A panel discussion:
Biodiversity Research, Taxonomy, and Sharing Benefits

Summary of a side event at the thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice to the Convention on Biological Diversity
20.02.08, Rome

Organisers: The Global Taxonomy Initiative Coordination Mechanism, Consortium for the Barcode of Life, BioNET Secretariat, German National Focal Point for the Global Taxonomy Initiative, Global Biodiversity Information Facility, Secretariat of the Convention on Biological Diversity

Chair: Christoph Haeuser (Germany and Chair, GTI Coordination Mechanism)

Panellists were invited to have a free exchange of thoughts and offer tangible examples, ideas and visions of the real and potential benefits, especially for biodiversity-rich countries, of basic, non-commercial biodiversity research, specifically in the field of taxonomy. The aim was to illustrate some of the relationships between the Global Taxonomy Initiative and Access and Benefit Sharing, while generating new thoughts and approaches for generating and sharing concrete benefits from basic biodiversity research, beyond the ongoing negotiations for a possible regulatory ABS framework.

Taxonomic research has since its origin been an international effort, the sole driving force of which should be publication, with free access. Materials collected along with associated information and knowledge has as a rule been available across boundaries. Yet the capacity to contribute to and benefit from taxonomic knowledge is principally found in the industrialised economies. The Programme of Work for the Global Taxonomy Initiative, with its central focus of capacity building, provides a framework for ensuring that research benefits all countries.

David Schindel (Consortium for the Barcode of Life)

DNA Barcoding is an emerging global standard for identifying specimens. The Consortium for the Barcode of Life (CBOL) is promoting the development of a global reference library of standard gene sequence to use to identify species. DNA barcodes are an applied tool for identifying regulated species such as disease vectors and protected species. Barcodes are also a research tool, for example when identifying organisms at different life-stages or flagging potential new species. For the DNA barcoding to work, it is essential that DNA barcode data is freely available online and tied to specimens held in safe reference collections.

Developing countries face a number of challenges in describing the species of their often understudied habitats. The low number of specialists and lack of taxonomic infrastructure such as collections are common limitations to taxonomic work. Restriction on the transfer of specimens to other countries for sequencing is a particular constraint to DNA barcoding. CBOL proposes an international workshop on non-commercial biodiversity research to examine issues such as ownership of voucher specimens and restrictions on subsequent use of DNA.

Hesiquio Benitez Diaz (CONABIO, México)

Mexico provides examples of how taxonomic work directly supports benefit sharing in country. We use taxonomic data from biological collections to produce maps of the potential distribution of highly valued plant species. Working with local communities, we then develop systems that provide legal protection for the target species while allowing their

harvesting that is controlled and sustainable. The taxonomic data in collections thereby contributes directly to sustainable community income generating activities and the conservation of genetic diversity. Maps and videos are used to communicate with communities and support training that enhances production quality. This methodology has been used for agave species (including mescal), varieties of maize, Pita de la Selva (an expensive fibre used for belts and harness for horses etc.) and 42 species of aromatic plants in the *Bursera* genus.

Sylvia Martinez (Swiss Biodiversity Forum, Swiss Academy of Sciences)

A survey of Swiss academic researchers found that taxonomic work was a component of 50% of all projects that involved access and benefit sharing. For example, an inventory of a tropical flora involved a survey, international dissemination of specimens for identification, use of survey data to design protected areas and depositing of specimens to build up in country collections.

The Swiss Academy of Sciences has published a manual Access and benefit sharing: good practice for academic research on genetic resources1 with the goal of promoting mutual trust and win-win situations through knowledge transfer and capacity building. Numerous benefits that can be shared in academic research are identified, including access to information, training, co-authorship, research infrastructure and ongoing professional relationships. In addition, the Swiss Commission for Research Partnership with Developing Countries (KFPE) published Guidelines for Research in Partnership with Developing Countries2 in 1998. Science can have a key role in overcoming N-S divides through building trust, increase research capacities and transferring technologies. The Swiss Academy of Sciences is actively contributing to the negotiation of an ABS regime under the CBD by: 1. advocating the needs of basic research; 2. building a network of national institutions engaged in basic research and 3. promoting a common position supportive of research.

Alfred Oteng-Yeboah (Ghana)

It is important that benefit sharing is done effectively, to the satisfaction of both parties. If equitable, both parties are content. If inequitable, it leads to conflict. What is the role of taxonomists in benefit sharing, particularly in the developing world? Taxonomists provide scientific names for living entities. Names allow us all to communicate and refer to life forms around us. Taxonomists collect materials, curate specimens, catalogue, characterise, classify and build understanding of species distributions. Their work is integral to species discovery, conservation and the sustainable use of, for example, medicinal plants. Taxonomists are scientists and hence make all the information they produce freely available to "consumers" in science, education, producers and entrepreneurs. Taxonomy, therefore, makes important contributions to human well-being.

Beatriz Torres (Global Biodiversity Information Facility, GBIF)

GBIF helps countries access, share and benefit from biodiversity data. Taxonomic work generates "primary" biodiversity data that can readily be shared online using tools and standards promoted and developed by the Global Biodiversity Information Facility and its members. About 40% of the 140 million records currently served via GBIF relate to specimens in over 1,600 biological collections. Sharing the results of taxonomic work in this way is a highly effective means of addressing the great imbalance in the distribution of biodiversity and information on it. When a country makes biodiversity data in its institutions available

[1] Available in English and soon in French and Spanish: http://abs.scnat.ch
[2] http://www.kfpe.ch

through GBIF, the biodiversity records of many other countries are often included. The UK, for example, currently "repatriates" through GBIF about 1.7 million records to over 200 countries and territories. Sharing data opens up new possibilities for cooperation.

Kate Brown-Vitolio (BioNET-PACINET, Secretariat of the Pacific Regional Environment Programme, Samoa)

Biodiversity is highly important to the Pacific Islands. The western Pacific has areas of high biodiversity. But even in less rich areas, people have a very close relationship to biodiversity. However, the region has very little scientific expertise in taxonomy. Virtually all research is done by people from outside region. Most countries in the region know little about what taxonomic research has been done in their territories. We have decided we needed to work regionally on taxonomy and have established BioNET-PACINET as a programme jointly managed by major regional organisations: University of the South Pacific, Secretariat of the Pacific Regional Environment Programme, Secretariat of the Pacific Community and the Pacific Biodiversity Information Forum. This broad collection of organisations each recognises they have an important interest in taxonomy, whether in research or its application. The full time coordinator, funded by the regional organisations, fulfils a very important role in the region by promoting understanding of the contributions of taxonomy to environment and development issues and coordinating with researchers and capacity building initiatives internationally. We have long-term partnerships with e.g. Landcare New Zealand which are very important to us. But we need more of the results and benefits of research on our region to be shared with us. The results need to be provided in a way that decision makers can actually use it to decide, for example on the location of a protected area. A particular interest of PACINET is the connecting of vernacular with scientific taxonomies. Sharing knowledge is important to prevent repetition of work already done and thereby most effectively direct our efforts to stopping biodiversity loss and enhancing livelihoods.

Discussion

* MNHN (Paris) join CBOL in proposing a workshop. We need ABS tools to facilitate access to biodiversity. We want to follow Swiss guidelines and agree a code of conduct so we can offer a charter to authorities where we want to work. This would need to be signed by most relevant public bodies. If organisations failed to comply, they would be excluded. The charter needs to be written with Southern countries. Capacity building is also essential: all do not have same means. In French museums we have important teaching capacities and information to share.

* In Indonesia we have molecular scientists but lack taxonomic training and have many capacity limitations that make it difficult to participate in DNA barcoding. But we welcome the barcoding idea. Indonesian thinking is in line with the Swiss good practice guidelines.

* Within the CBD negotiations on an ABS regime, some countries want a single instrument for all genetic resources. Others suggest existing practices such as the ITPGR regime should be part of CBD regime. Do taxonomists consider they need a distinct instrument or do you want your interests to be part of a single regime? Do your negotiators know about your position? Can a consensus be found in the taxonomic community?

* Southern countries need to do their part: without investment in local capacities, scientists trained in the north very often stay in the north. Publishing work on biological specimens is only possible if that specimen is securely curated. Local facilities are therefore necessary if countries are to be an equal partner in research and share equally in the benefits.

* In Mexico as everywhere, taxonomists want to access specimens, to have information on specimens, to have access to literature etc. But what are their relationships with different

users? What products e.g. distribution maps are they producing? Biodiversity informatics allows us now to deliver information in forms users want. Many users need taxonomic information; we need to produce tools they want. Taxonomy is often the starting point of chain of knowledge and should not be subject to ABS restrictions. But the use of taxonomic information in biotechnology is another matter.

* In Switzerland researchers want easy access to specimens. But, the moment you pass material to a third party, there are problems. We from scientific community have not had the chance yet to input to ABS negotiations in the CBD.

* The GTI was created to help increase our understanding of what biodiversity we have. But taxonomists have no value! If we are recognised within the ABS framework, it will be helpful.

* Will we be having the same discussion in 10 years? In the Pacific, we will never have enough taxonomists! Our countries are unlikely to get the capacity – or can the GTI break the vicious circle? We are working on informatics and need to be creative with finding solutions.

* The basic-applied division in taxonomy is false. A species that is of only scientific interest in the United States of America, may become and invasive alien species in Africa. In the biocontrol community, we have problems with ABS. There will be a workshop on ABS at the International Congress on Entomology, Durban, July 2008.

* After 10 years and more of awareness raising and new funding, taxonomists still complain and want to undertake the same type of work i.e. fail to respond to user needs.

* Sweden promotes CBD implementation in developing countries. Some years ago, we got funds from SIDA to support the GTI ($1mil) for conferences etc. But it was difficult to find suitable projects, despite our extensive networks and contacts. We couldn't use the funds and had to pay back 1/3! Why?

* The IPPC has an increasing interest in taxonomy. To implement the IPPC, people have to make decisions every day on invasive species etc. The situation fails to improve: taxonomic answers and support is not available where it is needed. We need networks and regional centres of excellence. We don't necessarily need more information; we need a filter on quality. Also, we cannot wait for a response as we deal with trade. We are starting with diagnostic standards and will expand the development of standards requiring taxonomy substantially over 2 years. We want to find ways to work together with the GTI community.

* The question of how people want taxonomic information is important. Many people don't have access to electricity! I wrote a key to the bees of Vietnam. The hard copy is very popular. Even if users can identify only to genera, this can generate much interest locally and foster collaborations.

* Inequality has to be removed if we are to achieve the 2010 target. We must listen better to what developing countries want. There needs to be more involvement of basic research scientists in ABS negotiations.