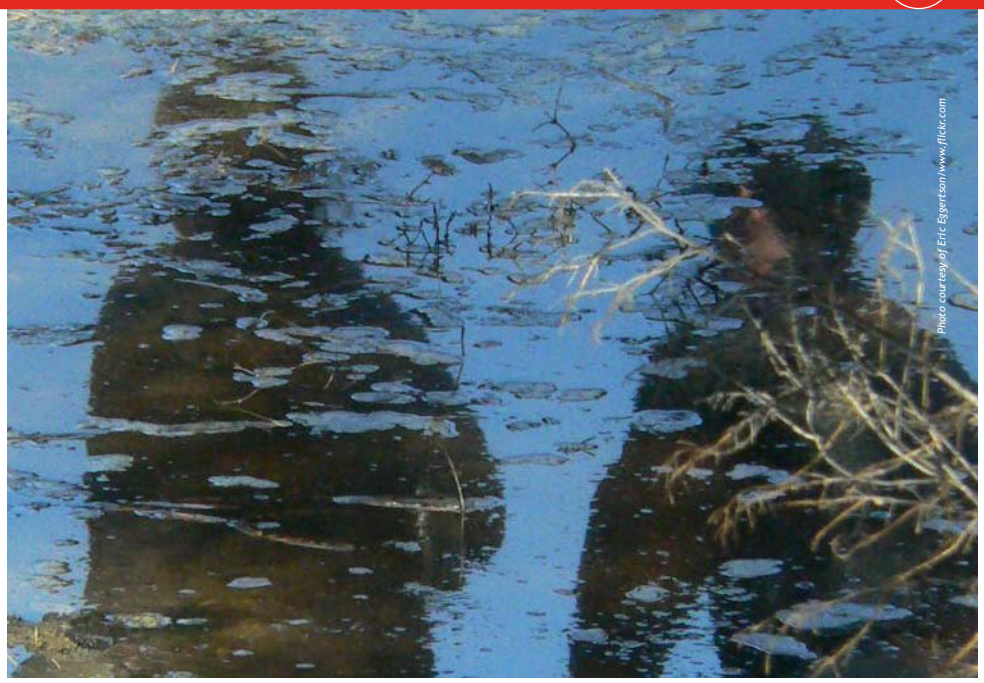

Photo courtesy of Eric Eggertson (www.flickr.com

JAMES C. GREENWOOD *explains the development of Guidelines and a Model Material Transfer Agreement an exercise which has helped the Biotechnology Industry Organization (BIO) better understand the nature of issues and misunderstandings that can arise from bioprospecting.*

Many of our member companies [1] are small- and mid-sized enterprises and have often found it difficult to translate the *Bonn Guidelines* into practical advice that was relevant to their operations. With this in mind, we have developed our own *Guidelines for BIO Members Engaging in Bioprospecting*. [2].

The guidelines

BIO members work, in general, with materials obtained *ex situ*, such as genebanks, depositories, and internal sources. In the event members wish to access *in situ* resources, the BIO guidelines provide a set of general principles and examples of best practice.

Since bioprospecting is not regulated in a consistent or comprehensive manner within countries or at the international level, companies have extensive discretion to shape their conduct to meet whatever requirements countries impose with respect to bioprospecting activities. The guidelines direct companies to identify applicable requirements to follow in any specific jurisdiction in which they engage in bioprospecting. The guidelines are designed to supplement, not supplant, national bioprospecting requirements imposed by countries.

The guidelines attempt to overcome what I think are some of the shortcomings of the *Bonn Guidelines*, including problems with definitions pertaining to the scope of genetic resources, and what types of information are required for obtaining permission to access materials. Our guidelines, for example, only apply to materials of non-human animal, plant or microbial origin that contain functional units of heredity and that are subject to the requirements of prior informed consent. This is clearly set forth under the Convention on Biological Diversity. Clarity on this point is very important to BIO members because fundamental biotechnology discoveries are biological and gene-based in nature.

The Model Material Transfer Agreement

Our members also expressed a need for a model 'material transfer agreement' (MMTA) that they could use for transferring possession and authorizing use of samples of genetic resources found *ex situ* and *in situ*.

The MMTA comports with our long-standing position that contracts provide the most effective means for fulfilling the objectives of the CBD because they allow the parties the most flexibility in structuring the successful conditions for transfer, allocating benefits arising from the transfer, and administering the transfer. As a result, the MMTA provides a structure that facilitates compliance with the CBD while allowing the parties flexibility to maximize their gains under the contract. It is not a standard or one-size-fits-all contract such as the Standard Material Transfer Agreement developed under the International Treaty on Plant Genetic Resources for a very specific type of low-cost, limited purpose. The MMTA can be a 'stand-alone' agreement for use for the transfer of a small number of samples of a single genetic resource from an *ex situ* collection. The MMTA is also designed to be used as part of a bioprospecting agreement or could be supplemented to cover the transfer of associated technological information such as traditional knowledge.

As in the *BIO Guidelines*, the MMTA will apply only to genetic materials of non-human animal, plant or microbial origin. In addition, the MMTA contains routine provisions such as the identification of the party transferring the material (the owner of the genetic resource) and the transferee (the party interested in research and/or development of the resource, *e.g.* a university or a company). The MMTA includes details related to the transfer itself as well, *e.g.* identification of the physical samples that will be transferred; the location where the samples were obtained; and any requirement for depositing samples with international depositary institutions.

The MMTA also requires incorporation of a list of the proposed uses of the genetic materials and explicitly prohibits the transferee from obtaining patents on the genetic resources in the form transferred.

This prohibition does not prohibit the patenting of improvements made using the samples. Furthermore, while the MMTA includes a requirement to include terms for distribution of benefits, such distribution would be expected to differ widely from contract to contract depending on the needs of the transferor, the needs of designated beneficiaries such as indigenous or local communities, the commercial value of the transferred physical samples, the intended use of the samples, the likelihood of using the samples to create a commercially viable product, and other factors. As a consequence, BIO member companies believe that it is inappropriate to suggest a model formulation for the nature of benefits, or the manner in which benefits should be shared, as no single definition would be appropriate in all circumstances.

Opening a transparent dialogue

While biotechnology has provided us with many tools and products in healthcare, agriculture and the environment, we have yet to scratch the surface.

CONTRACTS PROVIDE THE MOST EFFECTIVE MEANS FOR FULFILLING THE OBJECTIVES OF THE CBD BECAUSE THEY ALLOW THE PARTIES THE MOST FLEXIBILITY IN STRUCTURING THE SUCCESSFUL CONDITIONS FOR TRANSFER, ALLOCATING BENEFITS ARISING FROM THE TRANSFER, AND ADMINISTERING THE TRANSFER

Research and collaboration in this area holds much promise for owners of genetic resources as well as users of those resources. As such, we encourage an open and transparent dialogue between owners and users as the biotechnology community plays an ever-increasing role globally.

[1] The Biotechnology Industry Organization (BIO) represents more than 1,100 biotechnology companies, academic institutions, state biotechnology centers and related organizations across the United States and 31 other countries. BIO members are involved in the research and development of healthcare, agricultural, industrial and environmental biotechnology products. BIO produces the annual BIO International Convention, a global event for biotechnology (www.bio.org).

[2] http://bio.org/ip/international/200507guide.asp

James C. Greenwood is President and CEO of the Biotechnology Industry Organization (BIO).

www.bio.org

For more information, contact Lila Feisee, Managing Director for Intellectual Property, lfeisee@bio.org

Doing more to consult business

TIM ROBERTS *analyses why the Convention has been less successful than hoped in promoting both access and benefit-sharing.*

Genetic resources have value. In some cases, that value is clear and recognised. In others, it is only potential. For many industries, access to these resources is important, as it can lead to the development of new products and improvements in existing ones. Consumers benefit by having such products available.

Business needs and wants to use genetic resources. It is entirely willing, in principle, to share appropriate benefits on agreed terms in exchange for access — this is a common commercial situation.

Some countries have, however, been slow to set up access regimes and unclear about the rights and duties of those seeking access. Business needs to plan ahead, it needs adequate legal and commercial certainty as to what it may access and under what conditions; as well as confidence that agreements it enters into will be respected. Lack of transparency is an obstacle to progress.

Some proposed schemes, as well as being unclear, seem also to be too expensive, inconvenient or impractical. Business is in fact the main customer for access and use of genetic resources. As such, it should be consulted more: business has a strong interest in making such schemes work. 'Certificates of compliance', for example, as a method of certifying conformity with ABS requirements, appear to be potentially extremely complex and time-consuming, yet often providing little or no compensating advantage to those giving access. Also, what will work differs between sectors: what is appropriate for the pharmaceutical industry may be quite unsuitable for agriculture, for example.

Similarly, proposals to regulate patents that use genetic resources seem to business to be unhelpful to all. The patent system is designed to promote innovation and to provide economic development incentives: it is hardly suited to regulating access and benefit-sharing. Patents allow more of the benefit provided by new products to be recovered from consumers: it is then available for sharing with suppliers of genetic resources. Threats to patent rights could be a strong disincentive to developing new products based on genetic resources. This could lead to fewer innovations: hence fewer of the societal benefits that arise from them; and fewer benefits to be shared. This would work against a key objective of the CBD.

Business needs to plan ahead, it needs adequate legal and commercial certainty as to what it may access and under what conditions; as well as confidence that agreements it enters into will be respected

This means that business has a heavy responsibility. It must engage fully in ABS discussions. It also has a powerful incentive to do so — clear guidelines on accessing genetic resources will offer many opportunities and increase the potential benefits to all. Many industry representatives have been contributing and will continue to share their experience and expertise in the CBD discussions on ABS. Business is also determined to cooperate with colleagues in government and civil society, as well as researchers in academia. ABS arrangements must work in practice — this is important for all stakeholders and necessary if the objectives of the CBD are to be realised.

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The experience from Japan

The Japan Bioindustry Association (JBA) has been a major player in the implementation of government-funded ABS projects in Japan. **SEIZO SUMIDA** *provides his feedback on this experience.*

On behalf of the Ministry of Economy, Trade and Industry (METI) — a Competent National Authority on ABS — the Japan Bioindustry Association (JBA) [1] has been implementing the *Bonn Guidelines* in order to help the business and scientific communities build a win-win relationship with other countries in compliance with the CBD principles. I provide below some feedback on this experience.

ABS Guidelines for Users — Soon after the adoption of the Bonn Guidelines, JBA translated them into Japanese [2] and disseminated them by holding, throughout 2003 and 2004, seminars in major cities across the country.

As the *Bonn Guidelines* became better understood, users provided us with important feedback, including that:

• The *Guidelines* were often seen as too general to be able to respond to the practical needs of users; more user-specific and user-friendly guidelines were needed.

• 'Practical Tools' are as important as 'Principles' — the lack of practical tools for implementation, forces companies to stop using genetic resources of other countries, and the ABS principles become impediments to sound development of science and technology.

Taking these issues into consideration, we decided to develop user-specific guidelines. In consultation with a task force, consisting of experts from industry and academia, we thus developed the *Guidelines on Access to Genetic Resources for Users in Japan*. These were published in April 2005 [3]. The *Japan Guidelines* emphasize that the basic premise is to comply with the laws and administrative measures of the providing country and, if such national laws or administrative measures are not in place, to develop a contract with the counterpart, bearing in mind the relevant provisions of the CBD and the *Bonn Guidelines*.

The *Japan Guidelines* aim to help both providers and users of genetic resources to build win-win relationships, and to minimize the risk of encountering problems, while ensuring business flexibility. During 2005 and 2006, we disseminated the document by organizing public seminars in major cities across the country. Dissemination will continue beyond 2007.

On the basis of the *Japan Guidelines*, we developed a number of services for users of genetic resources, including:

Workshops — In order to promote the development of partnerships between users of genetic resources and providing countries, we invite CBD officials and experts to Japan for exchange of information. We have held workshops with Australia, Bhutan, China, India, Indonesia, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Singapore, Thailand and Vietnam.

Website on ABS rules of providing countries — We created a Japanese-language website for the dissemination of information on ABS-related policy, laws and regulation of different countries, to assist Japanese users of genetic resources.

JBA Help Desk — Because JBA has been involved in CBD matters since 1993, it has accumulated considerable experience. JBA can thus give advice, free of charge and on a confidential basis. In the past two and a half years, JBA has handled more than 65 consultations.

Group Training Courses

Since 1989, group training courses in bioindustries have been organised, in Japan, by the Japan International Cooperation Agency (JICA) and JBA. The two-month course caters to government officials and researchers in national institutes from developing countries. The programme includes lectures, field trips to public research institutes and facilities of different sectors of bio industries, and hands-on research in microbial taxonomy at a national research institute. The lectures cover a wide range of subjects, including bio industry policy-making, trends and status of bio industry, CBD and ABS, biosafety and intellectual property rights [4].

Domestic needs are different, national policy is different, and, in turn, laws and regulatory systems are different. Even under these circumstances, different peoples can successfully collaborate if they identify points of mutual interest

Steps for win-win partnership development

1. Understand each other's situation
2. Jointly develop practical and effective procedure for collaboration
3. Help each other to overcome risks and generate benefits
4. Share the benefits in a fair and equitable manner

When I have been asked to speak about Japan's ABS practices, I have usually ended my presentation with a few personal statements. Let me do so also in this paper. The situation is different from •••

The need for open dialogues with all stakeholders

AMANDINE BLED *considers an open dialogue with all stakeholders as the only way towards the establishment of a transparent and balanced ABS governance scheme.*

Debates on access to genetic resources and benefit sharing have long been polarised around several conflicts arising from the categorisation of stakeholders along divides such as users/providers, North/South or Access/Benefit sharing.

ABS governance

For the last three years, IDDRI has been exploring the issue of international rules for guaranteeing a fairer use and trade of genetic resources (ABS). In particular, it organized several roundtables and released publications on a range of subjects, including certificates of origin and compliance mechanisms for ensuring access and benefit-sharing [1]. Following these dialogues IDDRI's representatives collaborated and exchanged reflections with the users of genetic resources being TK holders, public sector researchers or private sector users.

As a result, IDDRI feels that in the CBD forum, a consensus is forming around the terms of transparency and traceability related to the flows of genetic resources. Now the issue is about determining the best tools for the establishment, monitoring and control of genetic resource uses to be guaranteed. States are reflecting on ways to put in place a practicable system but IDDRI supports the view that other actors and actually all the stakeholders involved in ABS issues — and the actors along the supply chain are multiple and diverse — should be invited to discuss such a common system. In line with that argument, private users also have responsibilities: some companies have already created codes of conduct in the field of ABS.

IDDRI is accompanying this movement along with companies as well as researchers who can play a decisive role in monitoring the flows of genetic resources. As regards the exchange of genetic resources, IDDRI consequently attempts to clarify user companies' practices in relation to the CBD's equity objectives. This aim is pursued by identifying the key issues concerning these actors and assessing the possibilities for improvement and by feeding international debates with the elements gathered.

Partnering with pharmaceuticals

Regarding the ABS issue, international negotiators are looking for a positive and balanced solution, through the concepts of traceability and transparency of genetic resource flows. However, this solution encounters technical barriers that are linked to the growing complexity of global genetic resource exchanges, while the *status quo* seems less and less workable.

The voice of emerging countries has to be taken into account since it changes the former divides between North and South, users and providers, access and benefit sharing and leads to new potential alliances. As these countries are at the same time rich in biodiversity and able to use genetic resources for their industries, the old conflict between users and providers may be abandoned to consider new partnerships and design more balanced exchange schemes.

It seems that two possible ways are emerging to lead to such a new era. On the one hand, through the objectives of transparency and traceability; on the other hand through the creation of innovative partnerships. In both cases, the constructive participation of business appears as a necessary condition for success.

Since 2006, for example, IDDRI has entered into a partnership with the French Pharmaceutical Companies Association (LEEM). The main purpose of the partnership, in preparation of COP-9, is to help LEEM better understand ABS developments under the Convention. The agreement is to help LEEM determine the conditions for involvement of its member companies in the implementation of the ABS provisions of the Convention. It should thus help LEEM determine the conditions for an active and constructive participation in ABS negotiations. IDDRI provides, for example, LEEM with information and reports on the CBD discussions that are then discussed between LEEM members. The organisation of an international workshop is also planned between WG-ABS-5 and WG-ABS-6.

The collaboration between LEEM and IDDRI is a step towards opening the dialogue to other stakeholders. Further development of comparable initiatives around the world could contribute to the effective implementation of benefit-sharing.

[1] See references listed in the Publications section, page 39.

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country to country. Domestic needs are different, national policy is different, laws and regulatory systems are different.

Even under these circumstances, different people can successfully collaborate if they identify points of mutual interest (see box, previous page). Above all, the key to success, it seems to me, is mutual understanding.

[1] Japan Bioindustry Association (JBA) is a non-profit organization dedicated to the promotion of bioscience, biotechnology and bioindustry, established in 1942 through the support of industry, academia and government. It functions as a think tank and a platform for cooperation among scientists, technologists, corporate managers and policy makers.

[2] www.biodic.go.jp/cbd/6_resolution.html

[3] www.mabs.jp/information/oshirase/pdf/iden_tebiki_e.pdf

[4] So far, we have invited 180 individuals from 30 developing countries from Asia (Bangladesh, China, Indonesia, Kazakhstan, Laos, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, Syria, Thailand, Turkey, Vietnam); Central and South America (Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Mexico, Nicaragua, Peru, Uruguay); Africa (Egypt, Senegal, Tunisia); and Economies in Transition (Bulgaria, Estonia, Hungary).

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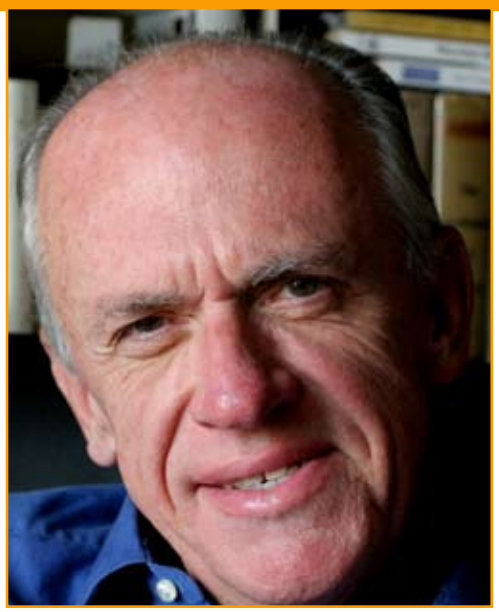
A regime founded on the '3S' rule



HARVEY E. BALE JR *shares some thoughts from the pharmaceutical industry on the proposed International Regime.*

Biological materials, including genetic resources, are frequently used in the development of new medicines and vaccines. They are obtained from different sources and from different trade channels, and are used in different ways and at different stages of the development cycle. If appropriate national laws are in place, industry may access genetic resources and create benefits that could be shared. As such, the pharmaceutical industry's activities may be regulated by the international regime. It is critical that the industry's views on how the proposed International Regime can facilitate access and sharing of benefits are taken into account in devising the Regime.

National laws

For the pharmaceutical industry, the best way of achieving the ABS provisions of the Convention is for countries to introduce national laws facilitating access to their genetic resources and for users and providers to reach appropriate mutually agreed terms on how benefits, if any, should be shared. This approach allows national governments the flexibility to determine what guidelines will best serve their national interests and allows users the ability to reach agreements that are appropriate to each particular case.

There has been a great deal of rhetoric to the effect that this approach is not enough. However, there is no evidence that, once fully implemented, this approach will not achieve the Convention's objectives. Many countries have yet to put in place national ABS laws and, in some cases where they have, they have created conditions that hinder, rather than facilitate, access. This suggests that there is a need to implement, refine and improve national laws, not that the national law approach is inadequate to achieve the Convention's objectives.

Despite patchy national implementation and the industry's continued support for national laws and mutually agreed terms, the R&D-based industry acknowledges the CBD's mandate to "elaborate and negotiate an international regime on access and benefit-sharing". By engaging in the process aimed at developing the Regime, we recognise the fundamental principle that, as the Ad Hoc Working Group's mandate makes clear, the Regime is intended to "effectively implement" Articles 15 and 8(j) of the CBD and its three objectives.

To this end, the regime must respect and reflect — not rewrite or contradict — the underlying tenets of the CBD and the guidance already set out in the *Bonn Guidelines*. These include the principle of national sovereignty over genetic resources, the obligation to create conditions which facilitate access on the basis of prior informed consent and the obligation to ensure fair and equitable benefit sharing on mutually agreed terms.

Essential features of an ABS regime

- It should confirm the existing COP decision that human genetic resources are outside the scope of the CBD.
- It should not seek to regulate the arrangements that providers and users reach relating to derivatives or the benefits they create. It is clear from the CBD and the Terms of Reference of the Working Group, that these are to be subject to mutually agreed, not mandated, terms.
- To the extent that any elements of the Regime are to be binding, they should operate prospectively from the time of agreement of the regime and only apply to genetic resources acquired from *in situ* or *ex situ* locations after that date.
- The Regime should not seek to include or recommend any obligation that patent applicants disclose the source or origin of genetic resources that are in some way used in the invention. Such obligations serve no useful policy purpose and cannot be drafted in such a way as to lead to sufficient business certainty. If discussions about such an obligation are to take place at all, they should take place in WIPO, the institution that has the appropriate technical intellectual property expertise.
- Any further discussion of certificates of origin or similar measures must take into account the possible benefits of the proposed measure and the real cost of setting up and operating the measure, both to providers and to users. These discussions must take into account the fact that there are millions of transactions involving genetic resources and "derivatives" every day. Indeed, every purchase of a bunch of flowers or loaf of bread or bottle of wine is a transaction involving one or more genetic resources or "derivative".

This suggests that there is a need to implement, refine and improve national laws, not that the national law approach is inadequate to achieve the Convention's objectives

The ABS Working Group must also ensure that a full evidence-based gap analysis is carried out as an integral part of devising the regime. If any problems that might arise from the existing CBD scheme and the way it has (or has not) been implemented are not clearly identified, no international regime can hope to solve them.

The proposed regime can best respect the principle of sovereignty by ensuring flexibility so as to enable provider countries to put in place laws which suit their particular conditions. It must also facilitate the creation of user-friendly conditions that encourage users to access and develop genetic resources. Fundamental to this approach must be the principle of mutually agreed terms between users and providers.

A wide range of users and uses

The regime must be founded on practicality, not theory or rhetoric. While I write today on behalf of the R&D-based pharmaceutical industry, it will be vital for any Regime to take into account a wide range of users. They include agriculture, horticulture, chemicals, cosmetics and the biopharmaceutical industries — and they range from the largest multinationals through SMEs through academic and non-

Photo courtesy of M4gic/www.flickr.com

profit organisations.

Each will use genetic resources and materials which are made from them or using them (often loosely and unhelpfully referred to by the general term "derivatives") in a wide variety of ways. For example, in the pharmaceutical industry, genetic resources and "derivatives" may be used as the starting point to develop active compounds, as elements of vaccines, as inactive parts of a final product or as tools used in the research or production processes which do not end up in the final product.

Given these realities, Parties must consider how the regime can provide flexibility and user friendliness in a way that reflects the principle of sovereignty, facilitated access and benefit sharing on mutually agreed terms?

To guide, not prescribe

The fundamental principle must be that the regime should guide, not prescribe or dictate. It should not seek to regulate unless it is clearly demonstrated there is no other way of achieving CBD objectives. Instead, it should seek to assist countries to devise national ABS regimes that best suit their circumstances and will facilitate access and benefit creation. This respects the principle of sovereignty. And it should not seek to regulate how any benefits are to be shared as this would be contrary to the principle that benefit sharing should be on mutually agreed terms. Capacity building in the fields of national laws and benefit sharing agreements could be an important feature of the Regime.

If potential 'users' are to be attracted to 'providers', the regime will have to display three features. Its scope must be appropriate; its substance must be balanced and it must offer legal and commercial security. It is vital that negotiators bear in mind this '3 S' rule (Scope, Substance and Security) if they wish the regime effectively to promote the CBD objectives.

I list here specific features of the international regime that the pharmaceutical industry regards as important to include (see box, previous page). The R&D-based pharmaceutical industry believes that constructive, evidence-based discussions which bear in mind these points will make it possible to agree a Regime which meets the mandate of the Working Group. We look forward to contributing our expertise to this process.

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How to link bioprospecting with sustainable capacity building

FRANK PETERSEN *and* **THOMAS KUHN** *provide a perspective on access and benefit-sharing based on Novartis's bioprospecting activities and the development of an anti-malaria drug.*

The use of herbal preparations to treat our ills dates back to the earliest human history, and about 80 percent of the world's people still use plant-derived medicines for basic healthcare needs. Even among modern medicines, some of our most potent therapies have their origins in natural products like plants or soils. Ironically, though, many Western pharmaceutical companies have abandoned the exploration of natural biological products.

The emergence of newer, highly efficient techniques in industrial drug discovery, including high throughput screening and combinatorial chemistry, along with too few recent successes by major pharmaceutical companies in natural product screening, are major reasons for the trend away from natural compounds. What is more, linking external bioprospecting with in-house drug discovery programs is a highly complex process, demanding combinations of a broad range of scientific disciplines. Managing these interfaces inevitably implies longer timelines compared to research activities driven exclusively by synthetically derived compounds. Finally, legal uncertainties surrounding international agreements governing bioprospecting and biodiversity have led some pharmaceutical companies to terminate their natural product exploration programmes. Whether from natural or synthetic sources, drug development is expensive. The research and development process for bringing a new drug to market can take 10 to 12 years and cost up to USD 1.5bn, and only one out of 10,000 compounds, on average, will clear all the hurdles to become commercially available.

Frank Petersen

One of the major provisions of the Convention is to encourage those who develop and use natural biological resources to responsibly share the benefits with countries and populations from which they get those resources. From the outset, Novartis has been a strong supporter of this provision. Today, in discussing how best to ensure access and benefit-sharing, among other concerns, the natural products research community faces a call for more stringent regulations to govern CBD implementation. Novartis believes the best way to achieve the CBD's access and benefit-sharing provisions is for countries to introduce national laws facilitating access to their genetic resources and for users and providers to reach agreement on how to share the benefits. This approach would provide governments with the necessary flexibility to preserve their national interests while allowing users to reach agreements suited to individual circumstances.

While implementation of the Convention is mandatory and clear rules are needed, our experience with the responsible development of natural products suggests that overregulation would hinder future medical discoveries based on natural sources and, as a consequence, would run counter to the spirit of the CBD

We believe, however, that a too rigorous regulatory framework would create an additional burden for industrial natural products groups to justify their existence within a portfolio of competing drug discovery technologies. While implementation of the Convention is mandatory and clear rules are needed, our experience with the responsible development of natural products suggests that overregulation would hinder future medical discoveries based on natural sources and, as a consequence, would run counter to the spirit of the CBD. Companies must make large investments and take significant risks in new drug exploration. Success in these types of innovations requires an environment that encourages flexibility, skill and trustful partnerships.

Novartis and its predecessor companies, Ciba-Geigy and Sandoz, have developed natural product-based therapies for the past 90 years. Today, Novartis is one of only four major Western pharmaceutical companies with a strong natural product screening and development programme in drug discovery. We continue to build on that tradition with wide-ranging partnerships for sourcing potential biological agents in China, Latin America, Thailand, and parts of Europe and North America.

Public discussions around such programmes often focus unduly on the financial arrangements, such as milestone payments or royalties, while insufficient consideration is given to the importance of capacity building or education. In our experience, it is exactly the latter that are central during the exploration phase of a potential sourcing collaboration. At Novartis, we place a strong emphasis on the education of involved scientists and technicians not only to ensure high quality deliverables but, also, to foster a profound knowledge base at the partner institutes. Whether by organizing drug discovery seminars with Novartis scientists, inviting partners to our natural products research facilities in Switzerland, on-site training courses, or implementing dedicated database systems or analytical technologies, we ensure that capacity building in the countries where we have partnerships is sustainable. We want scientists there to benefit adequately from natural products related knowledge well beyond the expiration of any active collaboration partnership.

Leading by example

One such collaboration — with Chinese scientists and the Chinese government — demonstrates the potential benefits of implementing CBD principles in developing new medicines from biological sources. The Novartis product Coartem® — an anti-malaria therapy derived from traditional Chinese medicine — is an extraordinary

story of responsibility and commitment. The beneficiaries are millions of malaria patients.

For much of the 20th century, malaria was in decline, thanks to pesticides, mosquito netting and new drugs. However, infection rates began to increase in the 1990s due to growing resistance to existing drugs, reduction in prevention efforts, and deteriorating healthcare systems in some parts of the developing world. More than a million people now die of the disease each year, mostly in Africa. The young are most vulnerable — a child under the age of five dies of malaria every 30 seconds in Africa.

Coartem combines a synthetically created substance called lumefantrine and artemether, a chemically modified active extract derived from *Artemisia annua*, a herb used to treat various diseases in China beginning more than 2000 years ago. In 1971, this traditional medicine was rediscovered by Chinese scientists and found to be effective in killing the parasite responsible for a particularly virulent form of malaria. It was subsequently combined with lumefantrine to slow the development of drug resistance, and the new product was registered as a single agent in 1992 in China.

Today, Coartem is registered in 81 countries. Funding for developing countries to purchase the treatment at cost has come from the Global Fund to fight AIDS, Tuberculosis and Malaria [1], with the World Health Organization (WHO) managing the distribution. Today, Coartem is a critical component of the WHO Roll Back Malaria Partnership [2].

Sharing the benefits

From the outset, Novartis and its Chinese partners realized that benefit-sharing would be at the heart of the Coartem programme. We knew that the greatest need for this medicine would be among the poorest of the poor — so it would need to be provided at cost. We also understood that a unique collaboration would have to be developed among a public organization (WHO), a private company (Novartis), and commercial partners to grow the plants, extract the raw ingredient and manufacture the active substances.

During the development and product rollout of Coartem, more and more farmers were enlisted to cultivate and harvest *Artemisia annua*. We expanded our circle of partners to include thousands of farmers in China and Africa — enhancing their incomes and standards of living, as well as the economic well-being of their communities.

Benefits in technology and knowledge transfer also sprang from the Coartem effort. For example, in the early years of the partnership, capabilities were virtually non-existent in China to extract the active ingredient using good manufacturing practices. Technicians and scientists had to be trained. Over time, knowledge transfer to local partners also occurred in multiple other areas, including chemical production and health, safety and environmental standards.

Once Coartem was approved and technical issues were overcome, the scope of the world's malaria threat called for a very significant scale-up in the number of treatments produced. Funding for developing countries to purchase the treatments at cost has come from the Global Fund to Fight AIDS, Tuberculosis and Malaria, with the WHO managing the distribution.

Thomas Kuhn

A success story

The WHO put Coartem on its Model List of Essential Medicines in 2002 and by 2005 large orders began coming in. That year, 9 million treatments were delivered. With a steep increase in investment and capacity, the number rose to 62 million in 2006, helping to save the lives of an estimated 200 000 malaria patients. Pre-financing by Novartis was necessary since Coartem takes 14 months to produce, from the first seed in the ground to tablets coming off the production line. By October 2007, a total of 130 million treatments had been delivered since the beginning of the programme in 2001 — of which 75% are for infants and children. In the first 9 months of 2007, 52 million treatments have been shipped — continuing to save hundreds of thousands of lives.

The Coartem experience demonstrates the value of natural products and the potential for equitable benefit-sharing. We are delighted that our partners in China, both in government and the commercial sector, have understood the need to make this biological resource available at low cost. We are also delighted to have shared the benefits, building up local economies and providing new sources of income for thousands of families.

We have continued to invest vigorously in knowledge transfer, equipment, training, state-of-the-art analytical technologies and good clinical practices to build local capacity. As a result, some of our partners have been able to use the knowledge gained from Coartem for other products and for partnerships with other companies. In China, we continue to collaborate with our initial partner, the Shanghai Institute of Materia Medica, to seek new possibilities for healthcare advances through biodiversity explorations.

Continuing the journey

Nature remains a nearly inexhaustible source for new pharmacologically active molecules. We believe that sophisticated new discovery technologies can be used to enhance natural product screening efforts, rather than replacing them. We have learned a great deal from the Coartem experience. We continue to research the next generation of malaria drugs because resistance remains a challenge. And we continue to expand our energies in natural product screening in China, Thailand and elsewhere.

Most importantly, through the Coartem project, we have created a legacy of trust and commitment that goes beyond any financial arrangement. Diseases like tuberculosis and dengue fever still cry out for innovative and effective treatments. We hope to use our knowledge and work with our partners to look for new medical answers from nature. We have helped build capacity, sustainability and a sound future for a number of scientific institutions, commercial enterprises and individuals around the world. But much more than that, we have delivered life-saving medicine to desperate patients in dire need of our help. That is where biodiversity development — done well — can make the greatest difference.

[1] www.theglobalfund.org

[2] www.rbm.who.int

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Understanding horticulture and biodiversity

The horticultural industry already meets the CBD objectives, despite the lack of any international ABS regime argue **EDGAR KRIEGER** *and* **BIRTE LORENZEN**.

Plant breeders make every effort to meet the first two objectives of the Convention. By the very nature of their business, they do not consume, deplete or even destroy genetic resources.

Breeders of asexually reproduced ornamental and fruit varieties, in particular, only need access to a very few plants as parent material to be able to start a breeding process. This is because from just one plant, an almost indefinite number of identical ones can be produced. Even where this material is provided by other countries, the biodiversity there does not get harmed or reduced.

What breeders find in nature looks for example like the orchid pictured on the right. As one can readily understand, such a plant will not be successful in the market. It takes a lot of effort, time and money to develop a plant variety which can be sold (see picture, opposite page).

Plant breeding requires very specific botanical know-how. The methodologies can vary from crop to crop but, on average, it needs 10,000 to 100,000 crosses and takes 3 to 10 years to develop between 5 and 10 new varieties which might reach the market. These new varieties usually have many advantages over older ones and the ones found in nature. They are — depending on the breeding target — more resistant against diseases (hence less chemicals are needed in the growing process), less temperature sensitive or better transportable (which makes growing in developing countries easier). Additionally, they might have a 'modern' shape, colour, fragrance and/or taste and a customer friendly vase-life. Hence, breeders actually add new value to biodiversity.

Breeders also conserve existing varieties. Some genetic resources, extinct under natural conditions, have been conserved thanks to the efforts of breeders, either on their premises or in gene banks.

From our perspective , the third objective of the CBD is also already is achieved, since the horticultural business is based on international partnerships.

Clearing a prejudice

As shown above, breeders of asexually reproduced ornamental and fruit varieties are not protecting what they find in nature with IP rights, but varieties in which a lot of R&D has been invested. What can be found in nature will hardly ever meet the protection criteria as they are laid down in international conventions like in UPOV 1991.

Business partnerships

Breeding of the most important ornamental species is carried out to a huge extent by private, often small and medium-sized companies, whilst breeding of fruit species is often undertaken in public institutes (because of the high costs involved). The most important regions and countries for breeding vegetatively reproduced ornamental and fruit varieties are the European Community, the United States and Japan. Nevertheless, we are witnessing an increasing number of ornamental and fruit variety breeding activities in developing or newly industrialized countries such as Kenya, Ecuador, China, India, *etc.* Meanwhile, most of the plants are grown in the southern hemisphere, in various countries in Africa, South America and Asia.

Benefits are shared in a very practical manner by license agreements: Breeders

Photo courtesy of Back Bio Science GmbH

Getting *from here...*

... to here

(often from industrialized countries) grant growers (often in developing countries) the right to use a newly developed variety for growing and selling plants and hereby 'utilizing' its genetic resource. It should be noted in this regard that license fees are the smallest (financial) part of the value added chain compared to the profits of growers and traders of the plant.

In many developing countries and newly industrialized countries, horticulture is the fastest growing sector of the economy. The production of ornamentals and fruits has considerably positive effects on the economy of the production areas. It creates numerous year-round jobs in these countries — many of them for women. This results in a continuous, regular income and therefore is a stabilizing factor for whole families. Due to this fact, not only single companies but many families and society at large in these countries are benefiting.

Legal mechanisms

Additionally, legal mechanisms in international conventions are further balancing interests. One example is the breeder's exemption in UPOV. Article 15 (1) (iii) of the UPOV 1991 Act states that the breeder's right shall not extend to "acts done for the purpose of breeding other varieties…". Anybody has free access to the germplasm of any protected variety for the purpose of further breeding. It would be rather strange if access to varieties available in nature becomes subject to more restrictions than access to protected varieties.

Another example of benefit-sharing is the 'farmer's privilege' contained in Article 15 (2) UPOV 1991, which reads: "Notwithstanding Article 14, each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety or a variety covered by Article 14 (5) (a) (i) or (ii)".

Both these principles reflect how benefits are shared within the plant variety rights-regime: by participation on knowledge (which has the potential for creating additional value) and by the possibility of excluding a huge part of the utilization — the use of own harvest as seed on the own property — from protection. But it also reflects that unrestricted access to any kind of genetic resources as breeding material is necessary to ensure future progress in breeding, which, again, is to the benefit of the society as a whole.

In the breeding and horticultural industry, the objectives set by the CBD are already met today by the rules set in international conventions, like UPOV, and the very nature of the business

It seems that in ABS discussions, many prejudices and unconfirmed assumptions prevail; a lot of important questions remain unanswered. The current discussions lead to legal uncertainty, difficulties in access and increasing costs. All this hinders innovation and the creation of benefits. This is a pity since, at least in the breeding and horticultural industry, the objectives set by the CBD are already met today by the rules set in international conventions, like UPOV, and the very nature of the business.

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Perspectives on a horticultural agreement

MAUREEN WOLFSON *provides an update of the first North-South bioprospecting agreement in the horticultural and floricultural field.*

In the late 1990s, the National Botanical Institute (NBI) approached the local nursery industry with a view to involving them in a proposed project that would commercialise selected plants bred from indigenous material with promising horticultural potential. As the response was limited, NBI extended its approach to include horticultural companies in the UK and USA. This is how, in 1999, the research and licensing agreement came about between NBI and the Ball Horticultural Company based in Chicago, Illinois.

The agreement

NBI — which became the South African National Biodiversity Institute (SANBI) in September 2004 — undertook to select indigenous South African plants which would be of interest to Ball, both from the living collections in the National Botanical Gardens and from the natural environment. In return, Ball agreed to patent any selected or hybridised varieties of these plants and SANBI would receive royalties for 20 years following the plant's introduction onto the market. Commercialised plants bred and released by Ball from pure species would produce a 4% royalty payment while those bred from pre-selected, pre-bred material from Kirstenbosch, would generate a 10% royalty. SANBI undertook to set up a Trust, managed by its Board, to administer funds derived from profits, for capacity building in horticulture and botanical studies.

One of the benefits contained in the agreement was technology transfer through building the capacity of interns in plant breeding and marketing. To date, eight interns have undergone three-month internships at the Ball headquarters in Chicago.

Another benefit from the project is the extensive field collecting that has taken place. Using the Pretoria Computerised Information System to focus collecting trips on certain genera that Ball have an interest in breeding, field trips have taken place throughout the country. Excellent records, including GIS references, have been kept for all the collected plants. The scope of collecting trips has been broadened to include herbarium and other staff from different National Botanical Gardens to assist in the collection of material for Kirstenbosch's living collections. The regular discovery of new species demonstrates that such trips play an important role in contributing to building up biodiversity information and to conservation efforts. Voucher specimens of many of the collected plants are housed in the Compton Herbarium, Kirstenbosch.

The Ball agreement provided for a one-off payment to SANBI to purchase a vehicle and build a fully automated glasshouse. Collected plants are propagated and housed in the glasshouse where computerised climate control systems ensure customised conditions creating optimal growing conditions for the plants, allowing them to be grown vigorously and bulked up quickly. Ball has also loaned research funds to SANBI to cover the operational costs of the project which will be repaid through royalties, which began to be generated three years after the project was initiated.

From the different plant accessions that have been sent to Ball to be evaluated, eight new hybrids bred from Kirstenbosch plant material have been released. The first plant variety to be successfully commercialised, Mona Lavender, is a hybrid of two *Plectranthus* species developed by SANBI, which is generating a 10% royalty and is available commercially throughout Europe, the US, Japan and South Africa. Plant Breeder's Rights have been granted worldwide for the variety with application also having been made in South Africa by Ball, on behalf of SANBI.

The SANBI project manager has met with plant breeders from Ball who work specifically on South African genera, thus obtaining valuable information regarding the traits they are looking for in each particular breeding project. Further useful information relating to effective glasshouse management, plant production and plant hygiene and the improvement of packaging and shipping techniques for the plant material, was obtained.

We have also acquired a better grasp of the type, habit and taxon of plant that is likely to be successful in the horticultural market. The collecting programme continues to be broad but we are only focusing on three or four genera for breeding purposes, some of which are proving to be very promising

Developing our own hybrids

As Kirstenbosch keeps backups of all the living collections and has a large selection of species with which to breed, the SANBI project staff have decided to do some of the initial plant breeding and selection themselves and to develop their own hybrids. This will speed up the entire breeding process and result in a substantially higher royalty than is presently being produced. We have also acquired a better grasp of the type, habit and taxon of plant that is likely to be successful in the horticultural market. The collecting programme continues to be broad but we are only focusing on three or four genera for breeding purposes, some of which are proving to be very promising.

Although the agreement represents a significant effort by South Africa to control the outflow and use of its indigenous genetic resources in the global horticultural trade, it has elicited criticism from some stakeholders who feel that the scope of the agreement is too wide, the benefit-sharing arrangements too weak and that inadequate provision has been made for job creation and local economic

Photo courtesy of A. Harrower/SANBI

development. It has been pointed out that it is very difficult to compile accurate statistics on horticultural markets on which to base an assessment of equitable sharing of financial benefits [1]. The reasons for this include the definitions of horticulture and the basis for compiling statistics which vary from country to country. In addition, no national legislation related to access and benefit-sharing was in place in South Africa at the time the agreement was negotiated.

The National Environmental Management Biodiversity Act (NEMBA), however, contains a chapter on Bioprospecting, Access and Benefit-sharing which has implications for all bioprospecting activities. Regulations to implement this chapter, as well as those dealing with permitting issues, have not yet been finalised. The legislation requires that benefit-sharing agreements be entered into with suppliers of the genetic resources to conform with requirements set out in the Act. These must be negotiated before permits to collect material will be granted for bioprospecting purposes. To obtain an export permit for indigenous biological material, a benefit-sharing agreement and a material transfer agreement must be in place. As it is not always possible to assess all of the benefits prior to the research being carried out, benefit sharing agreements will need to make allowance for this as the project progresses. There is also a requirement to renegotiate all existing bioprospecting agreements.

Any royalties generated so far have been used to defray the annual research fee provided annually by Ball and those derived from SANBI plant material have been less than expected even though it is recognised that the breeding process does take time. Experience has shown that growers are reluctant to invest in plants such as *Jamesbrittenia* which are essentially unknown on the horticultural market and they tend to stick to the tried and tested favourites such as *Plectranthus* which is far more versatile, better known and more widely sought after. Hopefully, however, with improved cultivars and new lines, the royalties generated will be increased.

[1] Ten Kate K. and Laird S., 1999. The Commercial Use of Biodiveristy: Access to Genetic Resources and Benefit Sharing. Earthscan Publications Ltd, London, UK.

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Promoting more effective use of plant genetic resources

STEPHEN SMITH *and* **JOHN GRACE**
perceive limitations in how access and benefit-sharing have been examined under the Convention; discuss linkages with the FAO International Treaty on Plant Genetic Resources for Food and Agriculture.

In spite of dramatic increases in world food productivity over the last 40 years, neither the *status quo*, nor 'more of the same' will be sufficient to accommodate future needs. Overall, food demand is expected to increase 2-3-fold by 2050. If productivity increases over the next 35 years rely solely on previously successful factors, then estimated future needs are: 3-fold increase in nitrogen use; 2.5-fold increase in phosphorous; doubling of cultivated land under irrigation; 18% increase in land area under cultivation [1]. Therefore, meeting the estimated agricultural demands raises concerns of habitat loss, species extinction, release of CO2 from land clearing and tillage, and negative impacts on ecosystems worldwide. 'More of the same' is not a viable means to achieve sustainable gains in agricultural productivity. Among the remaining options are the more efficient use of fertilizer, water, and genetic resources.

Access

In the context of the CBD, access is discussed predominantly in a relatively narrow legalistic and procedural context. The CBD prescribes that "facilitated" access to genetic resources should be provided subject to "Prior Informed Consent" (PIC) of the owner with "fair and equitable" benefit sharing on "mutually agreed terms". Industry is very familiar with these concepts for it is under the same parameters of PIC and benefit sharing under mutually agreed terms that companies, sometimes fierce competitors, secure contracts to license technologies or germplasm. The plant breeding industry in the industrially developed world has become accustomed to licensing. Indeed, in many countries, new varieties have only been developed and are therefore only available because of the successful negotiation of technology and germplasm licensing agreements. Successful negotiation of PIC and ABS among companies has resulted in higher performing products being delivered to farmers.

A major limitation to industry access to a broader array of genetic resources is the lack of knowledge of what is available and what might be potentially useful. Whole careers have already been spent in discussing ABS in the venue of the CBD with the focus, understandably, but unfortunately focused solely on the pretext that great economic value exists in those resources and that some might misappropriate those resources. Industry is a potential customer of those genetic resources. However, without knowledge of what is available, and without the availability to obtain sufficiently effective intellectual property rights (IPP), there will be little demand even by those organizations with the technological capabilities to perform the long term research. Greater evaluation of genetic resources is required.

It is worth reiterating that the CBD prescribes that nations should provide "facilitated access". One example

> STANDARDS NEED TO BE RAISED BOTH IN TERMS OF THE EFFECTIVE LEVEL OF INTELLECTUAL PROPERTY PROTECTION NEEDED TO ENCOURAGE INCREASED INVESTMENTS IN PLANT BREEDING, EVALUATION AND PRE-BREEDING AND ALSO WITH REGARD TO OBLIGATIONS TO RETURN BENEFITS

which demonstrates the huge scope and complexity of developing an effective access regime is provided by the National Biodiversity Institute of Costa Rica (INBio). This included the creation of a national biodiversity inventory which required training to classify one half million species; the development of databases and information management systems; business development and strategic planning; and the availability of efficient regulatory and legal structures sufficient to support contractual, regulatory and intellectual property protection laws.

Most countries have huge difficulties in living up to the national responsibilities that must be shouldered if national sovereignty is to be an effective component of a market-based system to encourage conservation through use and benefit sharing of genetic resources. Organizations situated outside of a biodiverse region are in no position to identify all of the indigenous and other interested parties who may have an interest in the PIC and benefit sharing provisions. This must be a sovereign country function, or the level of uncertainty may doom prospects for expedited access.

Benefit-sharing

Most, if not all of the discussion regarding benefit sharing in the context of the CBD revolves around the provision of benefits back to the providers of genetic resources. These benefits can take many forms, including non-monetary (*e.g.* joint research, capacity building, co-ownership of intellectual property) as well as monetary (*e.g.* bio-prospecting fees, milestone payments, percentage of royalties).

It may be beneficial to consider benefits in a broader context. Benefits must be created and allocated at every link in the chain from conservator and provider of genetic resources through the research and product development pipeline to the customer, the farmer or industrial processor; otherwise the chain breaks. A plant breeding company will, for instance, only survive when it generates benefits which can then be passed along to providers of genetic resources, to employees, to shareholders; and to customers. Customers (*e.g.* farmers) will only purchase products if they perceive that they will gain from making that purchase.

The FAO International Treaty

In contrast to the bi-lateral agreements conceived within the framework of the CBD, the FAO International Treaty for Plant Genetic Resources for Food and Agriculture (IT-PGRFA) provides a multi-lateral system. The International Treaty thus provides an important path forward to re-establish germplasm flows for *ex situ* genetic resource collections, largely for those collections that were previously considered to be, in the pre-CBD environment, part of the common heritage of humankind. Germplasm will be accessed according to the conditions of the standard Material Transfer Agreement

(sMTA). The sMTA provides well for research only purposes. However, we believe its commercial provisions could be improved markedly. We advocate for ratification of the International Treaty by the US Senate so that the United States can participate in on-going sMTA discussion within the framework of the Treaty. Our hope is that the terms eventually found in a revised sMTA will be in line with commercial practice as promised by the International Treaty and will therefore help encourage more use of exotic germplasm by plant breeders concomitant with greater creation and sharing of benefits. We argue that standards need to be raised both in terms of the effective level of intellectual property protection needed to encourage increased investments in plant breeding, evaluation and pre-breeding and also with regard to obligations to return benefits for varieties that are dependent upon use of germplasm accessed via the International Treaty.

The current sMTA fails to adhere to usual business practice in that there is neither a threshold of time, nor of contribution by pedigree to trigger a requirement for benefit payment. In the current process, companies who would otherwise be willing to make the long term, risky investments in working with exotic genetic resources are at a disadvantage. They will either have to protect their invention with patents and then incur the undesirable sMTA consequences of royalty obligations that are unlimited. Or, as in most cases, they will only be able to utilize Plant Variety Protection (PVP). But, under current forms of PVP, and after making significant investments they would then provide the exotic germplasm in a well-adapted genetic background for free and immediate use by competitors. Consequently, in the current PVP environment competitors can free-ride on 10-20 years of the initial developer's research programme and have no obligation whatsoever to contribute royalties. So, under current circumstances, neither IPP route provides a sufficient level of encouragement for risky and resource demanding exploration and development of exotic germplasm.

And, from the other perspective, nor are current standards for returning benefits to conservators and stewards of germplasm sufficiently high. We do not believe that "availability without restriction for further breeding" is either a sufficient or an appropriate form of benefit to meet the higher threshold and obligation of benefit sharing that should, in our minds, be required by the International Treaty. Royalties alone will likely be insufficient to sustain funding for the level of conservation or of evaluation of genetic resources that will be required to serve agriculture long-term. And, if royalties are paid only by those organizations patenting products, the royalty flow will be considerably lower. Optimally, royalties should be contributed by all who commercialise a variety that depends upon IT germplasm; the act of commercialisation, rather than type of IPP should be the trigger for contributing royalties. One approach could be a revised UPOV that provides immediate global access for further breeding through a deposit to commercialised PVP'd varieties that include IT germplasm in their pedigree; any inbred lines or varieties that contain IT germplasm that would not be freely available for further breeding would then be subject to a mandatory royalty payment.

> TECHNOLOGICAL PROGRESS IN THE PLANT SCIENCES HAS OCCURRED FASTER THAN HAS POLITICAL PROGRESS TO CREATE MECHANISMS THAT WILL ENSURE THE CONSERVATION AND USE OF A COMPREHENSIVE ARRAY OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

How genetic resources for food and agriculture will be conserved and used is a major determinant of the future course of humankind. Usage of these resources will depend, not only upon technological capabilities of which humankind has demonstrated great ingenuity, but also upon wisdom and the political will to enact policies that encourage conservation and use. The historical record shows that the latter have proven more difficult to achieve. For despite taking millennia, technological progress in the plant sciences has occurred faster than has political progress to create mechanisms that will ensure the conservation and use of a comprehensive array of plant genetic resources for food and agriculture. Nevertheless, some progress has been made.

Swanson [2] notes that "the Biodiversity Convention represents a mere framework, only a beginning, not an ending". Huge resources, covering the gamut from scientific to legal, are required to be invested in each country to facilitate access. Some valuable experiences have been gained, notably by Costa Rica. Successes are evident in the capacity building of biological research in source countries; critical prerequisites for conservation and sustainable use. The International Treaty is a work in progress that uses a multilateral approach. We believe that greater investments in public sector plant breeding coupled with greater private investments encouraged by more effective intellectual property protection on a global basis will be required to make this approach fully effective. However, it is also time to question whether a market-based system can ever provide the basis for conservation of genetic resources that will be of a sufficiently comprehensive scope.

In this respect, one of the most encouraging developments in recent years is the progress made by the Global Crop Diversity Trust [3] in establishing what is currently a USD 136m endowment to provide long-term funding to ensure a high quality, rational, global system of ex situ genebanks. Tangible evidence that consideration of ethics, aesthetics, common-sense, and the benefits that long-term, multigenerational, multinational, public goods provide has the power to cause corporations, foundations and governments to make substantial donations to support the genetic fibre of agriculture is perhaps the most encouraging development in the field of plant genetic resources in the past 50 years. Together, these developments suggest that humankind might now have progressed sufficiently across the second threshold of agriculture, a place where farmers use seeds bred by plant breeders, so that in the field of plant genetic resources, we are at least, to paraphrase the words of Winston Churchill, at "the end of the beginning".

[1] This land area estimate, equivalent to adding the land area currently forested in the continental United States, is still an under-estimate, since most of the global land area best suited to agriculture is already cultivated. Furthermore, these estimates do not take into account additional demands made on agriculture to provide energy (biofuels).

[2] Swanson, T. 1997. Global Action for Biodiversity: An International Framework for Implementing the Convention on Biological Diversity. Earthscan Publications, London, UK.

[3] www.croptrust.org

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A regime based on reality and experience

American BioIndustry Alliance (ABIA) President, **JACQUES J. GORLIN**, *provides his thoughts on how an international regime should be shaped* [1].

I strongly believe that the initial test for any international ABS regime should be 'benefit generation' — that is, the practical impact that a proposed ABS IR element would have in the encouragement of access to genetic resources and the equitable sharing of the benefits relating to their commercialization. It is because industry plays a pivotal role in generating those benefits that it is a vital stakeholder in the ABS IR process.

Positive incentives

Many stakeholders have focused much more on user measures and enforcement, crowding out positive incentives needed to ensure benefit generation. To that end, it is critical that any international regime recognize the on-the-ground realities by which businesses operate and include appropriate positive incentives to

balance the expected user measures and enforcement provisions that will be needed to ensure compliance by all Parties. Such a balanced approach will ensure that the regime will benefit all stake-holders.

The regime should include measures that demonstrably generate benefits and provide positive incentives that will encourage access to genetic resources, on a sustainable basis, and the equitable sharing of benefits relating to their commercialization. It should be based on the actual experiences of stakeholders either at the local, regional or national level, including the actual experiences of countries, indigenous communities, NGOs, and business.

In other words, the regime should be based on reality and experience.

Patent disclosure

Our member companies strongly take exception to the utility and benefit of any additional, new patent disclosure obligations of source and origin as a condition of patentability. For three reasons. First, a system based on GR patent disclosure is purely a defensive measure that does not generate meaningful benefits to provider countries and their indigenous peoples. Second, any regime based on mandatory patent disclosure will lack positive incentives to promote the commercialization of genetic resources. Third, experience on the ground shows the disutility of mandatory patent disclosure.

In short, a mandatory patent disclosure regime would be self-defeating, and only extend failed national policies across borders. The relevant national experiences of Brazil, India, the Philippines and other countries that have adopted mandatory patent disclosure regimes since 1996 demonstrate that such regimes have led to reduced ethnographic work, conservation and other commercial and non-commercial activities relating to genetic resources and traditional knowledge. In addition, because the patent disclosure schemes resulted in reduced commercial activity, the expected generation of benefits from the increased commercial activities failed to materialize.

Likewise, ABIA Members remain concerned that some stakeholders are proposing the development of an international certificate of source, origin, and/or legal provenance to serve as an additional formality for either patent protection or regulatory approval for new products. We cannot support the establishment of a certificate system on this basis. We are, like others, concerned about the feasibility and costs involved. We also would like to see broader participation by all stakeholders in future expert-level discussions on certificates.

There is a growing consensus on the practical benefit of positive front-loaded incentives for access and benefit-sharing. There is a critical need, for example, for ABS-related scientific and technical assistance and capacity building programmes. Scientific research, science exchange and other capacity building programmes have a proven positive track-record at the national level — in countries as varied as Australia, China, Costa Rica, and Thailand.

In addition, Parties across the development spectrum, including India, Malaysia, Venezuela, China and others, have already implemented online databases of genetic resources and/or traditional knowledge. Traditional Knowledge Digital Libraries (TKDL) provide a greater degree of transparency than is currently available and provide a valuable point of contact to the holders of traditional knowledge and sovereign rights over genetic resources.

Our members have, from the outset, supported Model Material Transfer Agreements and other mutually beneficial agreements that have been demonstrated to bring benefits to ABS stakeholders. These agreements can include assignment of intellectual property rights, benchmarks and/or other royalty payments. We support the continuing use of patents, trademarks and trade secrets, and expanded capacity building directed at promoting the ability of all stakeholders to benefit from intellectual property rights.

We seek to provide useful input in focusing the discussions in Geneva at WG-ABS-6 and beyond on the positive elements of an international regime that will be based on the actual experiences of all stakeholders. These positive elements, some of which I have just described, will go a long way in elaborating an international ABS regime that will provide proven benefits for all stakeholders while protecting their individual interests in the negotiating process itself.

[1] The American BioIndustry Alliance (ABIA) was founded in 2005 to provide focused advocacy on behalf of the American biotechnology industry in support of the development and implementation of equitable, sustainable, and mutually beneficial ABS policies.

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Implementation of legal rules for benefit-sharing: A new challenge for the Amazon

Traditional communities face many obstacles in seeking to establish their rights for fair and equitable agreements. **NOEMI MIYASAKA PORRO** *and* **JOSÉ ANTONIO PUPPIM DE OLIVEIRA** *elicit some of these, as well as possible avenues forward, in the case Brazil.*

In the Brazilian Amazon, traditional communities, such as babassu breaker women, rubber tappers, riverine peoples, maroon communities, and other extractive peoples, have struggled against usurpation of lands and forests, defending their livelihoods in respective territories. Historically, usurpation of their rights over genetic patrimony and traditional knowledge has been a constant as well.

Requirement of benefit sharing from products that use the Amazon biodiversity and traditional knowledge is an important principle from CBD in order to guarantee some rights of traditional communities. However, operationalizing the principle is a challenge. Provisional Act 2186-16 of 2001, establishes that before companies can start prospecting activities, they must obtain a Statement of Previous Consent (TAP) and a Contract of Utilization and Benefit Sharing (CURB) from the relevant communities. Only then, can they apply for an authorization issued by the governmental Council for Management of Genetic Resources (CGEN). The absence of specific rules or parameters on how to divide the benefits in the CURB, however, leaves both Amazonian traditional communitie [1] and companies with the onus of finding out, by themselves, fair and equitable agreements, though there is a process of public consultation for a new project of law to change the way benefit-sharing is implemented in Brazil. This article elicits main obstacles faced and gateways sought by traditional communities seeking their rights in this new field of potential social transformation.

Obstacles

How to conceive and achieve a jointly established "fair and equitable" agreement on benefit sharing is a major challenge. The main obstacles constraining the process include:

• Access to samples of genetic resources and traditional knowledge without TAP and CURB are prohibited. Companies find it difficult to invest financial and human resources for these usually lengthy and complex negotiations with communities, without at least having bioprospecting and initial phases of research done;

• The CURB is a contract that should be made for benefit sharing before the prospecting starts, and at this stage neither communities nor companies have a good-clear idea of the future benefits;

• It is difficult to assess the value-added of the knowledge and products obtained from the communities. It may be just a small input in a complex research and development process, or they may worth much more than the people themselves can evaluate;

• Communities and their supporters are not informed about the magnitude of their rights, and may be allured by contracts they were not expecting anyways. The complexity of the information flows have an impact not only on negotiations, but on the communities and their very functioning;

• Research institutions and commercial enterprises have not yet established adequate protocols to contact and negotiate with traditional communities. Expected cultural clashes frustrate both sides and are fertile ground for opportunist professionals supposedly favoring either one or the other part;

• Confidentiality is a routine issue to companies used to industrial secrecy, but confusing to communities and supporters accustomed with the fluidity of information among social movements. Careful negotiation is needed.

Confidentiality is a routine issue to companies used to industrial secrecy, but confusing to communities and supporters accustomed with the fluidity of information among social movements

Photo by Noemi Miyasaka Porro

Lessons learned

Companies can learn from the few cases of dealings between communities and companies:

• Genetic patrimony and traditional knowledge as collective assets have brought moral issues when contracts privatize benefits to only one individual or grassroot organizations providing the samples or information, among many that exist and which have the same resources and knowledge. This can generate conflicts among communities. Up until now, only one community decided to transfer the benefits to be received with a pool of similar organizations;

• The role of a public authority, *e.g.* a public attorney has become a key figure to compensate for the shortcomings of the PA, guaranteeing a power balance in the

negotiation between unequal parts and helping them to reach a fair deal;

• By law, communities have rights to services from lawyers, economists, and others, in addition to an anthropologist to attest informed consent (paid by the interested enterprise). Under time pressure and novelty of such demands, integration of experts may happen only by chance.

• Negotiation takes time. Companies need to be aware of the timeframe to start and finish a negotiation process with fair results for both sides. A rushed process can lead to conflicts and mistrust among the stakeholders involved.

Responsible firms always benefit from being pro-active in looking for deals on benefit sharing with communities. They gain the complex tacit knowledge of negotiating with communities. Sooner or later, more regulatory pressures will come, and those responsible businesses will be ahead in the learning curve of the negotiation abilities.

Implementing benefit sharing is a complex negotiation process for communities, companies and governments. Lack of clear rules makes implementation even more difficult. The Brazilian Act is an attempt to provide some guidance on how to share the benefits of biodiversity and traditional knowledge, but it still falls short of providing the clear institutional environment that protects communities and gives incentives to businesses to negotiate with them. Countries rich in biodiversity have to move faster to create clear rules for benefit sharing or they take the risk to hurt both communities and responsible businesses.

[1] Traditional people and communities are culturally differentiated groups, who recognize themselves as such, who have their own forms of social organization and occupy and use territories and natural resources as condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition (Decree 6.040-2007 Art 3 Inc I).

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Photo by Noemi Miyasaka Porro

Eliminating 'legal uncertainty' and ambiguity surrounding genetic resource

TOMME YOUNG *provides a broad-brush description of four legal analyses which were presented at WG-ABS-5.*

The quest for 'legal certainty' in ABS is beginning to loom large in the eyes of lawyers, legislators and business, as the 'ABS negotiations' continue. The legal/legislative/commercial challenge is, in many ways, even more daunting than the Herculean task facing the Working Groups's Co-chairs and delegates on the difficult road to political agreement on the "nature and elements" of the ABS regime.

No matter what the resulting political agreement says, the legal challenge will be the same — to find a way to convert the rhetoric into an unambiguous, predictable/replicable system of legal rights and processes, which meets the reasonable legal needs and expectations of all sides of the ABS negotiations. Only if all potential users, providers, middlemen and other ABS actors are subject to the same rules can the ABS system be fair and avoid creating perverse incentives and inequities, especially for those businesses which are attempting to meet their equitable and social obligations.

To enable the legal and business communities to meet that challenge, the WG-ABS's policy-makers need an unbiased understanding about the legal options and obstacles that currently are obstructing the functionality of the ABS system.

In WG-ABS-5, four in-depth legal analyses were presented seeking to enhance understanding regarding the tools which the international negotiations can adopt that will help legislators, administrators, lawyers and others to create an internationally integrated, functional ABS system.

Administrative and judicial remedies for claims of ABS violation or misappropriation of genetic resources — One of the greatest misunderstandings in current ABS discussions is the idea that 'ABS Contracts' are the only legal instruments necessary to protect the rights of providers and source countries under Article 15. This paper, prepared through a collaboration between IUCN-Canada and the CBD Secretariat, examines the existing laws available to protect or provide remedy to providers, source countries and others, when ABS contracts are violated, or when the user does not obtain permission as required under ABS law [1].

The challenge of 'Access' — ABS is often described as two elements — access and benefit-sharing. Presenting a new book entitled *Addressing the Problems of Access: Protecting Sources, While Giving Users Certainty*, by Jorge Cabrera and Cristian Lopéz, this event noted that in ABS contract negotiations, representatives of source countries and communities are attempting to uphold a fiduciary responsibility to their citizens, which may prevent them from the 'streamlining', so strongly desired by commercial and research users of genetic resources, especially where there is no law in the user country that would compel users to comply after they have removed the resources.

The challenges 'Beyond Access' — examining the role of user countries in ensuring that the ABS system is functional — Presenting a new book entitled *Beyond Access: Exploring Implementation of the Fair and Equitable Sharing Commitment in the CBD*, (Morten Walløe Tvedt and Tomme Rosanne Young), this event highlighted the fact that all countries are 'user countries' and none has adopted the range of 'user-measures' required under Article 15.7.

The practical elements of tracking, monitoring and documenting the movement of genetic resources and related rights — Focused on the implementation tool that has been most directly discussed within the CBD, this presentation introduced a book containing 6 key legal, economic and practical perspectives regarding the nature of the need for systems that enable tracking, monitoring and certifying genetic resources: *A Moving Target: Genetic Resources and Options for Tracking and Monitoring their International Flows*, edited by Manuel Ruiz and Isabel Lapeña [2].

To date, many in the commercial, industrial and research sectors continue to hope that ABS will 'just go away' or will remain in its current 'limbo' state of uncertainty. Others, however, have come to realise that the only way in which the ABS system will be fair and will reflect their interest is through participating and supporting the creation of a balanced and functional system that applies to all users and all providers in an equitable and reasonable manner. To do this, the regime must do more than adopt a political agreement — it must adopt a legally implementable political agreement.

No matter what the resulting political agreement says, the legal challenge will be the same — to find a way to convert their rhetoric into an unambiguous, predictable/replicable system of legal rights and processes, which meets the reasonable legal needs and expectations of all sides of the ABS negotiations

[1] UNEP/CBD/WGABS/5/INF/3 available at www.cbd.int/doc/meetings/abs/abswg-05/information/abswg-05-inf-03-en.pdf

[2] The three books described are part of a series of five books being produced by the IUCN Environmental Law Centre (available at www.iucn.org/themes/law/info04.html). The paper on Administrative and Judicial Remedies will be included in Book 5 of that series, which will be launched in January 2008, on the occasion of WG-ABS-6.

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Keeping pace with technological development

MANUEL RUIZ MULLER *warns that ABS discussions are currently failing to reflect new realities in the way science and markets operate.*

The classic paradigm of the biologist combing the unforgiving rainforest with the aid of an indigenous native, in search of the magic medicinal plant for curing cancer, and then making millions through private sector support, has shifted to a much more complex picture, where science and technology are dramatically re-shaping the way research and development of natural products is undertaken and even how biodiversity is accessed and obtained.

Powerful tools

Today, extremely powerful tools such as bioinformatics and new technologies such as genomics, proteomics, synthetic and systems biology and nanotechnology, imply novel approaches to research and development in the field of genetic resources and biodiversity components in general, whether it be whole specimens, raw extracts or isolated compounds.

Ultra sophisticated hardware and software are the main allies of the scientific community, in the search for new breakthroughs in the quest for useful products for humanity. Often, tangible materials give way to virtual constructions, molecule design, active compound identification and testing for effectiveness against diseases or as potential products.

Business involvement

In parallel, growing involvement of the private sector in intricate partnerships with public institutions (mainly research departments in universities), and increased use of intellectual property instruments to protect innovation in terms of products or processes, also affect who, how and even whether new research can be undertaken. Most importantly, it affects the direction research takes and who ultimately controls its results.

Tensions between common and public good advocates and those who are directly or indirectly striving to exercise control and market advantages over competitors through intellectual property rights, are mounting also — in detriment of collaboration, interaction and relatively free exchange of these results, the core of scientific progress over time.

This situation — described in very general terms — is especially relevant nowadays. Analysts and policy makers should reassess the practical usefulness and impacts of ABS frameworks and contents as they are currently being developed and designed. For example, the International Regime on ABS which is currently being negotiated in the context of the CBD, seems far from having fully recognized (much the less internalized) the implications of new scientific shifts in genetics and new ways in which goods and services are being produced in the area of genetic resources.

Consequently, the gap between policies and science is becoming wider and wider, particularly in regards to these discussions. It is no surprise that policy and science move at different paces. However, in the context of the ABS debate, this gap is larger than it should be.

Tangible vs. informational nature

One possible reason for this situation, is that there has been a strong focus on generating policies on and regulating the flows and movements in tangible materials (the sample, the specimen, the extract) as such, following what national processes have been doing — with limited success — since 1994. ABS regimes and regulations have been constructed around the classical features of these movements (access to *in situ* specimens or *ex situ* samples, transboundary movements of materials, academic collaboration between national and foreign institutions, *etc.*).

But the informational nature of genetic resources, something widely accepted by the scientific community and admitted by policy makers, opens new avenues for economic, policy, legal and social analysis, at present sidelined in debates within the CBD. Bioresearch and development in pharmaceuticals, crop improvement, bioremediation and industrial sectors, seems like a parallel, scarcely regulated world. And maybe it should be.

Nevertheless, leaving this specific informational variable of genetic resources out of the discussions, will ultimately limit the possibilities of achieving the CBD equity and fairness objectives and, furthermore, will affect the interests of megadiverse countries.

The key question is then: how to regulate without unnecessarily affecting the scientific process or at least, causing the least of impacts? This will require, firstly, a full technical understanding of these issues but also progressive thinking in terms of how policy and law may support and even create incentives for science, and at the same time balance the interests of the least developed, biodiversity rich countries of origin and diversification of participating in benefit sharing schemes.

Analysts and policy makers should reassess the practical usefulness and impacts of ABS frameworks and contents as they are currently being developed and designed

There may still be time to streamline some of these issues and ensure their appropriate discussion within the CBD forum and, especially, in the context of the negotiation of the International Regime on ABS.

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Looking at plant genetic resources used for food and agriculture

BERNARD LE BUANEC *highlights some of the difficulties experienced by the seed industry with the ABS discussions, in particular with respect to plant genetic resources used for food and agriculture.*

First as an agronomist in Africa, then a plant breeder, a member of the Policy Committee on Plant Genetic Resources of the CG system and now the representative of the global breeding industry, I have been confronted with the issue of plant genetic resources for the past forty years or so. I have attended several meetings of the Conference of the Parties to the Convention on Biological Diversity and almost all the meetings of the FAO Commission on Genetic Resources since 1992.

Until the end of the years 1990, farmers and breeders have traditionally relied on open access to genetic resources for research and breeding, including landraces selected by farmers and 'modern' commercialized varieties protected under the UPOV Convention. However, with the entry into force of the Convention the sovereign right of nations to control access to their biological diversity has received formal recognition and made access to genetic resources more complex.

Two main debates have taken place and are still going on.

Evolution of crop Diversity

There is a common assertion that genetic diversity within the most cultivated crops has decreased during the past century, due in particular to modern breeding. I disagree with that assertion that is rarely based on documented scientific studies.

In the past 10,000 years, since the origins of agriculture, farmers have selected landraces [1] from the genetic diversity available to them. They moulded genetic resources over centuries through phenotypic selection, allowing and even facilitating genetic exchange between cultivars and weedy relatives, and by transporting cultivars from one region of the globe to another. By incorporating and re-mixing genetic diversity in new varieties to develop varieties [2] with improved traits such as quality or yield to address the demand of an ever increasing need for productivity increase that paralleled population increase, modern plant breeding has created more variation in food crops than has ever been available to farmers and consumers.

The divergence of opinion on the impact of modern plant breeding on crop biodiversity is mainly due to the fact that the criteria used to measure agricultural crop diversity differ from one author to another. Many statements on the decrease of diversity within a crop are based on the number of varieties available to farmers. However, whether this criterion is relevant in terms of diversity is disputable. Defining terms and using them appropriately across disciplines is a challenge.

THE BILATERAL APPROACH MANDATED BY THE CONVENTION — "PRIOR INFORMED CONTENT" ON THE BASIS OF "MUTUALLY AGREED TERM" WITH "COUNTRIES OF ORIGIN" — IS NOT SUITED TO PLANT GENETIC RESOURCES USED FOR FOOD AND AGRICULTURE

Social scientists use number of varieties, the proportion of area planted to varieties and the rate at which farmers switch from one variety to another. Biological scientists tend to use genealogical indicators, analyses of morphological characteristics and indices of gene frequencies measured by biochemical molecular markers. Not only do these indicators measure different phenomena, the empirical relationship between them is also sometimes weak.

I have made a bibliographical study whose references are available on demand. Publications show that a temporary loss of diversity has sometimes been observed at the introduction of new crop types such as the 'double 0' oilseed rape or the short wheat or at the request of consumers for stringent quality standards (baking quality) for Canadian hard red spring wheat. However, in general, that loss has been followed by a recovery resulting from renewed breeding activity. A number of studies also show that in the last 100 years or so, there is no trend towards decreasing diversity in major crops such as wheat, barley, rice, maize, oilseed rape or peas.

Post 1990 ABS

Evaluation of Plant Genetic Resources used for Food and Agriculture (PGRFA) — When we speak of benefit-sharing one of the main difficulties is to evaluate in monetary terms the value of a PGRFA. Indeed, there is a general agreement on the potential value of 'exotic' genetic resources but we do not know how to evaluate their actual value. This value can be known only after long research work first to identify potentially useful traits and then to introduce them in technically and commercially adapted varieties. The advances in biotechnology, *viz.* a better knowledge of the plant genome may make that evaluation easier. In contrast they may render access to genetic resources less necessary by the development of new traits in a few model plants such as *Arabidopsis thaliana*.

Access and benefit-sharing regime — I consider, with the majority of the community of people working with plant genetic resources for food and agriculture, that the bilateral approach mandated by the Convention: "prior informed consent" (PIC) on the basis of "mutually agreed terms" (MAT) with countries of origin, if it may have value for certain industries, is not suited to plant genetic resources used for food and agriculture (PGRFA). All nations are strongly dependent on each other in terms of PGRFA. Each nation grows or imports food crops whose centres of diversity lie outside their national boundaries, and is thus inherently dependent on multiple and foreign sources of germplasm.

Therefore, I strongly support the Multilateral System (MLS) and the principle of the Standard Material Transfer Agreement (SMTA) established by the FAO International Treaty on PGRFA. The benefit-sharing mechanism embodied in the SMTA with in-kind benefit when the commercial product is available for further research and breeding, and monetary payment when it is not, is well adapted to plant breeding. The seed industry has some concerns regarding the implementation of the SMTA, in particular on the absence of a threshold for the level of incorporation of accessed material in the final product and the lack ●●●

Catering to the local context

TERENCE HAY-EDIE *profiles the release of a recent UNDP guidance note.*

During the early 1990s, critical attention rapidly developed on bioprospecting and the potential importance of traditional knowledge (TK) to the pharmaceutical industry in providing 'quick results' to identify useful compounds for drug development. Operating under this assumption, a number of large companies invested significant amounts of capital in exercises to research, document and synthesize knowledge held by rural natural resource users, including many indigenous peoples.

Scaling up

However, some fifteen onwards, it appears that many start-ups such as Shaman Pharmaceuticals working on traditional knowledge have scaled back their operations, and other mainstream pharmaceutical companies have abandoned their TK research budgets in favour of targeted bioprospecting towards so-called 'extremophiles'. The search for marginal organisms which inhabit harsh environments, such as deep sea ocean vents and volcanic mud, have thus been treated by the private sector as akin to a new 'gold-rush' for commercial exploitation. Bioprospecting by business collecting genetic resources in the 'high seas' outside of territorial waters has in turn provoked a growing debate amongst nation states regarding the sovereignty of the genetic resources, as well as the extent of CBD jurisdiction in terms of reciprocal obligations and benefit-sharing.

Over the same period, some journalists who perceived a waning interest in TK and participatory research by the private and academic research establishment further predicted an 'end of ethnobotany' owing to shifting investments patterns in bio-informatics and laboratory R&D. However, such predictions have been largely premature given the growing calls by many megadiverse countries in the CBD to regulate the continuing search by business for useful plant varieties and organisms, often used by local communities, in third party countries (in particular relating to the need to adapt agriculture and natural systems in response to climate change).

Good practice

In this regard, a recent UNDP practice note on *Traditional Knowledge, Access to Genetic Resources and Benefit-Sharing* provides practical guidance on issues of traditional knowledge protection, access to genetic resources, and benefit-sharing arrangements in UNDP programmes and projects [1]. Rather than prescribe a fixed approach to capacity-building and advocacy work in these areas, the note highlights a wide variety of legal and non-legal 'options', and the need to cater these to the local context. In particular, UNDP seeks to disseminate good practices concerning free prior and informed consent of local communities and indigenous peoples where genetic resources in their custody are accessed by external researchers and institutions. The note also introduces UNDP staff to considerations of customary rules and property claims, including intellectual property rights (IPRs) in UNDP and donor partner-supported projects.

RATHER THAN PRESCRIBE A FIXED APPROACH TO CAPACITY-BUILDING AND ADVOCACY WORK, THE NOTE HIGHLIGHTS A WIDE VARIETY OF LEGAL AND NON-LEGAL 'OPTIONS', AND THE NEED TO CATER THESE TO THE LOCAL CONTEXT

The note argues that research by companies on the use of medicinal plants for treating diseases can indeed result in significant improvements and innovations of long-term benefit to humanity. Legislative reforms as well as codes of conduct for researchers therefore play an important role in ensuring that communal and customary rights over traditional knowledge are respected in the research process. The note discusses a range of existing and potential arrangements for benefits to be shared among stakeholders in appropriate forms. It explores how benefits derived from UNDP-funded projects can be fruitfully linked to the long-term goals of sustainable development. In particular, it emphasizes the need for IPRs, potentially acquired through UNDP or donor partner funding, to be balanced with development priorities to ensure equity in the diffusion of innovations to other beneficiaries, especially for the marginalized and poor. As part of a broader 'conservation commons', the provision of IPRs should not stifle widespread information sharing, innovation and research towards the achievement of the MDGs.

[1] The practice note was the product of an inter-divisional taskforce working within UNDP in consultation with field staff, external experts, as well as representatives from civil society organizations and indigenous peoples. See the Publications section, page 39.

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of a termination clause. I remain confident, however, that in the coming months the Governing Body of the Treaty will provide clarification. Consequently I urge the Parties to the Convention to bring all plant genetic resources used for food and agriculture within the Multilateral System of the FAO International Treaty.

Should this prove impossible, I am of the view that the CBD should take a sectorial approach in implementing its Access and Benefit-sharing strategy. For the food and agriculture sector, the ABS regime should include the general principles of the FAO SMTA.

To monitor PIC and MAT, the CBD is currently debating a Certificate of Compliance when using genetic resources for specified scientific or commercial purposes. I am not in favour of such a certificate, as I am not convinced of its need, true value or implementation feasibility.

In view of the considerable difficulty in identifying 'country of origin' as defined by the CBD, I believe disclosure of 'source' of the genetic resource, *i.e.* where the material was obtained, would be possible when the source is known and disclosure is not in breach of a contract. Disclosure must not be a criterion for patentability.

[1] Landraces: name usually given to varieties that farmers are selecting mainly by mass selection.

[2] Varieties: name used in general for "modern" varieties developed by public and private professional plant breeders.

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An International Dialogue for Informing Access and Benefit-sharing

SARAH LAIRD, **SAM JOHNSTON**, and **RACHEL WYNBERG** *explain the rationale for launching an international dialogue on the commercial use of biodiversity.*

Over the last 15 years, a great deal of attention has focused on the ABS provisions of the Convention, but information about the bioprospecting activities these measures are intended to regulate has been anecdotal and only sporadically available. As a result, ABS measures have often been drafted with little grounding in the market, legal, scientific and technical realities of this complex, and rapidly changing, area of research and commercialization.

ABS hurdles

Recent trends in science and technology have affected demand for genetic resources from nature in both positive and negative ways. The limited success of combinatorial chemistry and synthetic compounds over the last decade, limitations to protein engineering, and a realization that natural solutions to the pressures of evolution have resulted in products that could not be engineered in the laboratory, have made genetic resources more attractive candidates for discovery. The ability to isolate DNA directly from samples, without resorting to culturing, also means that the vast genetic diversity in nature can be more easily used. Bioinformatics and sophisticated molecular biology tools also mean that for each sample collected, a great deal more information is accessible, and so only a few strains are needed to keep research programs busy in a given year.

At the same time, the policy environment regulating the use of genetic resources has changed. The 1992 Convention on Biological Diversity represents a paradigm shift in the way we think about natural resources. No longer the common heritage of mankind they are now part of the national estate, owned and controlled by those communities and nations that live with this diversity. However, implementing effective regimes that control the use of this diversity, or ABS regimes in the language of the CBD, has been challenging. For example, only 15 out of 190 Parties have appointed an ABS Competent National Authority as required by the CBD and only 76 have designated ABS National Focal Points. This lack of progress, combined with a belief that national regulations are ineffective and insufficient to control access and benefit-sharing, resulted in the World Summit on Sustainable Development calling on the CBD to "Negotiate … an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources".

An important reason for lack of progress in developing international and national ABS regimes is the limited participation in the policy process of industries that use genetic resources. This has been in part due to what some perceive as the frustrating nature of the policy-making discussions, particularly in the CBD process. In part, it has also been due to industry itself remaining unaware of the new policy environment, not realizing the importance of these debates for them, or having largely negative perceptions about the policies. However, this may be changing, COP-8, saw unprecedented numbers of business representatives and business related events.

Even though more and more companies understand that ABS is an essential part of business practice there remain major hurdles in developing effective rules. One such hurdle is the wide range and diversity of sectors that undertake research and develop commercial products from genetic resources. They include the pharmaceutical, biotechnology, seed, crop protection, horticulture, cosmetic and personal care, fragrance and flavour, botanicals, and food and beverage industries. Each sector is part of a unique market, undertakes research and development in distinct ways, and demands access to and uses genetic resources very differently. This diversity and complexity within and across sectors must be understood and incorporated into the ABS policy process, but this has occurred to only a limited extent to date.

Hurdles also exist with regard to the diverse understandings and expectations that stakeholders have of bioprospecting, access and benefit sharing. Some, for

The International Dialogue has been established to:

- Increase the effectiveness of international and national ABS measures by improving the information and understanding available to policy makers and other stakeholders on the practice of using biodiversity in research and commercial product development;
- Facilitate dialogue amongst stakeholders through the creation of a neutral platform for information exchange and discussion;
- Raise awareness and provide information on the ABS process, and new legal and ethical obligations, to companies and researchers; and
- Inform decision-making at the international and national levels through the development of guiding principles, policy briefs, best practices, *etc*.

Each sector is part of a unique market, undertakes research and development in distinct ways, and demands access to and uses genetic resources very differently. This diversity and complexity within and across sectors must be understood and incorporated into the ABS policy process, but this has occurred to only a limited extent to date

example, see bioprospecting as a potential tool to alleviate poverty and promote development, while others remain deeply suspicious of any activities associated with biodiversity research. There is also confusion as well as communication problems between different groups on the terminology used to describe particular research activities and/or biological material, and different views on the most effective mechanisms to regulate these activities. This is compounded by a lack of clarity about how new tools proposed in international negotiations may work in practice in different sectors.

A dialogue

It is with this background in mind that a group of individuals have come together to launch an International Dialogue on the Commercial Use of Biodiversity, launched under the auspices of the United Nations University (UNI). The short-term goal of the Dialogue is to contribute to the development of an ABS policy framework that is widely supported by diverse stakeholders, and based on commercial, scientific and technical realities. In this way, it will be more likely to succeed in achieving benefits for a wide range of stakeholders (governments, communities, companies, research institutions, *etc.*) and accomplish a broader range of objectives (improved scientific understanding, new commercial products, capacity-building, conservation of biodiversity, *etc.*) (see box, previous page). The long-term goal of the Dialogue is to be a trusted information resource and venue for respectful and open dialogue among diverse stakeholders.

The Dialogue is an international process involving individuals and institutions from government, business, non-governmental organizations, research institutions, international organizations, indigenous peoples and local community groups, and donors. The Dialogue will be based on other successful information sharing and consensus-building processes such as the Keystone Dialogue on Plant Genetic Resources and the Crucible Group.

The process will be spearheaded by a Steering Committee, which will provide initial and on-going advice on the design and focus of the process including key substantive issues to address, potential participants, and strategic opportunities for assisting in the development of effective ABS policy. The Steering Committee will include representatives from all relevant stakeholder groups. The Dialogue will include two main activities:

• *Sectoral dialogues* — Three parallel dialogues will take place that represent a range of sectors, namely (1) Pharmaceutical and biotechnology; (2) Seed, crop protection, and horticulture; and (3) Cosmetic and personal care, fragrance and flavour, botanicals, and food and beverage. They will seek to share information on demand for access to genetic resources; provide updates on the changing nature of use, and scientific, technological, legal and market developments; review how this impacts ABS policy; and allow a forum for reactions to proposed policy interventions, and constructive refinements and suggested alternatives to specific proposals.

• *Multi-stakeholder forum* — A larger multi-stakeholder group will provide a forum for discussing cross cutting issues that emerge in each of the three sectoral dialogues, while opening the process to a wider range and number of individuals. This multi-stakeholder group will also provide a venue for developing consensus agreements about best practices, guiding principles, policy briefs, 'findings', *etc.* that can help inform decision-making about ABS policies at the international and national levels. The larger meetings will also provide an opportunity to inform and engage a wider audience in the issues addressed in the smaller, sectoral meetings.

The dialogue will be launched in 2008 under the auspices of UNU, in conjunction with other partners. The first step is a Scoping Meeting to identify a Steering Committee and to agree on a process for the next two years. Key issues will be addressed in a day long event before the COP in May. We welcome all input and ideas for the Dialogue — please write to this article's authors at the email addresses below.

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In focus (cont'd)

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of sharing, in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources" [6]; to provide "access to and transfer of technology which makes use of genetic resources" [7]. Measures are also to be taken "to provide for the effective participation in biotechnological research activities by those Contracting Parties, especially developing countries, which provide the genetic resources for such research" [8]. Finally, all practicable measures shall be taken by Parties "to promote and advance priority access on a fair and equitable basis by Contracting Parties, especially developing countries, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties" [9].

In order to make these principles operational, Governments are to take measures to regulate on the one hand access to their genetic resources and the sharing of benefits arising from the utilization of these resources and, on the other hand, the use of genetic resources acquired by users under their jurisdiction in foreign countries, to ensure that these users comply with the access and benefit-sharing requirements imposed by providers, in accordance with the provisions of the Convention.

Bonn Guidelines on access to genetic resources and fair and equitable sharing of the benefits arising out of their utilization

In order to assist Parties and stakeholders with the implementation of the Convention, the *Bonn Guidelines* were adopted by the Conference of the Parties in April 2002. These voluntary guidelines were developed to assist Governments and stakeholders in developing an overall access and benefit-sharing strategy, and in identifying the steps involved in the process of obtaining access to genetic resources and benefit-sharing. More specifically, the guidelines are meant to assist Governments and stakeholders when developing legislative, administrative or policy measures on access and benefit-sharing and/or when negotiating contractual arrangements for access and benefit-sharing.

The international regime on access and benefit-sharing

A few months following the adoption of the guidelines, at the World Summit on Sustainable Development, Governments called for action to "negotiate within the framework of the Convention on Biological Diversity, bearing in mind the *Bonn Guidelines*, an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources" [10].

An intergovernmental body [11], the Ad Hoc Open-ended Working Group on Access and Benefit-sharing, was given the mandate to negotiate and elaborate the international regime at the seventh meeting of the Conference of the Parties in February 2004. In carrying out its task, the Working Group is to consider the nature, scope and elements of such an international regime.

During the first two meetings of the Working Group as the negotiating body, discussions focused on the nature, scope and potential objectives of the international regime. Little discussion was carried out on the possible elements of the international regime.

At the eighth meeting of the Conference of the Parties, in 2006, the designation of co-chairs to lead the negotiation process and the establishment of 2010 as the deadline for the completion of the negotiations has given a new impetus to the negotiating process.

As decided by COP-8, two meetings of the Working Group will be held prior to COP -9 [12]. It will continue its consideration of the possible elements of the international regime and further consider the nature, scope and objectives of the regime.

The co-chairs have invited Parties to focus on concrete options for an international regime. Although no agreement was reached on such options at the 5th meeting of the Working Group, on the basis of the discussions, the co-chairs identified potential areas of convergence, options, possible tools and concepts for clarification. The outcomes of these meetings will be considered by COP-9, in 2008

The negotiations of the international regime are at this point in time very polarized. At one end of the spectrum some countries advocate the need for a legally binding agreement to apply the principles of the Convention on access and benefit-sharing and prevent the misappropriation of genetic resources. At the other end of the spectrum, other countries argue that access and benefit-sharing provisions of the Convention are to be implemented at the national level and, therefore, priority should be given to the development of instruments to assist Parties and stakeholders in this task. At this stage of the process, the structure and content of the international regime remain unclear.

The challenge ahead is to reconcile these views by reaching consensus on the development of an international regime to the benefit of all stakeholders involved in access and benefit-sharing by providing a clear, simple, transparent framework for access and benefit-sharing, which provides legal certainty for both providers and users of genetic resources.

[1] Article 1 of the Convention.

[2] Article 3 and article 15 of the Convention.

[3] Article 15 paragraph 2.

[4] Article 15 paragraph 5.

[5] Article 15 paragraph 4.

[6] Article 15 paragraph 7.

[7] Article 16 paragraph 3.

[8] Article 19 paragraph 1.

[9] Article 19 paragraph 2.

[10] Paragraph 44(o) of the Plan of Implementation of the World Summit on Sustainable Development.

[11] The Ad Hoc Working Group on Access and Benefit-sharing was given the mandate to elaborate and negotiate the international regime in decision VII/19D of the Conference of the Parties.

[12] The first of these two meetings was held in Montreal, from 8 to 12 October 2007 and focused on the possible elements of the international regime. The second of these meetings is to be held in Geneva, Switzerland, from 21 to 25 January 2008.

Spolight on COP-9 preparations

This page provides information on business related events planned at COP-9. An updated version will be provided in the February issue of the newsletter and again in the April edition. The latter edition, in particular, will provide a provisional list of business-related side events which will be finalised for the COP.

The Secretariat invites interested organizations to inform the Focal point for business (Nicolas Bertrand, nicolas.bertrand@cbd.int), of planned activities so as to provide the best coverage in the newsletter.

Aside from the formal agenda on business engagement (section 1 below), many informal business related activities are scheduled for COP-9, including through side events (section 2), an exhibition fair (section 3) and activities organized as part of the German Business and Biodiversity Initiative (section 4).

1. FORMAL AGENDA

In decision VII1/17, the Conference of the Parties stressed the importance of engaging the business community in the implementation of the Convention, in particular, with regard to the engagement of business in the development and implementation of national biodiversity strategies and action plans; the participation of business in Convention meetings, including as part of national delegations; the alignment of business policies and practices with the objectives of the Convention and the 2010 target; and the prioritization of Article 6(b) of the Convention. The Executive Secretary was requested to compile information on the business case for biodiversity and good biodiversity practice, and to make this information available through the clearing-house mechanism; and to include business as a target audience for its outreach materials and in the Global Initiative on Communication, Education and Public Awareness (CEPA).

In paragraph 8 of the same decision, the Conference of the Parties decided to consider, at its ninth meeting, further ways and means to promote business engagement in the implementation of the Convention, with a particular emphasis on the Convention's role in facilitating such engagement.

The Conference of the Parties will be invited to consider a note by the Executive Secretary on this issue (UNEP/CBD/COP/9/21/Add.1), which will provide an overview of actions taken by the Secretariat, Parties and organizations, as well as recommendations on future action.

COP-9 documents will be posted online, at: www.cbd.int/doc/meeting.aspx?mtg=COP-09

2. SIDE EVENTS

Throughout the COP, companies and industry associations can organize side events, after the formal morning and afternoon sessions. Organizations are invited to register requests for side events on the CBD website *(https://www.cbd.int/register/side-events/manage.aspx?mtg=COP-09)*. The deadline for the receipt of requests is **30 April 2008** but organizations are encouraged to register as soon as possible.

Information is also available in the Information Note for Participants (http://www.cbd.int/cop-9/info-participants.shtml).

An overview of business related side events will be included in the April edition of this newsletter. Please contact Nicolas Bertrand for additional information.

3. EXHIBITION FAIR

A 'Plaza of diversity' will be open from 12 to 30 May 2008, providing space to participating organizations, including business, to showcase biodiversity initiatives. The Plaza of biodiversity will include an exhibition fair, workshops, and many other activities relevant to the implementation of the Convention. The 'Plaza' will be organized into a 'Campus' (throughout the COP/MOP-4 and COP-9 meetings, *i.e.* 12-30 May) and an 'Expo' organized during the High Level Segment of COP-9 (27-30 May). The organizers are expecting business representatives to participate mainly at the Expo.

Please note that there will be no booths inside the conference venue (Hotel Maritim) itself.

The Plaza is organized by the Deutsche Bundesstiftung Umwelt (DBU). For additional information, please contact Carla Tusche (c.tusche@dbu.de / Fax: +49 (0) 541 96 33 990), www.plaza-of-diversity.org

4. GERMAN BUSINESS AND BIODIVERSITY INITIATIVE

In order to mobilize the business community on biodiversity, the German government launched a Business and Biodiversity Initiative, coordinated by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. The Initiative has, in particular, developed a 'Leadership Declaration' *(see Business.2010, October 2007 issue, available for download at www.cbd.int/business/newsletter.shtml)*. Partner companies of the Initiative will benefit from a dedicated area at the 'Expo of Diversity' (see section 3 above).

Ahead of the COP, a conference will be organized, with the participation of the Secretariat, in early April 2008 (see box below). At the COP-9, a number of initiatives are planned, including during the High Level Segment. An update will be provided in the February issue.

For more information on the German Business and Biodiversity Initiative, contact: Edgar Endrukaitis (Edgar.Endrukaitis@gtz.de / Tel +49-30-72614-497) or Silja Dressel (silja.dressel@gtz.de / Tel: +49-30-72614-496).

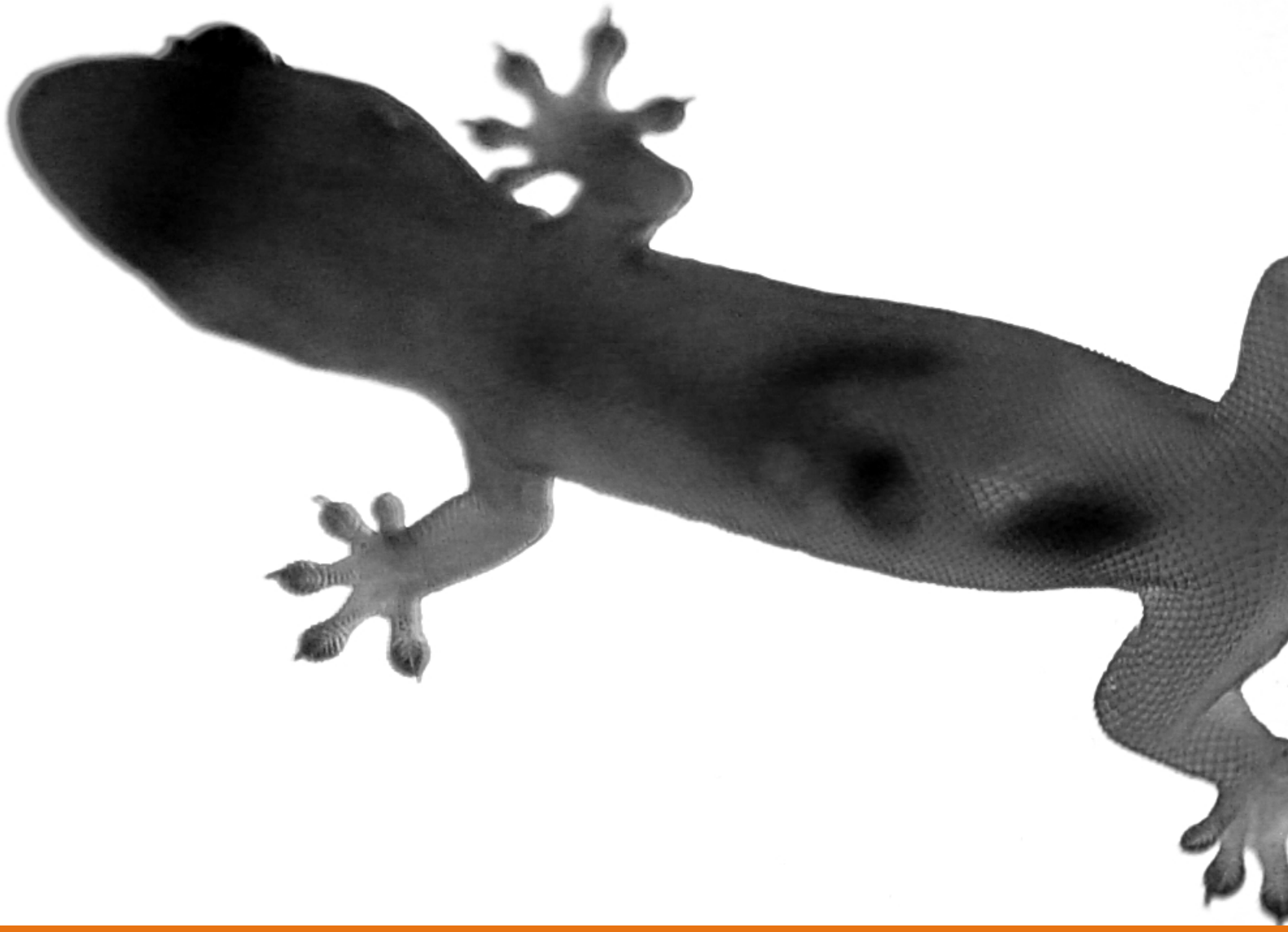
INTERNATIONAL CONFERENCE ON BUSINESS AND BIODIVERSITY BONN, GERMANY (2- 3 APRIL 2008)

In the run up to COP-9, GTZ - Deutsche Gesellschaft für Technische Zusammenarbeit and the foundation Global Nature Fund (GNF) are organizing an international conference on business and biodiversity. This will take place on 2-3 April in Bonn, Germany.

The conference will provide a forum for discussing the challenges and opportunities for biodiversity conservation and sustainable use by companies. The conference targets mainly specialists in environmental management and CSR in companies.

The conference will focus on the knowledge transfer of best practices and methodologies for integrating biodiversity into management systems. In this context, best practice examples of leading companies will be presented. Practical information will be complemented by panels and discussions, with various stakeholders, on relevant business and biodiversity topics, including biodiversity and climate change, biofuels and access and benefit-sharing.

For further Information please contact: *Silja.Dressel@gtz.de*



Learning from nature

JANINE BENYUS *and* **GUNTER PAULI** *argue that the time has come to look at nature as an inspiration for innovation* [1].

The market economy thrives on innovation. Investments in science and technology permit us to identify new ways and means of responding to consumer needs. In modern times, humanity has engaged in production and consumption systems that are not only polluting but are also beyond the carrying capacity of the ecosystems. As a result we are encroaching on the very life supporting environments on which we depend. The loss of biodiversity is well documented, and the news has not gotten better lately, on the contrary it has gotten worse.

Another way

However, there is another way of looking at the same reality. The biodiversity that is surviving in nature now has the answers for

Photo courtesy of Watij/www.flickr.com

how humans can make less of an impact on Earth. Whatever did not succeed in nature has turned into a fossil. What surrounds us now is the secret to thriving here on Earth. As nature incorporates the genius to meet the basic needs of all species (except one, *Homo sapiens*) with what is locally available. The ingenious combination of physics, chemistry and biology by species belonging to five different kingdoms (animals, plants, fungi, protista, and monera) permits the production of everything at ambient temperature and pressure. However industry has not learned nature's clever methods and therefore uses the energy guzzling methods of the 'heat, beat and treat' solution.

Time has come to consider how the gecko sticks without using glue. They certainly know how to do it without the need to apply formaldehyde that releases toxic gasses for months and even years. The gecko knows how to apply the van der Waal forces better than anyone. How come birds generate colours without colour pigments? How can they do it without the need for any heavy metals, which contaminate our water and soil for years and even decades? The abalone knows how to produce ceramics in cold water with proteins and calcium carbonate, and certainly without the need for high heat used in human ceramic production process. The list goes on. At present there are more than 2,100 technologies described [2].

Industry should realize what natural systems figured out long ago: doing less bad is still bad. Killing less is still killing. Stealing less is still stealing. By the same logic, polluting less is still polluting. There is a need for a shift in the business model that allows business to engage in a broad scheme of innovation whereby clusters of technologies proven in and by nature can be integrated into a new way of competition. This allows industry to avoid the trap we have been in all too often: the solution to one problem creates another problem.

Perhaps the most relevant area to apply this would be in the building industry. It has been documented that countries are not meeting their Kyoto target mainly due to a continuous increase in energy demand for offices and homes. There are some 100 different technologies proven by nature that could slash energy consumption by 80% over the best green building standards from termite and zebra inspired cooling and ventilation systems to nautilus-like air pumps. Better even, buildings could easily become autonomous in water and energy, as the self-sufficient hospital in Las Gaviotas, Colombia has already proven two decades ago.

Time has come not to simply learn about nature, but to actually learn from nature. Quickly we will realize that the path to sustainability has simply only just begun.

[1] This article is based on Gunter Pauli's presentation at the opening session of High level Conference on Business & Biodiversity, held in Lisbon, Portugal, on 11-12 November 2007 (www.countdown2010.org/business).

[2] A selection of these technologies will be profiled in the upcoming book by Janine Benyus and Gunter Pauli, Nature's 100 Best™, to be published in October 2008 on the occasion of the IUCN 4th World Conservation Congress.

Janine Benyus is Co-founder, the Biomimicry Guild and Gunter Pauli is founder and director, of the ZERI Foundation (Zero Emissions Research and Initiatives).

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Message from Lisbon on business and biodiversity

On 12-13 November, the Portuguese Presidency of the EU Council organized a High level Conference on Business and Biodiversity in Lisbon. We publish here in full the Message that was adopted by participants [1].

* * *

We the Ministers and representatives from governments, business and civil society participating in the High level Conference on Business and Biodiversity organized by the Portuguese Presidency of the EU Council, held in Lisbon, Portugal from 12 to 13 November 2007:

Convinced that as part of the common efforts to implement the objectives of the Convention on Biological Diversity and in particular CBD Decision VIII/17 on private sector engagement, there is a strong business case for biodiversity, including the competitive advantage gained from conserving biodiversity and using biological resources in a sustainable way and recognizing that competitive markets also have an enormous potential to mobilize private resources and stimulate innovation.

Recognize the significant progress that has been made in recent years by a number of business sectors and leading companies and support the scaling up of such efforts across other business sectors in Europe and abroad.

Acknowledge the primary need to promote an even greater awareness of the importance of biodiversity throughout the business sector as well as among consumers, to make knowledge, information and relevant expertise available to business and to assist companies in shaping their commitments to biodiversity.

Recognize that there is an urgent need to promote biodiversity conservation in micro, small and medium sized enterprises, and in particular those with a strong link to biodiversity conservation as well as those based in the rural economy and to provide them with the information, relevant expertise and tools which are adapted to the operating conditions of these enterprises and recognizing also the valuable role that business associations can play in this process as well as the potential value of clusters of interest groups working within the context of specific, physical landscapes.
Encourage the incorporation of biodiversity considerations into existing responsibility schemes and the implementation of such schemes in combination with other approaches (e.g. market mechanisms, regulatory frameworks). Improvements in the understanding of biodiversity and ecosystem services through research and practical experience should support the evolution of business contribution to biodiversity so as to engage businesses in a process of continuous improvement.

Welcome the progress made in biodiversity performance assessment and reporting by several leading business which complement the regulatory assessment schemes such as those established within the EU under the Habitats Directive, the Environmental Impact Assessment and the Strategic Environmental Assessment Directives.

Encourage establishing and strengthening public/private partnerships between and among local, regional and national governments, NGOs, business and academia to fight biodiversity loss as well as the development of mechanisms by which these stakeholders and other relevant groups can identify each other with a view to developing practical, operational partnerships.

Recommend the development and testing of market-based approaches for biodiversity, learning from the approaches and models which have been implemented in connection with climate change related instruments.

Recognize the need to promote the principle of a level playing field at a global level in order to provide the correct incentives and signals to those companies that are taking active steps to conserve biodiversity and practice sustainable use and recognizing also that the EU could play a significant role in this context.

Welcome within the context of the EU's objective of halting biodiversity loss by 2010, the launching by the Portuguese Presidency of the EU Business and Biodiversity Initiative and the commitment from the EU Commission to establish a technical facility to support this initiative.

Welcome and congratulate the government of Portugal for identifying business and biodiversity as a priority during the Portuguese Presidency of the EU and, in particular, for providing a new approach by engaging the business sector in the biodiversity agenda through a high-level multi-stakeholder conference on the subject.

The Business Roundtable: "Business perspectives on biodiversity challenges. What should the EU do?" — with the participation (from left to right) of Richard Sykes, Executive Secretary, International Petroleum Industry Environmental Conservation Association (IPIECA); Jacques du Puy, Executive Committee Member of Bayer CropScience, Head of Europe, Middle-East & Africa; José Honório, CEO, Portucel Soprocel; Bernard Küng, Area Manager, Holcim; Guy Corcelle, DG Enterprise, European Commission (Chair); Kirsi Sormunen, Vice President and Head of Environmental Affairs, Nokia Corporation; Jean-Claude Steffens, Senior Executive Vice President, SUEZ S.A; Simon Brooks, Vice President, European Investment Bank; António Mexia, CEO, EDP - Energias de Portugal (EDP).

Welcome also the German efforts to advance business and biodiversity agenda in preparation of CBD COP-9 and the actions taken by Slovenia in its capacity as the next EU Presidency in continuing to support this agenda.

Invite the Portuguese EU Presidency to transmit the Message from Lisbon on Business and Biodiversity to the EU Summit in December 2007 and to the ninth meeting of the Conference of the Parties to the Convention of Biological Diversity to be held in Bonn in May 2008, including its High-level Segment and the World Conservation Congress in Barcelona in October 2008.

Express our gratitude to the government of Portugal for hosting this conference with the support of the European Commission and IUCN's Countdown 2010 initiative.

[1] The conference was organized around four workshops: (1) Biodiversity-related responsibility schemes; (2) Business-related biodiversity assessments; (3) Markets for biodiversity goods & services; and (4) Business & biodiversity partnerships. The Secretariat was part of the Conference Organizing Committee, along with Institute for Nature Conservation and Biodiversity (ICNB); the World Business Council for Sustainable Development; DG Environment, European Commission; and the Countdown 2010 Secretariat. CBD Executive Secretary Ahmed Djoghlaf delivered a closing speech (www.cbd.int/doc/speech/2007/sp-2007-11-13-lisbon-en.pdf).

The conference took place at the Calouste Gulbenkian Foundation.
www.gulbenkian.org

All the conference material is posted online.
www.countdown2010.org/business

Photo courtesy of IUCN/Wiebke Herding

News in brief

AGRIBUSINESS

In November 2007, the Rountable on Sustainable Palm Oil (RSPO), at its 5th meeting (RT5) launched the RSPO Certification System for Sustainable Palm Oil.

www.rspo.org/RSPO_Certification_Scheme_for_Sustainable_Palm_Oil_Launched_at_RT5.aspx

BIODIVERSITY DATA

On 5 November, IUCN Canada Office organized a workshop aimed at obtaining input from biodiversity data and information users about their information needs, including the types and scope of information, how it is accessed and how it is used for decisions. This is in support of an initiative to track Canadian progress towards the 2010 target to reduce the rate of biodiversity loss The workshop was a follow-up to a questionnaire to elicit information from Canadian organisations about ways information on their conservation activities can be accessed and displayed.

Contact John Herity for more information (john.herity@iucn.org).

BUSINESS AND BIODIVERSITY (GENERAL)

Approximately 400 business leaders, biodiversity experts, NGOs and policy makers, gathered in Lisbon to explore how European business can improve performance through biodiversity responsibility. The High level Conference on Business and Biodiversity, organized as part of Portugal's presidency of the EU, launched the European Initiative on Business and Biodiversity (see conference message, opposite page).

Conference material is available online, at www.countdown2010.net/business.

* * *

On 7 December 2007, the Secretariat and the Government of the Netherlands signed a four-year framework of cooperation with the aim of assisting developing countries in their efforts to reduce poverty through the conservation and sustainable use of biodiversity, Promoting a programmatic approach in support of activities aimed at enhancing implementation of the three objectives of the Convention, the Letter of Intent covers the period from 1 October 2007 to 30 September 2011 and supports the implementation of relevant decisions adopted by the last Conference of the Parties held in Curitiba, Brazil in March 2006. The Letter of Intent has four main areas of cooperation: (1) engagement of business, (2) ecoregional approach, (3) Communication, Education and Public Awareness (CEPA), and (4) scenario development.

www.cbd.int/doc/press/2007/pr-2007-12-07-hague-en.pdf

ABS resources

General information on the ABS Programme of Work
www.cbd.int/abs

Bonn Guidelines
www.cbd.int/abs/bonn.shtml

Database on ABS Measures
www.cbd.int/programmes/socio-eco/benefit/measures.asp

Index of articles, 2006/2007

We provide here a comprehensive list of articles published in Business.2010 over 2006-2007. Issues have focused on COP-8 (B-1-1); tourism (B-2-1); climate change (B-2-2), technology transfer (B-2-3); and the financial services sector (B-2-4). All issues are available for download at www.cbd.int/business/newsletter.shtml.

* * *

Publications

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

AGRIBUSINESS

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ACCESS AND BENEFIT-SHARING

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S. and N. Louafi, 2006. "Role of the Research Sector in ABS Governance". Paper presented at the Institutions for providing global environmental goods workshop, Louvain-la-Neuve, Belgium.

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S. Louafi and S. and B. Tobin, 2005. "User measures to resolve potential conflicts between the WTO and the CBD" in M. Chouchena-Rojas *et al.*, November 2005. ***Disclosure Requirements: Ensuring mutual supportiveness between the WTO TRIPS Agreement and the CBD.*** IUCN, Gland, Switzerland and Cambridge, UK and ICTSD, Geneva, Switzerland.

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BIODIVERSITY OFFSETS

Minerals Council of Australia, January 2007. Position paper on environmental offseting, *www.forest-trends.org/biodiversityoffsetprogram/library/australia/Minerals%20Council%20of%20Australia%20Posn%20Paper%20Envtal%20Offsetting%20Jan%202007.pdf*

WWF-Netherlands and CREM BV, February 2007. Identification of innovative financial instruments for preserving biodiversity: What opportunities are there to involve companies that have an indirect impact on biodiversity? *www.forest-trends.org/biodiversityoffsetprogram/library/BBop%20library/Identification_Innovative_WWFNL_CREM.doc*

BIOFUELS

B. Childs and R. Bradley, December 2007. Plants at the Pump: Biofuels, Climate Change, and Sustainability. World Resources Institute (WRI) and Goldman Sachs Center for Environmental Markets, *http://pdf.wri.org/plants_at_the_pump.pdf*

Science and Development Network (SciDevNet), December 2007. Spolight on Biofuels: The research challenge. *www.scidev.net/dossiers/index.cfm?fuseaction=specifictopics&dossier=4&topic=199&CFID=1545601&CFTOKEN=98346760*

L. Marshall, April 2007. Thirst for Corn: What 2007 Plantings Could Mean for the Environment. World Resources Institute (WRI), *http://pdf.wri.org/policynote_thirstforcorn.pdf*

UN-Energy, May 2007. Sustainable Bioenergy: A Framework for Decision Makers, *ftp://ftp.fao.org/docrep/fao/010/a1094e/a1094e00.pdf*

BUSINESS AND BIODIVERSITY (GENERAL)

Matt Cowley and Ben Vivian, November 2007. The business of biodiversity: a guide to its management in organisations. Sponsored by the UK Department for Environment, Food and Rural Affairs (DEFRA) and Aggregate Industries UK, published by the Institute of Environmental Management and Assessment (IEMA), *www.defra.gov.uk/wildlife-countryside/pdfs/biodiversity/bbpg2007.pdf*

Gondwana, October 2007. Entreprises et Biodiversité. La première étude française sur les liens existant entre l'entreprise et le monde du vivant, *www.gondwana-agency.com/pdf/pdf1.pdf*

S. Waage and E. Stewart, December 2007, The New Markets for Environmental Services: A Corporate Manager's Guide to Trading in Air, Climate, Water and Biodiversity Assets. Business for Social Responsibility (BSR), *www.bsr.org/reports/BSR_environmental-services.pdf*

CLIMATE CHANGE

BankTrack, December, December 2007. A Challenging Climate. What international banks should do to combat climate change. *www.banktrack.org/doc/File/banks,%20climate%20and%20energy/banktrack%20on%20climate%20and%20energy/0_071212%20A%20challenging%20climate%20final.pdf*

E. Mills, October 2007. From Risk to Opportunity: 2007. Insurer Responses to Climate Change. CERES, *www.ceres.org/NETCOMMUNITY/page.redir?target=http%3a%2f%2f216.235.201.250%2fNETCOMMUNITY%2fDocument.Doc%3fid%3d225&srcid=592&erid=0*

UNEP Finance Initiative (UNEP FI), December 2007. Carbon Crunch: Meeting the Cost. CEO Briefing, *www.unepfi.org/fileadmin/documents/CEObriefing_carbon_crunch.pdf*

FINANCIAL SERVICES

The Asset Management Working Group of the United Nations Environment Programme Finance Initiative and Mercer, October 2007. Demystifying Responsible Investment Performance A review of key academic and broker research on ESG factors, *www.unepfi.org/fileadmin/documents/Demystifying_Responsible_Investment_Performance_01.pdf*

BankTrack, December 2007. The Silence of the Banks. An Assessment of Equator Principles Reporting. *www.banktrack.org/doc/File/equator%20principles/banktrack%20on%20equator%20principles/0_071203%20silence%20of%20the%20banks.pdf*

GENERAL

SustainAbility, 2007. Raising Our Game: Can We Sustain Globalization? *www.sustainability.com/downloads_public/insight_reports/Raising_Our_Game.pdf*

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the calendar

Upcoming events

25-29 February 2008, Panama City, Panama. Climate change and biodiversity in the Americas, *www.climatechangeandbiodiversity.ca* ●● 25-29 February, Galway, Ireland. COHAB 2 — Second International Conference on Health & Biodiversity, *www.cohabnet.org/cohab2008/* ●● **3-6 March**, Rome, Italy. IATA World Cargo Symposium 2008, *www.iata.org/events/wcs08* ●● 27-28 March, London, UK. Biodiversity, Mainstreaming Biodiversity & Ecosystem Finance — Clarifying the Issues for Corporates and the Finance Sector, *www.greenpowerconferences.com* ●● **2- 3 April**, Bonn, Germany. International conference on business and biodiversity. For further Information, contact: *Silja.Dressel@gtz.de* ●● **7-9 May**, Amsterdam, The Netherlands, GRI Amsterdam Global Conference on Sustainability and Transparency, *www.globalreporting.org/NewsEventsPress/Conference2008/* ●● **5-14 October**, Barcelona, Spain. 4th IUCN World Conservation Congress, *www.iucn.org/congress*.

CBD MEETINGS

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.cbd.int/meetings.

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COP-9 special — Deadline 1 March 2008

The Secretariat is preparing an issue of *Business.2010* for COP-9 containing a tentative guide to business related events (to be published in April). This information will subsequently be updated for the COP.
Organizations are invited to forward information on planned side events, workshops, book launches, and other activities before 1 March 2008. This issue of the newsletter will also focus on biodiversity offsets. For additional information, contact:

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nicolas.bertrand@cbd.int / +1 514 287 8723

Acronyms used in this issue

ABS	Access and Benefit-sharing
CBD	Convention on Biological Diversity
COP	Conference of the Parties
GR	Genetic Resources
IR	International Regime
IPR	Intellectual Property Rights
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MDG	Millennium Development Goals
MAT	Mutually Agreed Terms
MLS	Multilateral System (of ITPGRFA)
MTA	Material Transfer Agreement
PIC	Prior Informed Consent
TK	Traditional Knowledge
UPOV	International Union for the Protection of New Varieties of Plants
WG-ABS	Ad Hoc Open-ended Working Group on Access and Benefit-sharing
WIPO	World Intellectual Property Organization

In the next issue

The next issue of *Business.2010* will focus on agribusiness and will be published on 18 February, on the occasion of the thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-13).

www.cbd.int/doc/meeting.aspx?mtg=SBSTTA-13

Updates will be provided, in particular, on business related events at COP-9, and various business and biodiversity meetings the Secretariat is involved with in the run-up to the COP.

← Front cover, *Hoodia gordonii*. Photo courtesy of Succulentisima/*www.flickr.com*. For more information on the Hoodia case study, see, *for instance*, the Dutch-German ABS Capacity-Building Initiative for Africa (*www.abs-africa.info*).

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Archive
www.cbd.int/business/newsletter.shtml

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

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