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REPORT OF A WORKSHOP ON ACCESS AND BENEFIT-SHARING IN NON-COMMERCIAL BIODIVERSITY RESEARCH

Note by the Executive Secretary

1. The Executive Secretary is pleased to circulate herewith, for the information of participants in the seventh meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing, the report of a Workshop on Access and Benefit-sharing in Non-Commercial Biodiversity Research, which was held at the Alexander Koenig Zoological Research Museum, in Bonn, from 17 to 19 November 2008.

2. The document is being circulated in the form and language in which it was received by the Secretariat.

REPORT OF A WORKSHOP ON

ACCESS AND BENEFIT SHARING

IN

NON-COMMERCIAL BIODIVERSITY RESEARCH

HELD AT THE

ZOOLOGICAL RESEARCH MUSEUM

ALEXANDER KOENIG

BONN, GERMANY

ON

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Deutsche
Forschungsgemeinschaft
DFG

INTRODUCTION

Governments and researchers in both industrialized and developing nations agree that non-commercial biodiversity research contributes to the objectives of the Convention on Biological Diversity (CBD). This type of research is essential for the conservation and sustainable use of biodiversity, and it is closely aligned with the fair and equitable sharing of benefits derived from genetic resources. Non-commercial research generates non-monetary benefits and can also lead to commercial developments that will produce economic benefits for both provider countries and users. Access to genetic resources is critical to achieving these benefits, and for this reason non-commercial biodiversity research deserves to be recognized and promoted under any international agreement for Access and Benefit Sharing (ABS).

Ten national agencies and international scientific organizations[1] convened a workshop at the Zoological Research Museum Alexander Koenig in Bonn, Germany, on 7-9 November 2008, to address the issue "Access and Benefit Sharing in Non-commercial Biodiversity Research". The agenda, list of participants, presentations, resource documents provided by presenters, general background on the CBD and ABS, and other workshop documents are available at http://barcoding.si.edu/ABSworkshop.html. Fifty-one participants from 24 countries were invited based on their experiences with CBD and ABS matters in the biological sciences, policy and government agencies, and NGOs and other stakeholder organizations. These participants also provided a balanced representation among geographic regions and perspectives (see table below). The researchers were primarily drawn from the communities of taxonomists, museum and herbarium scientists, ecologists, and genomics. This emphasis on whole-organism research (as opposed to biochemistry or developmental biology, for example) is closer to the objectives of CBD and the missions of the workshop's sponsors. Participants were asked to provide their personal perspectives and they did not participate as official representatives of their respective agencies, institutions, or research communities.

Sector			**Geographic Representation**				
Research	Agency	Other	OECD	Africa	Latin America	Asia	Pacific
29	10	12	28	8	4	9	2
56.9%	19.6%	23.5%	54.9%	15.7%	7.8%	17.6%	3.9%

[1] The workshop was sponsored by: The Consortium for the Barcode of Life (CBOL); the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation); Zoological Museum Alexander Koenig, Bonn; the Swiss Federal Office for the Environment (FOEN); the International Barcode of Life Project (iBOL); the European Distributed Institute of Taxonomy (EDIT); the Moorea Biocode Project of French Polynesia; Muséum National d'Histoire Naturelle (MNHN, Paris); DIVERSITAS/bioGENESIS; and UNESCO's Natural Sciences Sector.

RESEARCH AND THE CONVENTION ON BIOLOGICAL DIVERSITY

The CBD attempts to strike a balance between facilitating access to genetic resources for the research needed to achieve the Convention's objectives and regulating access to genetic resources in order to protect potential benefits resulting from commercial research and development. The results of the workshop's discussion, presented below, explore these competing interests and suggest ways to promote non-commercial research while protecting potential benefits that should be shared with provider countries.

On the one hand, the Convention articulates the need for research that is aligned with the CBD objectives of conservation and sustainable use of biodiversity.

> *The Contracting Parties, taking into account the special needs of developing countries, shall:*
>
> *(a) Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation, and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries;*
>
> *(b) Promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries…*
>
> *(c) …promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.* (CBD Article 12)

On the other hand, the Convention recognizes the potential loss of economic benefits that could result from unregulated access to genetic resources:

> *Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.*
>
> *Access, where granted, shall be on mutually agreed terms and … shall be subject to prior informed consent…*
>
> *Each Contracting Party shall take legislative, administrative or policy measures…with the aim 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 with the Contracting Party providing such resources. Such sharing shall be on mutually agreed terms.* (CBD Article 15)[2]

The workshop's discussions focused on the tension between the positive contributions that easier access to genetic resources can produce for provider countries and the CBD's goals, and the potential loss of benefits that could result from unconstrained access.

WORKSHOP STRUCTURE AND FORMAT

During the workshop, participants engaged in a series of panel and plenary discussions designed around six topics described below. Each participant then selected one of these topics and served on a discussion/drafting group for that topic. The six groups met in

[2] Additional relevant passages in the Convention and Bonn Guidelines are presented in Annex 1.

parallel discussion groups to produce draft comments and views. Those drafts were then reviewed in two parallel groups and edited in a final plenary session. This report consolidates and summarizes the views expressed by the participants through this process. Due to the limited duration of the workshop, participants could not express all their views on each topic and only those ideas discussed during the workshop are included here. This report presents the most important points of agreement among the majority of participants, though the text was not formally adopted as a consensus report.

In addition to discussing these six topics, two workshop sessions were devoted to preparing submissions to two Ad Hoc Technical Experts Groups (AHTEGs) mandated in COP 9 Decision IX/12 Annexes IIA and B. The first AHTEG (on "Concepts, Terms, Working Definitions and Sectoral Approaches") included consideration of terms used in CBD ("biological resources" and "genetic resources") and the Bonn Guidelines ("derivatives" and "products"). There was general agreement that the CBD's definition and use of these terms are not shared by the biological research community. The workshop's participants agreed that the different use of terminology has been a source of miscommunication and misunderstanding, and may lead to problems in the development and implementation of ABS provisions. The second AHTEG (on compliance) included consideration of the possible need for particular compliance measures for non-commercial research. Participants concluded that standardized and streamlined approaches to ABS agreements for non-commercial research could be beneficial and appropriate.

The consolidated responses prepared by the workshop participants were reviewed, edited, and revised through e-mail correspondence following the workshop. The resulting documents have been submitted to the Expert Group on "Concepts, Terms, Working Definitions, and Sectoral Approaches" that met in Windhoek, Namibia on 2-5 December 2008, and the Expert Group on Compliance that met in Tokyo, Japan on 27-30 January 2009. These submissions are available at http://barcoding.si.edu/ABSworkshop2.html.

RESULTS OF THE WORKSHOP'S DISCUSSIONS

The workshop's discussions focused around the following six major issues (see workshop agenda):

- Exploration of the relationship between non-commercial and commercial research;
- Communities of practice involved in non-commercial research;
- Benefits from non-commercial research;
- Potential risks of non-commercial research;
- Standardized ABS agreements and procedures for non-commercial research; and
- Actions needed to build trust between researchers and provider countries.

The following sections report the results of those discussions.

1. A clear separation is difficult between the processes of non-commercial research and commercial research and development. However, commercial research

projects are distinguishable from non-commercial research projects at a practical level based on several criteria.

Non-commercial research can be difficult to distinguish from commercial research, especially in the context of the CBD's Access and Benefit Sharing provisions. No single characteristic separates them in all instances, and any particular individual or institution can be engaged in either type of research. Companies can be involved in non-commercial research projects, and universities sometimes conduct commercial research. The same scientific methods and research processes are commonly used in both non-commercial and commercial research, such as specimen collecting, biochemical analysis, or gene sequencing. Both types of research need access to the same types of biological materials and genetic resources, and they can both be useful for the conservation and sustainable use of biodiversity. The research process can be viewed as a continuum that begins with purely non-commercial intentions and sometimes leads to serendipitous discoveries that evolve into to unanticipated commercial research and development activities.

At a more practical level, however, commercial research projects will have certain characteristics that set them apart from non-commercial projects, and these differences may be critical when negotiating ABS agreements. By definition, a commercial research project will be designed to produce at least some results and benefits that will have real or potential commercial value. The benefits of these results are normally held privately rather than entered into the public domain. The restricted access to benefits can take many forms and can have many indicators, including but not limited to:

- Restrictions on the release of research findings (e.g., non-disclosure agreements or unwillingness to publish results);
- Limitations placed on the involvement of provider country researchers in a project as collaborators and co-authors;
- Publication of results without providing pre-publication access to results by authorities in the provider country;
- Delays in the public release of data resulting from the research;
- Negotiating excessive fees for access to data, technology, or materials resulting from the research;
- Retention of monetary benefits from sale or lease for profit, patenting, or licensing of research results;
- Transfer of material to commercial third parties;
- Terms of agreements that reserve rights to file patents or maintain ownership of Intellectual Property Rights (IPR);
- Intent to investigate commercial applications, contract with a commercial body or entity, or conduct market research;
- Product development or testing of technology or products as part of a wider undisclosed project; and
- Other forms of contractual restrictions on the dissemination and subsequent use of the results.

On the other hand, non-commercial research projects will lack all of these characteristics. Their participants should be willing to make commitments to put results in the public

domain through publication, presentations, and release of data. The cost of purchasing books and journal subscriptions are potential barriers to access to the research results, especially for many developing countries. Cost-free access to research results by provider countries is a legitimate concern which may be addressed in ABS agreements.

There are cases in which a purely non-commercial research project will evolve into a commercial project. These cases can offer valuable opportunities for unforeseen monetary benefits for provider countries. Indicators such as those listed above provide tangible signals of a transition from non-commercial to commercial intent within a given project or activity. If any such transition has not been anticipated and covered by the *prior informed consent* (PIC) or the *mutually agreed terms* (MAT) under a concluded ABS agreement, a renegotiation of the ABS agreement should be mandatory (see below, section 5). This renegotiation process can be avoided by including a default arrangement in the original ABS agreement for benefit sharing of unanticipated commercial benefits.

2. Several "communities of research practice" are particularly relevant to conservation and sustainable use of biodiversity. In general, they are not involved in commercial research activities.

Biodiversity research covers a broad spectrum of activities and actors and it generates a range of outputs that are used by diverse audiences. Within the broad range of non-commercial biodiversity research, there are several distinct "communities of practice" that are described below. The list is not exhaustive and is weighted toward taxonomy, ecology, and evolutionary biology, which are the principal areas of interest of the workshop's sponsors and are most relevant to the CBD's goals and work programs.

The communities of research practice described below share an important attribute: they are devoted exclusively to the production of new knowledge, public goods, and services whose benefits are shared by all. Subject to the terms of an ABS agreement and the international level of each collaboration, the non-commercial activities in these communities of practice lead to:

- Contributions of data to public databases;
- Deposition of specimens and samples in museums, herbaria, botanical gardens, seedbanks, and other repositories for use by qualified researchers around the world. Among these are "type" specimens and strains of micro-organisms. These specimens are the reference standards on which taxonomic names are based. As a result, unconstrained access to them by qualified scientists is critical for biological research; and
- Public dissemination of new knowledge through peer-reviewed publications, conferences, and many other avenues.

The boundaries between communities are not absolute and many activities, actors, and institutions can be involved in several communities. However, non-commercial biodiversity research communities tend to cluster around their separate respective databases, specimen collections, publications, and other research infrastructures. The actors and institutions involved in these communities are distributed globally, in both industrialized and developing countries, in "user" and "provider" countries.

- **Taxonomy, systematics, and evolutionary biology.** This community of practice is devoted to biotic surveys and inventories which improve our understanding of species-level biodiversity, its distribution on Earth, and the evolutionary processes that produce them. The community produces, for example, peer-reviewed articles; descriptions of newly discovered species, taxonomic checklists, monographs and revisions; regional inventories; and public databases of characteristics (e.g., digital images, gene sequences). This community is an important contributor of specimens and their associated data to museums, herbaria, botanical gardens, and other biological repositories. Primary beneficiaries of these resources are academic researchers in universities and other research institutions, NGOs, and government agencies for natural resources, conservation, agriculture, health, environment and similar fields of application.
- **Microbial systematics and ecology.** A separate but closely related community of practice is devoted to the systematics, ecology and biology of microorganisms. This community is distinct in many ways because of the historical need to maintain living cultures for the study of these organisms. A subset of actors in this community is associated with culture collections or Biological Resource Centers. BRCs maintain reference collections that are available to the global research community. Live cultures that are sent to researchers can then be replicated and propagated for future work, under specific conditions. Subsequent use and distribution of the cultures are controlled by the terms of agreements between repositories and their clients. The community produces peer-reviewed articles; taxonomic revisions; inventories; and public databases of phenotypic (e.g., identification systems, digital images) and genotypic characteristics (various types of sequence databases and whole-genome sequences). Primary beneficiaries are: researchers and clinicians in universities, medical colleges, hospitals, and regulatory agencies for public health, safety, and the environment; and private industry.
- **Ecology and ecosystem research.** This community of practice is devoted to understanding the functions of populations and communities on the scale of local habitats, landscapes, and larger regions. The community produces peer-reviewed publications, databases of observations (e.g., data on climate, nutrient flow, chemical composition, organismal behavior; images and video) in natural and experimentally perturbed settings, and collections of organisms and environmental samples (e.g., air, water, soil). Primary beneficiaries are: academic researchers in universities and other research institutions, NGOs, and government agencies for natural resources, conservation, agriculture, health, environment and similar fields of application.
- **Genomics and Metagenomics.** This community of practice has resulted from the development of new high-throughput gene sequencing technologies. These technologies enable genomics researchers to characterize the entire gene sequences of selected species. Metagenomics researchers use new sequencing technologies to characterize the genetic make-up of sampled mixtures of organisms collected in environmental samples (e.g., water, soils). The primary outputs of this community are large publicly available databases of gene sequences and the data associated with the organism or environment of origin

(including acknowledgment of the country of origin), and a new generation of computational tools for their analysis. Genomics projects have developed a new and different practice of releasing data publicly very soon after they are collected, without the delays usually associated with publications.

International partnerships are essential in this community because geographically wide-ranging data sets are scientifically most useful. Further, while the technologies necessary for sequencing are becoming more widely-distributed, it can be difficult for individual laboratories or even institutions to build enough capacity to carry out full-scale metagenomic studies. These institutions may prefer to partner with already-existing sequencing centers, requiring the international transfer of samples.

3. Non-commercial biodiversity research generates important benefits for provider countries. These benefits cannot be generated without access to genetic resources.

Non-commercial research generates specific benefits of interest to a wide range of stakeholders, but especially to provider countries. In light of these benefits, provider countries have incentives to create ABS legislation and regulations that minimize transaction costs, delays, and bureaucracy without sacrificing potential benefits. More burdensome systems for negotiating ABS agreements will create obstacles to collaboration with foreign non-commercial researchers and will put these benefits at risk.

Research contributes to the well being of humans as well as conservation and sustainable use of the biodiversity. It contributes directly to the CBD's goals by providing essential information about biodiversity. Non-commercial research can generate immediate non-monetary benefits, as described in appendix II of the Bonn Guidelines and in COP Decision VI/24 Annex II. These benefits include, but are not limited to:

- Human and institutional capacity building, education and training;
- Technology transfer, new research approaches and access to facilities;
- Access to data, information and knowledge that contributes to policy- and decision-making on all levels; and
- Participation in collaborative, multidisciplinary research activities and networks.

There are several specific risks associated with non-commercial research and these are discussed in the next section of this report. In response to these perceived risks, some provider countries are implementing overly restrictive ABS regulations. These regulations can make access to biological resources for non-commercial research very difficult to obtain. The added time, expense, and bureaucracy associated with these regulations don't necessarily add to the security and legal clarity of the resulting ABS agreements. The absence of clear ABS legislation and regulations in many provider countries also makes it very difficult to negotiate research agreements that could be of mutual benefit.

Overly burdensome ABS regulations will, in most cases, reduce access to genetic resources for non-commercial research. This loss of access may impose significant opportunity costs on provider countries. The non-monetary benefits described above will not be available to provider countries and they may suffer:

- Decreased ability to document the country's biodiversity and genetic resources;
- Lower levels of information about the country's biodiversity in the growing international system of biodiversity information;
- Reduced access to information that is critical to the sustainable management and conservation of national biodiversity and other natural resources;
- Decreased future interest by foreign non-commercial researchers;
- Fewer opportunities for training and capacity building of the national research infrastructure; and
- Fewer opportunities to capitalize on the results of non-commercial research for commercial development.

4. Granting access to genetic resources involves some risk of loss of benefits, but the risks associated with non-commercial research projects can be assessed, managed, and avoided.

From the perspectives of provider countries, non-commercial research projects can lead to the loss of potential commercial development opportunities if they are not strictly regulated by the terms of PICs, MATs, and MTAs. Non-commercial research scientists and provider countries share a long-term interest in finding ways to assess and manage these risks. A project that begins with only non-commercial intent can develop commercial intent in two ways. First, the researchers themselves may uncover IPR they would like to develop and retain. Second, individuals not associated with the research may use the published results and/or the specimens obtained from the research as a starting point for commercial development. As a result, provider countries have three principal concerns:

A. Change of intent of a research project from non-commercial to commercial. By its very nature, the course of research cannot be predicted with confidence. Serendipitous discoveries made in the course of non-commercial research can, on rare occasions, lead to commercial development, products, and monetary benefits. Provider countries seek to share in the unanticipated benefits in cases where no commercial benefits are covered in PICs and MATs. This risk is discussed in section 1 of this report. PICs and MATs can stipulate the non-commercial nature of a research project and can require the research partners to inform the provider country authority of any change of intent and to negotiate a new PIC and MAT before any IPR can be retained or commercial research can begin.

B. Transfers of genetic material to third parties and by third parties. Non-commercial researchers may seek permission to transport genetic resources out of the provider country for study and preservation. Provider countries want the ability to track the transfer and use of the genetic resource to ensure that they are not used for commercial purposes not allowed under PICs and MATs.

Collections of biological material and their associated data stored in museums, herbaria, culture collections, and other secure repositories are valuable global resources for research and reference. Their use requires access by qualified researchers. Some developing countries are constructing national biorepositories (e.g., museums, herbaria) that have greatly reduced the need to transfer reference material to other countries for analysis and storage. In these cases, provider countries have greater control over their

genetic resources while still offering access to qualified researchers. In other cases, research projects can involve the transfer of biological material out of the provider country for study and preservation.

In cases where repositories are not available in the provider country, ABS agreements can minimize the risk of lost benefits in several ways. PICs, MATs and MTAs for non-commercial research can make clear to all parties the future uses of the genetic resources that are and are not permitted. Several organizations have developed standard MTAs that contain a variety of ownership and allowable use arrangements, since one solution does not meet the needs of all circumstances. Parties may be able to significantly reduce the administrative burden associated with each negotiation by using these model agreements.

For example, ABS agreements for non-commercial research could stipulate:

- In which repository or repositories the genetic resources will be stored;
- Who will have ownership rights and stewardship responsibilities over the resources;
- What subsequent transfers of the resources are permitted, including restrictions against transfer of the resources by third parties that are given access to the resources by a repository;
- What uses of the resources, either non-commercial or commercial, are permitted;
- Requirements to inform third parties of restrictions on allowable use and subsequent access at the time that access to the resources is granted by the repository;
- Requirements to negotiate a new ABS agreement directly with the provider country for any access to or use of the resources not permitted under the terms of the original agreement;
- Access by the provider country to information on access to and use of the resources provided to third parties by the repository; and
- Consequences of violations of the terms of the ABS agreement.

Provider countries may also gain greater confidence from systems of specimen tracking that monitor the subsequent movement of specimens that have left the provider country. Most museums, herbaria, and other biological repositories have computerized systems for tracking and monitoring specimen exchanges and loans, and community-wide systems such as the International Plant Exchange Network (IPEN) are being implemented. Molecular biology labs are implementing Laboratory Information Management Systems that track the progress of specimens through an analytical procedure. These systems can help to ensure that lenders and borrowers are aware of the terms of the relevant MTA and that the terms will be followed. The systems are built around databases that provide greater transparency and reporting capabilities that provider countries will find valuable.

C. Publication of information that could lead to commercial development. The discovery and dissemination of new knowledge is the principal goal of non-commercial research. Some provider countries are concerned that the release of these research findings into the public domain may lead to commercial development and monetary benefits in which they may not share.

Non-commercial researchers are motivated primarily to create new knowledge that can be shared with and used by researchers and other sectors of society. Scientific research is based on the open sharing of research results through publications, public presentations, and publicly accessible databases such as those containing gene sequences. Individuals not associated with a project may utilize the results of the project that have entered the public domain, enabling them to launch a commercial venture. For example, gene sequences are routinely published as a result of non-commercial research in taxonomy and evolutionary biology. These range in length from a few hundred base-pairs (such as DNA barcodes or ecogenomic gene segments) up to millions of base-pairs in genomics projects. Provider countries may be concerned that placing these sequences in the public domain will enable others to develop and patent commercial processes or products using these data.

Once entered into the public domain, information cannot be patented but it can be used by others as the basis for innovation, invention, and further research and development leading to patentable discoveries. In such cases, it is possible for the original researcher to fully respect the terms of a non-commercial ABS agreement while a third party utilizes the results in the public domain for commercial purposes. Developing provider countries have less ability to capitalize on published results than industrialized countries due to their lower technological capacity. The opportunity to share in the economic benefits stemming from the utilization of a genetic resource may be lost by the provider country, even though it was not gained by the non-commercial researcher.

This disadvantage can be countered if provider countries have access to the results of non-commercial research on their biodiversity prior to their publication. Researchers with only non-commercial intent should be willing to share their unpublished results with provider countries so that the provider country has an opportunity to protect the commercial potential of its genetic resources before they enter the public domain. Researchers could reasonably expect appropriate assurances that their work would not be released by provider country authorities to third parties prior to publication, except for the purpose of securing intellectual property rights. This would preserve the ability of researchers to publish their work and gain credit for their contributions.

Pre-publication access to research results by the provider country authority is a compliance measure that relies on mutual trust to a great degree. Researchers will be very hesitant to engage in projects if they are not confident of their freedom to publish their findings. ABS agreements for non-commercial research that give provider countries the right to refuse or delay publication will inhibit, not promote, research activity in those countries. In contrast, standard, streamlined ABS agreements with mutually beneficial terms for sharing pre-publication results will contribute to trusting relationships and equitable sharing of benefits.

Some participants in the workshop argued that ABS agreements should include benefit sharing arrangements for any commercial use of research results that have been entered into the public domain. Other participants argued that it would be difficult to establish clear cause-and-effect relationships between published results and subsequent innovations and patents based on those results. This issue raised fundamental issues of public policy concerning patents, copyrights, and the ownership and use of information

placed in the public domain. These issues were considered too complicated for in-depth treatment during the workshop.

These risks can be managed in other ways as well. For example:

- PICs and MATs can require the involvement of a local research institution and/or researchers. They would be in a good position to represent the provider country's interests in identifying and protecting any potential commercial benefits that could grow out of the non-commercial research. Local research partners could alert national authorities who could then protect the relevant IPR before it enters the public domain.

- Researchers can be required to document the sources of the genetic resources they have accessed during their studies and to acknowledge the national authorities that have provided this access.

5. Standardized conditions and streamlined procedures for ABS agreements will promote non-commercial research and the sharing of associated benefits.

In the years since the CBD entered into force, a minority of the Contracting Parties have adopted legislation and regulations governing ABS agreements. In countries without such agreements, the process of obtaining access to genetic resources and establishing benefit sharing arrangements is difficult and the bureaucratic obstacles can be daunting. Some countries that have passed ABS legislation have implemented restrictive access regulations that involve lengthy application procedures, multiple layers of bureaucracy, and decision-making processes that are slow, costly, labor-intensive, and lacking in transparency. Researchers acknowledge the concerns of provider countries concerning the potential loss of benefits and accept the need for rational safeguards (see preceding section). Unfortunately, adding complexity and cost to ABS procedures does not translate automatically into stronger safeguards. More burdensome ABS procedures may reduce research activities and result in the loss of non-commercial benefits.

In contrast, countries like Australia have implemented ABS procedures that greatly reduce the transaction costs of access procedures for non-commercial research by implementing a streamlined process for these projects. Research institutions such as the Royal Botanic Gardens, Kew, have also developed standardized ABS policies and documents that can be used for most research projects in which Kew researchers are involved. The International Treaty for Plant Genetic Resources has created a standard approach to access and benefit sharing that includes a Standard Material Transfer Agreement. These and other resources are collected on the workshop resource website.

A similar approach can be taken to the PICs, MATs, MTAs, and benefit-sharing arrangements that are needed by the communities of practice described above. They share the following characteristics that could be reflected in standard ABS documents:

- Willingness to disclose the scope and methods of research projects;
- Eagerness to engage provider country research institutions and researchers in projects;
- Willingness to provide access to research results to the provider country and international research community;

- Interest in providing training and technical assistance to provider countries with the goal of building their national research capacities;
- Commitment to transparency and open sharing of benefits, without proprietary ownership of any potential commercial benefits stemming from the research; and
- Explicit agreement to a default benefit-sharing arrangement for unanticipated commercial benefits, or willingness to inform provider countries if any unanticipated potential commercial benefits are uncovered and to renegotiate the ABS agreement to include a new benefit-sharing arrangement for commercial IPR.

This high level of commonality among communities of non-commercial research practice creates an opportunity for consultation and negotiation processes that are internationally harmonized. These processes could use standard conditions and streamlined procedures for granting access to genetic resources. Doing so could reduce prevailing uncertainties about different or unknown conditions in different countries, reduce the levels of participating bureaucracy and transactions costs for both sides, and promote international collaborative biodiversity research projects which are urgently needed to overcome the biodiversity crisis and implement the goals of the Convention.

The involvement of researchers and scientific institutions from the provider country can be mutually beneficial. Whenever researchers with relevant research experience and interest are working in the provider country, they should be given the opportunity to get involved in project planning and negotiating ABS agreements. Their participation can add to the quality of the research and can also enable sharing of non-monetary benefits (e.g., co-authored publications, training of students, improvement of local research facilities, and involvement in global research networks). Local researchers and institutions will be in the best position to offer guidance on the capabilities and needs of the provider country.

Model agreements for access and benefit-sharing for non-commercial biodiversity research could include the following standard elements:

- Specification of the proposed non-commercial research and its objectives;
- Declaration of non-commercial intent;
- Information on the national authority responsible for ABS agreements;
- Information on the local authority and local communities involved in the specific ABS agreement;
- Information about and role of scientific institutions and researchers from the provider country in the proposed research activities, including any acknowledgement or co-authorship in publications;
- Specification of the non-monetary benefits which might be generated by the project and shared with the provider country, including, for example:
  - activities and contributions that build elements of the biodiversity research capabilities of the provider country; and
  - pre-publication access by the provider country to research results;

- Methods, equipment/research tools, and technologies that will be used;
- Uses of research results and materials that are restricted;
- Deposition of genetic resources and other research materials, and possible restrictions of subsequent use;
- Conditions of transfer of samples to third parties;
- Reporting requirements; and
- Provisions concerning changes from non-commercial intent to commercial intent.

6. The biodiversity research community can take positive, proactive steps to build trusting relationships with provider countries and to minimize the risk of lost benefits to them.

The non-commercial research community is committed to building trusting relationships with provider countries and to promoting compliance with the ABS provisions of the CBD. The non-commercial research community can make proactive changes to its institutional policies that will promote greater compliance with the requirements of ABS agreements. These measures, a sample of which are described below, may also expedite the process of negotiating PICs, MATs, benefit-sharing arrangements, and MTAs with relevant national authorities in provider countries.

- Institutions and researcher could become better aware of good practice manuals such as *ABS-good practice for academic research on genetic resources* developed by the Swiss Academy of Sciences, successful case studies and tools, etc.
- Research institutions could adopt internal ABS policies consistent with CBD provisions and the Bonn Guidelines, and aligned with their national ABS regulations, if they exist. These could include, for example:
  - procedures to record the terms and conditions under which genetic resources are acquired;
  - mechanisms to track the use of genetic material, including benefits arising from that use;
  - a mechanism to track supply to third parties;
  - implementation of and compliance with these procedures through staff training, development and use of standard operating procedures, model documents, and other internal procedures to monitor compliance; and
  - A policy statement on commercialization of non-commercial research results.
- Institutions, professional societies, and/or other segments of the research community could create and adopt standard Codes of Conduct that articulate their commitment to comply with the provisions of the CBD as they acquire, use and supply genetic resources. Examples of existing Codes of Conduct that could be used as models include MOSAICC (link) and the Principles on Access to Genetic Resources and Benefit Sharing developed by an international collaboration of representatives from 28 botanical institutions.
- Communities of practice could develop community-wide systems to track and monitor the transfer among institutions and use of genetic resources. For example,

CITES permits and the International Plant Exchange Network both utilize an integrated permitting system among complying institutions;

- Communities of practice could encourage their funding agencies to require compliance with national ABS regulations by all recipients of their funding, as the German Research Foundation (DFG) has done.

ANNEX 1: EXCEPTS FROM THE CONVENTION ON BIOLOGICAL DIVERSITY RELEVANT TO ACCESS AND BENEFIT SHARING IN NON-COMMERCIAL BIODIVERSITY RESEARCH

A. The following excerpts from the text of the CBD and the 2002 Bonn Guidelines pertain to the need for research in achieving the Convention's goals:

Aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical, and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures (Preamble to the CBD)

Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention. (CBD Article 7)

Identify components of biological diversity important for its conservation and sustainable use…Monitor, through sampling and other techniques, the components of biological diversity…Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity…Maintain and organize, by any mechanism, data derived from identification and monitoring activities (CBD Article 7)

Establish and maintain facilities for ex situ conservation and research on plants, animals, and micro-organisms, preferably in the country of origin of genetic resources (CBD Article 9)

The Contracting Parties, taking into account the special needs of developing countries, shall:

(d) Establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation, and sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries;

(e) Promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries…

(f) …promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources. (CBD Article 12)

The Contracting Parties shall, subject to mutual agreement, promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention. (CBD Article 18)

Taxonomic research, as specified in the Global Taxonomy Initiative, should not be prevented, and providers should facilitate acquisition of material for systematic use and users should make available all information associated with the specimens thus obtained. (Bonn Guidelines 11.l)

Special terms and conditions should be established under mutually agreed terms to facilitate taxonomic research for non-commercial purposes; (Bonn Guidelines 16.b.viii)

B. The following excerpts pertain to the need to regulate access to genetic resources in order to protect potential benefits to provider countries.

Recognizing that economic and social development and poverty eradication are the first and overriding priorities of developing countries (Preamble to the CBD)

Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation;

Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.

Access, where granted, shall be on mutually agreed terms and … shall be subject to prior informed consent…

Each Contracting Party shall take legislative, administrative or policy measures…with the aim 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 with the Contracting Party providing such resources. Such sharing shall be on mutually agreed terms. (CBD Article 15)

Each Contracting Party shall promote technical and scientific cooperation with other Contracting Parties, in particular developing countries…through the development and implementation of national policies. (CBD Article 18)

Each Contracting Party shall take legislative, administrative, or policy measures, as appropriate, for the effective participation in biotechnological research activities by those Contracting Parties, especially developing countries, which provide the genetic resources for such research…(CBD Article 19)

Each Contracting Party shall take all practicable measures 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. Such access shall be on mutually agreed terms. (CBD Article 19)