Access and Benefit Sharing

Good practice for academic research on genetic resources

sc | nat

Swiss Academy of Sciences
Akademie der Naturwissenschaften
Accademia di scienze naturali
Académie des sciences naturelles

Imprint

Published by:
Swiss Academy of Sciences
Schwarztorstrasse 9 | 3007 Bern | Switzerland
www.scnat.ch

Authors:
Susette Biber-Klemm
Sylvia Martinez

Collaboration:
Ingrid Kissling
Jörg Schmill

Information update:
Anne Jacob
Sylvia Martinez

Layout:
Olivia Zwygart

Photos:
courtesy of BioPix, www.biopix.dk
Botanical Image Database, University of Basel, Switzerland,
pages.unibas.ch/botimage
Wildlife Photo Report, Monika und Hans D. Dossenbach, CH-Siblingen

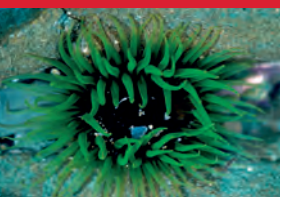
Printed by: Albrecht Druck und Satz, Bern
Copies printed: 1000
First Edition, January 2006
Second Edition, July 2009

Online edition: http://abs.scnat.ch
Partially updated, November 2012

ISBN: 978-3-033-01907-2

Contents

Foreword



The three objectives of the Convention on Biological Diversity (CBD) 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. These three objectives are strongly interrelated. They target jointly the conservation of genetic resources, the economic activities that rely on them and the welfare of the human populations living in areas that are rich in biological resources.

The survival and livelihoods of all human societies – especially the poorest – are closely dependent on biological diversity. Obvious examples here include the food and agriculture sectors, which need the wild relatives of crops to ensure the regeneration of their genetic pools, industry, which needs biological material for the development of new products, the health sector, which needs biological material for the development of new medicines, water, which is harnessed, filtered and regenerated by natural ecosystems, and even tourism, for which wildlife and unspoiled natural landscapes represent an important asset.

Most of the richest ecosystems host human populations which have lived in harmony with nature for centuries. These populations are now among the poorest in the world and depend entirely on the natural resources that surround them. If we want to conserve our natural capital and have access to genetic resources, we must recognize the contribution of native peoples and developing countries in maintaining these resources and share with them the benefits arising from their exploitation.

In order to ensure that industries and scientific communities that access genetic resources share the benefits arising from research and development with the populations that maintain and use them, the Convention on Biological Diversity stipulates that agreements governing the access to these resources and the sharing of the benefits arising from them be established between the parties involved. To facilitate the implementation of this principle, the Conference of the Parties to the Convention on Biological Diversity adopted the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilization in 2002.

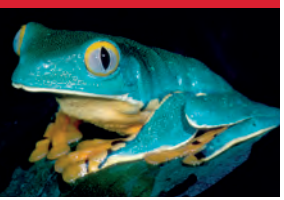
It is important that the scientific community takes the lead in applying the principles of justice and equity enshrined in the Convention on Biological Diversity

The purpose of this manual is to provide a tool that will assist the scientific community in implementing the CBD and the Bonn Guidelines. It is important that the scientific community takes the lead in applying the principles of justice and equity enshrined in the Convention on Biological Diversity.

Thus, I am very grateful to the Swiss Academy of Sciences (SCNAT) for developing this tool and I wish every success to those who use it for the benefit of biodiversity, scientific and economic development and the welfare of native peoples.

Dr Philippe Roch
Former director of the Swiss Federal Office for the Environment (FOEN)

Introduction



The situation is actually quite clear: According to the Convention on Biological Diversity (CBD), biological resources belong to the states on whose territory they are found. In this they are no different to mineral resources or oil. And yet, in recent years cases have arisen, in which the ownership of biological or genetic resources was not respected. Resources were exported, developed and commercialized without the consent of the countries that provided them, and without enabling them to partake in the resulting benefits.

In order to prevent this "biopiracy" and create a climate of mutual trust, which is essential for research in the long term, the community of states undertook to regulate the handling of genetic resources in the Convention on Biological Diversity. This convention is a binding international agreement. Its implementation is not only a moral obligation for the Contracting Parties – which include Switzerland – but also a legal one. The goal of the Convention on Biological Diversity is to conserve biological diversity and to promote its sustainable use in conjunction with the fair and equitable sharing of benefits arising from this use.

Responsibility for this is given to the states, on whose territory the biological material is found. However, all states have a responsibility to cooperate to this end. For the industrialized countries this means supporting the biodiversity-rich, but often economically poor countries in this endeavour. The keywords in this context are technology transfer and cooperative research. The CBD contains rules that clarify the rights and responsibilities of all parties involved. One of these rules introduces the system governing access to genetic resources and the sharing of the benefits arising from their use.

This manual aims to inform the academic community about the system governing the access to genetic resources and the sharing of benefits arising from their use, as established by the Convention on Biological Diversity, and to explain the steps that must be taken when accessing genetic resources for research purposes. It was developed in the context of an iterative and participative process, and various drafts

The manual is based on the Bonn Guidelines. It offers basic information and concrete instructions for action

were evaluated at different stages by members of the Swiss academic community as well as scientists from developing countries.

The manual is based on the Bonn Guidelines, a voluntary supplement to the CBD. It offers basic information and concrete instructions for action. However, as each case involving access to genetic resources is different, the suggested steps for Access and Benefit-sharing may have to be adapted to each specific research situation. All researchers should note that the failure to comply with the Bonn Guidelines may have negative repercussions on their research.

We believe that, in many cases, the elements required by the Access and Benefit-sharing system can be integrated into the existing formalities that must be fulfilled when carrying out research in foreign countries. And while some of the processes may initially seem unfamiliar and involve an additional burden for research projects, we believe that the principles of the Convention on Biological Diversity are fair and correct and have positive effects on a number of areas including research. Thus, we hope to have provided a helping hand by compiling this manual.

Ingrid Kissling,
Former Secretary General of the Swiss Academy of Sciences

Sylvia Martinez,
Swiss Biodiversity Forum, Swiss Academy of Sciences

Susette Biber-Klemm,
Universities of Basel and Bern, Consultant in Law and Ethics

Nagoya Protocol

Update 2012

The ABS system and the Nagoya Protocol also apply to non-commercial academic research

The Nagoya Protocol on Access and Benefit Sharing to the Convention on Biological Diversity *(Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity)* is a supplementary agreement to the Convention of Biological Diversity (CBD). It was adopted on 29 October 2010 by the Parties to the CBD at the occasion of their 10th Conference in Nagoya, Japan. It will enter into force 90 days after the fiftieth instrument of ratification is deposited.

The Nagoya Protocol substantiates the CBD's ABS regulations. It is meant to provide greater legal certainty and transparency for both providers and users of genetic resources. It sets out core obligations for its contracting Parties to take measures in relation to access to genetic resources, benefit-sharing and compliance.

Providers are to establish clear rules and procedures for prior informed consent and mutually agreed terms. In addition, they will have to establish national focal points that serve as contact points for ABS information and for granting access. User countries are to take measures to secure compliance regarding the conditions and procedures required by the providing party, among others by monitoring the utilization of the genetic resources.

The ABS system and the Nagoya Protocol also apply to non-commercial academic research. If and how provider states implement the system at national level – that is the requirement of Prior Informed Consent and the negotiation of Mutually Agreed Terms – depends on the political decision of each individual Party. For parties to the CBD that have not (yet) ratified the Nagoya Protocol, the basic obligations of the CBD remain applicable.

The protocol explicitly recognizes the importance of research for conservation and sustainable use of biological diversity. Parties shall therefore create conditions that promote such research. This includes simplified measures with regard to access for non-commercial research purposes.

Switzerland is currently (2011/12) preparing the ratification of the Nagoya Protocol.

Useful tip

- When trying to access genetic resources abroad, the first step is to contact the National Focal Point to the Intergovernmental Committee for the Nagoya Protocol on Access and Benefit-sharing of the providing country (see CBD website at www.cbd.int/information/nfp.shtml).
  In the absence of such a point contact the Competent National Authority on Access and Benefit Sharing (see CBD website at www.cbd.int/information/nfp.shtml).

Basics

A short introduction to the rules governing access to genetic resources and the cases in which these rules apply.

1. What's it all about?

The objective: cooperation between the providers and users of genetic resources

The Convention on Biological Diversity (CBD) resulted from the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992. To date, it has been ratified by over 180 states, including Switzerland, which thereby undertook to both protect biodiversity in their own territories and to support suitable measures for the protection and sustainable use of biodiversity throughout the world.

The CBD introduced a system for the regulation of collection of genetic resources and other types of access. This system is known as the Access and Benefit-sharing (ABS) system. What is involved here is the joint regulation of access to genetic resources and the sharing of benefits arising from their use by the researchers or companies from user countries and the representatives of the states, in which the genetic resources have been accessed.

The Access and Benefit-sharing system is applicable similarly to the traditional knowledge (TK) of indigenous and local communities associated to genetic resources. In such cases, indigenous and local communities are to be involved in the process.

The CBD is an international convention. Thus, its provisions are binding on its contracting parties, and several states have already integrated these principles into their national legislation. The Conference of the Parties to the Convention adopted the Bonn Guidelines (BGL) to facilitate the implementation of the ABS system. These concrete recommendations are voluntary and intended to guide both the providers and users of genetic resources in the application of the Access and Benefit-sharing system.

2. Objectives

Twin responsibilities of providers and users: providing access to genetic resources – sharing the benefits resulting from their use

One of the main features of the Convention on Biological Diversity (CBD) is that it combines the aim of maintaining and conserving biological diversity with economic objectives. Accordingly, one of its goals is the equitable sharing of the benefits arising from the utilization of genetic resources while at the same time providing for appropriate access to these resources. These objectives and the rules of the CBD apply to bioprospecting in both commercial contexts and academic research. However, the focus in this manual is on the issues regarding academic research.

The objectives of the Bonn Guidelines in relation to academic research are:

- to promote awareness of the implementation of relevant provisions of the CBD;
- to provide parties of the CBD and stakeholders with a transparent framework to facilitate access to genetic resources and ensure the fair and equitable sharing of benefits;
- to provide information about the practices and approaches to be adopted by users and providers in the context of access and benefit sharing;
- to promote capacity building and the transfer of appropriate technology to providing parties.

The Convention on Biological Diversity (CBD) formalizes elements already contained to a significant extent in existing research permits and professional codes of ethics. However, the following elements, which are not found in standard research permits, licenses, export permits, etc., are new:

Prior Informed Consent? Mutually Agreed Terms? What exactly is involved here?

Prior Informed Consent (CBD Art. 15.5, BGL 24–40)

Prior Informed Consent (PIC) is an established and well-defined term in law and medicine. It means that before being exposed to a risk, in particular a risk of bodily harm, a person is entitled to be fully informed of that risk in advance so as to make an informed decision about whether to undergo the treatment in question. Hitherto, at international level, this principle was mainly applied in the context of the export of chemicals.

Prior Informed Consent is now also prescribed by the Convention on Biological Diversity for the utilization and research of (= access to) genetic resources: The competent national authority of the providing country must be informed of the planned research as part of the application process. The researcher seeking access needs to provide all relevant information regarding the intended research. She or he must ensure that the government or other responsible authority obtain this information. The informed consent of the competent agency is a necessary prerequisite for access to biological resources. Under national legislation it may also be necessary to include stakeholders involved on various intermediary levels in the Prior Informed Consent process.

Does academic research generate benefits?

Mutually Agreed Terms (CBD Art. 15.4, BGL 41–44)

Mutually Agreed Terms (MAT) are usually laid down in a contract established between the users and providers of genetic resources. The MAT define the conditions regarding access to genetic resources and grant permission for their use. The MAT typically incorporate elements of the Prior Informed Consent and, crucially, an understanding regarding the sharing of the benefits arising from the utilization of the genetic resources. The elements to be agreed on in the MAT depend on the complexity of the proposed research.

Benefit Sharing (CBD Art. 15.7, BGL 45–50)

According to the CBD, the providing country must be included in the benefits resulting from the research to be carried out. The principle of fair and equitable sharing of benefits also applies to academic research, as this type of research gives rise to specific benefits which, although non-monetary as a rule, can nevertheless be of value to the providing country. The benefits to be shared may include *inter alia* results, capacity building, technology transfer and the establishment of permanent academic networks and cooperation. Thus, science and research can actively contribute to overcoming the North-South divide through the transfer of urgently needed knowledge and technology. The criterion of fairness and equitability refers to the specific quality of both the negotiation process and the actual benefit sharing itself.

Useful tip

▶ The checklists on pp. 43–49 contain detailed descriptions of the elements involved in Prior Informed Consent, Mutually Agreed Terms and Benefit Sharing.

Before describing how the ABS system is implemented, it is important to explain the meaning of the terms "genetic resources" and "access".

What are "genetic resources"?

Genetic resources

Genetic resources are defined by the Convention on Biological Diversity as genetic material, i.e. material containing functional units of heredity that is of actual or potential value (CBD Art. 2). The value of the genetic resources need not be commercial (i.e. monetary), but may be scientific or academic in nature. As the CBD definition also includes the potential value of such resources, almost all genetic material falls under the provisions of the ABS system. Furthermore, the valuable information need not be exclusively genetic, for example, it may also be associated, with the biochemical information contained in the material.

The ABS system covers all types of genetic resources, be they wild or domesticated; of animal, plant, microbial or other origin; situated on or in private or public land or waters. It applies to research on resources that are both located and collected *in situ* or procured from *ex situ* facilities or from academic partners. Excluded from the scope of application of the CBD are human genetic resources.

What is "access"?

Access

The term "**access**" has not yet been officially defined. Thus, its meaning depends on its interpretation by the providing countries and their practices. Therefore, access may involve various activities, for example: entering a location where genetic resources are found; simple surveying activities; the acquisition of genetic resources for general purposes or their study/examination for scientific and/or commercial purposes.

Accordingly, the ABS system applies to research carried out for either purely scientific or commercial ends, for which organisms or parts thereof (the "genetic resources") and/or related traditional knowledge are obtained ("accessed") from a country that is party to the Convention on Biological Diversity and – in case of traditional knowledge – its local and indigenous communities.

Specific cases

If research incorporates **traditional knowledge (TK)** of local and/or indigenous communities associated with the genetic resources being studied, the rules of the ABS system apply. The knowledge holders must be integrated into the ABS process (see case study 5). As such cases are usually very complex, the focus in this manual is on access to genetic resources. For further information on research involving TK, refer to chapter Contacts and Support on p. 56.

Access to **"Plant Genetic Resources for Food and Agriculture (PGRFA)"** is based on the provisions of the International Treaty on Plant Genetic Resources for Food and Agriculture (IT). Crops listed in its Annex I are subject to a specific access system, the "Multilateral System of Access and Benefit Sharing", established by that treaty. A specific standard Material Transfer Agreement (MTA) is to be used for the exchange of Annex-I crops.

The exchange of samples between **botanic gardens** that are members of the International Plant Exchange Network (IPEN) is subject to IPEN's own Code of Conduct in addition to the provisions of the CBD and the BGL (see Sources, p. 56).

5. Who is involved?

188 of the 191 member states of the United Nations are parties to the CBD

The Convention on Biological Diversity is applicable in all states that are party to the convention (see Sources p. 56). The convention defines the obligations and responsibilities of both the users and providers. All academic research involving work on or with genetic resources from a country that is party to the Convention on Biological Diversity must take the Access and Benefit Sharing system into account.

If genetic resources (acquired after the entry into force of the Convention on Biological Diversity in 1993) are procured from a partner institution, or if such genetic resources are transferred to a partner institution, it must be ensured that the PIC and MAT of the original holder of the material allows the transfer and that any other conditions governing Access and Benefit Sharing are fulfilled.

6. Why are these rules important for academic research?

Mutual trust and benefit are essential for the success of your research

According to the CBD, the components of biological diversity "belong to" and "are owned by" the providing countries in the same way as, for example, mineral resources. Accordingly, the providing countries have the right to decide who may use their resources and in what way, and to partake in the benefits resulting from this use. In the past, cases in which this right was disregarded or abused (sometimes referred to as "biopiracy") became public. This has created distrust, resulting in the adoption of restrictive national regulations and obstacles to access.

In order to improve this situation, it is essential that trust be established and that providing countries experience how research can give rise to mutual benefits for both the providers and users of genetic resources. By conducting research in a climate of transparency and integrity, scientists lay the foundations for cooperative research that will benefit all parties involved.

Case studies

Examples of research projects involving different types of access to biological resources and suggestions on how the Access and Benefit Sharing system can be implemented in practice.

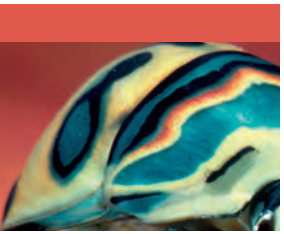
This chapter presents case studies involving various types of research and access situations. The cases are divided into four categories based on their complexity in terms of the Access and Benefit Sharing (ABS) system.* Suggestions are given on how the contractual requirements can best be resolved in the interests of all involved parties.

The four categories are:

1. No ABS situation: The research does not involve any access situation or genetic resources. Thus no ABS contract is necessary. However, other research permits may be required (see case 4).
2. Simple ABS situation: The research involves the collection and transfer (including export) of samples for an inventory. A Standardized Material Transfer Agreement (SMTA) is sufficient (see cases 1 and 2).
3. ABS situation: The export of samples is required for further analysis and study in a laboratory abroad. No further exploitation is planned. A simple ABS contract is sufficient (see cases 2, 3 and 4).
4. Complex ABS situation: The proposed research involves various steps, including possible research for commercial purposes, or the use of traditional knowledge. A full ABS contract is required (see case 5).

* Please note that this categorization of access situations is not included in the CBD or the BGL. The corresponding types of contracts are proposed here for reasons of simplicity; they have not been adopted by the Contracting Parties of the CBD and have thus no official standing. Decisive is the national law of the providing country.
Be aware that each access situation has its own specific characteristics. Therefore, it is essential to carefully check the specific requirements with the relevant authorities of the providing countries. Your institution's technology transfer unit or legal department may offer assistance in the drafting of contracts.

1. Agriculture: Examination of local mycorrhizal fungi for the improvement of yam growth



Material Transfer Agreement or simple ABS contract

Yam is the second most important tuber crop in West Africa. Annual demand is constantly increasing, however annual production per hectare has declined considerably. This is mainly due to the prevalence of pests and disease. Arbuscular mycorrhizal fungi (AMF) have been shown to act as antagonists to such pests (e.g. nematodes) and diseases. They also increase the efficiency of soil nutrients and water use, particularly in suboptimal soil conditions, and thus help to increase crop yield.

As a novel approach to the improvement of yam seed material in terms of protection against pathogens, the proposed project will assess the occurrence and diversity of AMF in Togo and Benin. The screening of AMF isolated for their potential to improve yam growth and suppress nematodes on yam will be carried out in collaboration with the International Institute of Tropical Agriculture in Benin.

Assumptions

The research will be carried out jointly by Swiss researchers and the International Institute of Tropical Agriculture (IITA) in Benin. No transfer of collected AMF samples to third parties, but export and screening in the Swiss research institute.

Option 1: The collection of samples is carried out by the IITA.

Option 2: The collection of samples is carried out by the Swiss research institute.

Analysis

Access	Option 1: Access by Swiss scientists to samples at the IITA (*ex situ* access). Option 2: Collection of arbuscular mycorrhizal fungi (AMF) by Swiss researchers in Togo and Benin (*in situ* access).
Parties	Providers: States of Togo and Benin as original providers. Users: Option 1: Step 1: IITA as contracting party with Togo and Benin; Step 2: Swiss research institute as contracting party with IITA. Option 2: Swiss research institute as contracting party with Togo and Benin.
Prior Informed Consent	Methods and objectives of the research; transfer of samples; whether commercialization of results is planned or not.
Contracts	Option 1: Step 1: Agreement between IITA and Togo and Benin as original providers; Step 2: MTA between IITA (provider) and Swiss research institute. It is essential to ensure that the transfer of the material to the Swiss research institute is covered by the agreement between the states of Togo and Benin (Step 1) and the IITA. Option 2: Simple access contract between the Swiss research institute and Togo and Benin; the cooperation with the IITA should be stated.
Benefits to be shared	Transfer of results to IITA, national institutes, and responsible agencies; involvement of national researchers from Togo and Benin in the research; training of PhD students; access to research data; internships for researchers from Togo and Benin; co-publication of findings.
Contract Elements	Parties to the contract; partners involved; objectives of the research; geographical area; type of specimens; intended use of specimens (transfer of samples for analysis only; no commercialization; transfer to third parties allowed/not allowed); details of benefit sharing.
Note	If the collection of yam plants is required for the implementation of the research, the regulations of the International Treaty on Plant Genetic Resources for Food and Agriculture are applicable (see Appendix, p. 57). When carrying out research on private land, inform farmers and/or landowners about your research and ask for an authorization for the collection of samples.

2. Ecology:
Experiment on treespecies diversity in a tropical forest

Material Transfer Agreement or simple ABS contract

Logged Dipterocarp forests are being replanted with three levels of treespecies diversity for the purpose of investigating how forest diversity affects wood production, carbon storage and other ecosystem processes in tropical regions. The replanting is being carried out using monocultures, low-diversity mixtures similar to commercial reforestation areas and using a full mix of species reflecting the natural diversity of the primary forest.

The aim of the project is to compare community and ecosystem processes in the low and high species-diversity plots. The focus of the analysis is on diversity and wood production (carbon sequestration), biogeochemical and hydrological variables, molecular analysis, levels of biodiversity and the activity of associated groups of organisms. The field research is being carried out at an established research station in Malaysia.

Assumptions

The forest is state-owned, as is the field station. Export of samples to Switzerland for further analysis.

Option 1: "Access" is understood as the collection and export of samples.

Option 2: "Access" is understood as including all of the field studies carried out in the forests (see note below).

Analysis

Access	Access may consist in (see also note below): • Access to location where resources are found; • measurement of forest growth; • collection of samples; • export of samples to Switzerland.
Parties	Provider: State of Malaysia (i.e., responsible agency). User: Swiss research institute.
Prior Informed Consent	Option 1: Export of samples. Option 2: Entire research design.
Contracts	The type of contract depends on the definition of access in the national legislation of the providing country: Option 1: MTA or simple access contract governing the collection and export of samples. Option 2: Simple access contract incorporating the entire research design.
Benefits to be shared	Cooperation with research station in Malaysia; technology transfer, training of PhD students; provision of duplicate samples to providing country, co-publication of findings; further research cooperation.
Contract Elements	Option 1: Parties to the contract; objectives of the research; geographical area; type of specimens; export of specimens; use made of specimens; details of benefit sharing. Option 2: Including detailed research plan (access to location, measurements etc.).
Note	The term "Access" has not yet been defined in the CBD, therefore the scope of the term depends on national legislation of the providing country and practice. In this case, the question arises as to whether the field study itself is understood as "access" in the sense of the CBD or only the collection and export of samples. The contract must be drafted accordingly.

3. Botany:
Inventory of flora and vegetation in a tropical region

The project will conduct inventories of the flora and vegetation in an area of the tropics whose botany has not previously been studied in detail. The objective is to prioritize areas for conservation and to reach a better understanding of the area's phytogeography. The work will include the following steps: *in-situ* collection of wild plant material; preparation of dried herbarium specimens; identification of plants using reference herbaria; and the sending of collected plant material to specialists in different countries for the purpose of identification. It is expected that several new species will be discovered.

This species-level work will yield a floristic inventory of the analysed region. Surveys of vegetation will be conducted in the field and will include analysis of satellite images. Vegetation maps will be drawn using Geographic Information System (GIS) technology. A distribution analysis of target taxa will also be carried out. In accordance with general practice, it was agreed to deposit identified duplicate samples in a herbarium of the country in which the plant collection is carried out.

Simple ABS contract and subsequent MTA

Assumptions
Option 1: The research area is located on the territory of one country.
Option 2: The research area is located on the territory of two or more countries.

Analysis

Access	Collection of plants. Sending of dried plants to specialists in different countries for taxonomic identification.
Parties	Provider: Country or countries where resources are located. User: Swiss research institute.
Prior Informed Consent	Research area; research steps (collection, inventory); transmission of samples to specialists; approved use of samples (e.g., no commercialization).
Contracts	Simple ABS contract between provider country or countries and Swiss research institute. If several countries are involved, the contracts must be concluded with the responsible agencies in each country.
Benefits to be shared	Training of PhD students; provision of duplicate herbarium specimens; vegetation maps; floristic inventory; cooperation with local research institutes; co-publication of findings.
Contract Elements	Parties to the contract(s); research objectives; geographical area; export of specimens; specification of specimen use (identification by third parties; no commercialization; transfer to other parties allowed/not allowed); details of benefit sharing.
Note	According to the BGL, taxonomic research that complies with the Global Taxonomy Initiative should be facilitated (for details, see p. 53).

4. Medicine:
Evolution and epidemiology of tuberculosis

Tuberculosis (TB) causes many deaths annually and is rapidly increasing in sub-Saharan African countries. The aim of this project is to identify population-based clinical and molecular determinants of tuberculosis epidemiology and ascertain new evidence of the evolutionary pathway of TB in humans and livestock. The project aims to establish a molecular characterization and clustering of TB strains in relation to prevalence, animal-human transmission, and resistance to antibiotics. Repeated observational field studies will be conducted in close collaboration with the national tuberculosis programmes of Chad. Tuberculosis patients will be offered treatment within the framework of national tuberculosis programmes. Livestock carcasses will be collected in abattoir surveys for the cultivation of *Mycobacterium tuberculosis* complex. Region-deletion Polymerase Chain Reaction (PCR) and sequencing of Single-nucleotide Polymorphism (SNP) of genes responsible for antibiotic resistance of all isolated TB strains will provide specific information on the evolutionary pathways of TB at the interface between humans and livestock and between West and East Africa.

No ABS situation or MTA/ simple ABS contract

Assumption
Option 1: The samples will be analyzed in Chad.
Option 2: Samples will be exported to Switzerland for analysis.

Analysis

Access	Access consists in the collection of sputum and granuloma containing *Mycobacterium tuberculosis* for cultivation in Chad; strains are exported to Switzerland for molecular characterization.
Parties	Providers: Chadian government agencies. User: Swiss research institute.
Prior Informed Consent	*Mycobacterium tuberculosis* accessed as genetic resource; research method and objectives; export of samples.
Contracts	Option 1: No ABS contract, if all research is exclusively carried out in Chad. Option 2: Simple ABS contract.
Benefits to be s0hared	Option 2: Training of PhD students, technology transfer and capacity building of local researchers; cooperation with national tuberculosis programmes; support in the transfer of results to TB programmes; co-publication of findings.
Contract Elements	Parties to the contract; research objectives; export; type of samples and objective (analysis); details of benefit sharing.
Note	The genetic resource accessed is the *Mycobacterium tuberculosis* and not the sputum and granuloma, which in itself is a human genetic resource and as such not subject to the CBD. It may be necessary to explain to local participants that the research in question is basic research, and will not lead directly to a product with commercial potential. In reality, this case is an example of cooperative research in the sense of North-South partnership: the analysis of samples in Switzerland merely constitutes the provision of a service as long as the necessary infrastructure is not available in Chad. The further research on its results will be effectuated in Chad, in cooperation with the local research team.

5. Ethnobotany:
Ecological impact of repeated harvesting of wild plants

The focus of this project is the mutual influence of biological and cultural diversity in a biodiversity hotspot in Asia. Five different ethnic groups in a remote mountain region will be examined as part of a comparative ethnobotanical survey. The researchers will investigate the differences in plant use. Plant resource management of cultivated and of wild collected species among the ethnic communities will also be studied. The main question to be addressed is whether plant use is influenced by the accessibility of certain species or by the traditional culture of an ethnic group. The ecological impact of repeated harvesting of wild plants on different habitats will be analyzed. Field work will involve the assessment of plant diversity around the villages, local plant use, different plant categories and the impact of repeated plant harvesting. The work will include *in-situ* collection of wild plant material and identification of plants using reference herbaria. Modern inventory techniques relating to plant diversity will be applied. Current statistical software tools will be used for the analysis of the semi-structured interviews and participatory observation data.

Assumption
Samples will be exported to Switzerland.

Analysis

Access	This project involves different access situations: 1) Access to wild plants; 2) Access to cultivated plants; 3) Access to the use made of the plants (knowledge, innovations and practices (TK) relating to plant use).
Parties	1) Access to wild plants, export of samples: Provider: Responsible state agencies as contracting party; User: Swiss research institute. 2) Granting of access to cultivated plants, authorization of export of samples: Provider: Responsible state agencies, and individual owner of plants and/or community; User: Swiss research institute. 3) Granting of access to knowledge relating to traditional plant use: Providers: Individuals interviewed and observed and/or community, according to applicable national and local laws, regulations and customs; User: Swiss research institute.
Prior Informed Consent	Objective and method of research; publication of results; consent of individuals and communities for accessing and the later publication of traditional knowledge (i.e. for placing traditional knowledge in the public domain).
Contracts	With government agency for the collection and export of wild and cultivated plants. With the community and/or individuals and possibly government agency for research on cultivation, i.e. knowledge, innovation and practices.
Benefits to be shared	Training of PhD or post-doctoral students; provision of duplicate herbarium samples for national/regional collection; adapted presentation and documentation of results to local community; communication of results between communities; feedback to communities regarding the sustainability of harvesting practices.
Contract Elements	Contract with state agencies: parties to the contract; specification of resources (wild, domesticated, TK); export; type of samples and TK, permitted use; details of benefit sharing at government level. Contract with local communities: parties to the contract; objectives and methods of research and specification of samples (domesticated plants, TK); permitted use of samples and TK; details of benefit sharing with local communities.

see next page →

Note

This study involves the use of local people's the traditional knowledge, therefore they must be involved in the negotiations concerning their knowledge and must agree to its use. Benefit sharing must be discussed and assessed with the communities and individuals involved during the preparatory phase. It must also be established whether ethnic communities agree to the publication of all findings. The procedure described in case 2 should be followed if dried plant material is passed on to taxonomic specialists.

How to proceed

A synoptical table indicates the main steps necessary for the implementation of a research project in accordance with the Access and Benefit-sharing system.

1. Research steps and ABS requirements

	Basic Steps	To Do	Useful Tips
Planning	1. Check whether your research is subject to Access- and Benefit-sharing requirements (see case studies in Chapter II). 2. Define schedule and budget for preparatory phase. 3. Define schedule and budget for benefit sharing.	• Check whether cooperative research is possible (for details on cooperative research, see Sources: Swiss Commission for Research Partnerships with Developing Countries p. 57).	If there is more than one option regarding the location of the study area, choose a country in which you have already established contact with the authorities or university institutes and/or a country that provides organized infrastructure for access procedures for academic research.
Preparation	4. Contact the national ABS Focal Point (see sources p. 56). 5. If there is no national focal point, inquire with FOEN for the identification of an entry point and the competent authority. 6. Apply for PIC: submit the necessary information (see PIC elements p. 44) to the identified entry points and stakeholders. 7. Negotiate and agree on contract of Mutually Agreed Terms (see MAT elements p. 46 and 47).	• Check whether you need to submit other types of application. • Check whether local institutions need to be informed. • The cost of the application process must be born by the applicant.	• Apply for access as early as possible. • The process may be time-consuming; ask about or negotiate deadlines for procedural steps.
Basic Research*	8. Before starting work acquire PIC and agree on MAT, including benefit sharing. 9. Adhere to agreed research plan; if this is not possible, renegotiate PIC and MAT. *This applies to both resources acquired *in-situ* and from an intermediary institution.	• Respect local and national laws and regulations. • Respect the customs, traditions, values and customary practices of indigenous and local communities. • Respect the principles of conservation and sustainable use of biological resources. • Where possible, seek cooperation with institutions and researchers from the providing country.	• Document the application for PIC and all decisions regarding the granting of access to genetic resources and the MAT in written form. • Keep all data documenting the PIC and MAT processes.
Results & Benefits		Share the results with stakeholders of the providing country (see Benefits arising from academic research p. 48 and 49), e.g.: • respond to requests for information from local people; • make documentation of the research findings available to the providing country; • provide your research partners with access to the research findings.	
R&D	10. Further research steps must be covered by PIC and MAT. 11. If not, obtain new PIC from the provider of the resource. 12. If you transfer resources to a third party, ensure that this is covered by PIC and that the conditions of the initial MAT will be respected.	• Seek research and development cooperation with the providing country. • Respect any restrictions or limitations on the use of the genetic resources defined by the provider(s).	
Commercialization	13. Ensure that R&D with view to the commercialization of research results is covered by PIC and included in the MAT. 14. If the findings lead to essential changes in the project, obtain new consent (PIC and MAT). 15. If you transfer rights or processed research material to another institution, ensure that this transfer is covered by the PIC and that the specified conditions are met (MAT). 16. Share any economic and/or academic benefits resulting from the valorization of the research findings.	• Respect any restrictions or limitations defined by the providers. • Promote participation in the product development. • If possible, develop products in the providing country. • Carefully check the question of intellectual property rights with your technology transfer unit or legal services department.	• For ABS negotiations, cooperate with your institution's technology transfer unit or legal service department. • See also ABS-Management Tool, p. 57.

Useful tips

- The implementation of the Access and Benefit-sharing system (ABS) is still in a state of flux, both at national and international level. Thus, the relevant authorities may not be clearly designated in all cases or the established procedures transparent and smooth. If you can choose where to carry out your research, examine the relevant experience of other researchers and institutes.
- The ABS procedure is regulated by the national law of the providing countries (not necessarily in specific ABS legislation). This includes the definition of the competent national authorities agency and of the other stakeholders to be involved (15.1 CBD; 28-32 BGL).
- If relevant national legislation does not yet exist, access permits may be issued on a case by case basis, based on general principles of law and/or similar proceedings and rules.
- The ABS procedure may be combined with other licenses, permits (research, collection, export, CITES permits, etc). However, this will probably not yet apply in most cases and countries.
- Standardized Material Transfer Agreements (MAT) and benefit sharing agreements for similar resources and similar uses may already exist (taxonomy, collection, research, commercialization; BGL 42 b, e).
- The Bonn Guidelines (BGL) recommend public participation at local level with regard to all government decisions concerning issues involving resources and permits that affect the public (BGL 18). This may lead to:
  - the need for different stakeholders on different levels to grant their PIC;
  - the ABS procedure becoming more complex and time-consuming.

The Bonn Guidelines (BGL) define responsibilities for both the users and providers of genetic resources. They aim to establish a transparent application process and achieve a balanced and successful outcome for all parties involved. However, if the providing country has chosen other procedures based on its own legislation, these procedures prevail.

Users (BGL 16 b)

For details see Checklists p. 43–49.

In general
Users must seek the PIC of the competent authorities before accessing the resources. Users must only access resources in accordance with the agreed terms (PIC, MAT) and adhere to the agreed conditions.

Regarding indigenous and local communities (BGL 16 b ii)
Respect the customs, traditions, values and customary practices of indigenous and local communities. Respond to requests for information from indigenous and local communities and present the information in a suitably adapted form.

Regarding further research and the transmission of results or genetic resources to third parties (BGL 16 b v, viii and 34)
If you plan to use the genetic resources for purposes other than those agreed in the original PIC and MAT, you will have to apply for new contracts. Do not start new research until permission has been granted.

When supplying genetic resources to third parties, ensure that the PIC/MAT agreements are honoured. Supply all relevant contractual data (PIC/MAT) to the third party and document the transfer.

Benefit sharing (BGL 16 b vii and ix)
Carry out as much research as possible in the providing country in cooperation with its institutes and researchers. Ensure that the benefits are shared in a fair and equitable way, as agreed upon in the MAT.

Taxonomic research (BGL 11 l)
Make all information on specimens deposited in providing country collections available to the providing country authorities.

Providers

In general
Providers that are party to the Convention on Biodiversity undertake to facilitate access to biological resources (CBD Art. 15.1, BGL 26 b). They also undertake to ensure that access to genetic resources is granted only for environmentally sound uses and that all stakeholders will take the environmental consequences of the access activities into account (CBD Art. 15.2; BGL 16 a). They designate a national focal point and the competent national authority for access and benefit sharing and make such information available through the CBD's clearing-house mechanism (BGL 13 and 14) (see Sources p. 56).

Legislation and procedures, (BGL 16 a i and iv, and 33)
Providing countries should adapt their policies, legislation and administrative procedures to the requirements of access to genetic resources. Procedures must be clear, objective and transparent. Providing countries undertake to take decisions on access within a reasonable period of time.

Competent national authorities (BGL 14 and 29)
If a clearly designated national authority that is competent to engage in ABS negotiations exists, it may also be responsible for granting access and for advising researchers on all of the stages and requirements of the ABS process. If no such authority exists, it may be necessary to obtain PIC from different agencies and levels of government.

Stakeholder participation; in particular the participation of indigenous and local communities (BGL 16 and 31)
Providing countries ensure that information about decisions regarding access to genetic resources (GR) is made available to the relevant stakeholders, in particular to indigenous and local communities. They support capacity-building for the participation of indigenous and local communities in the negotiations. In granting PIC, the competent authorities respect the established legal rights of indigenous and local communities associated with the GR to be accessed; their PIC must also be obtained.

Taxonomic research (BGL 11 I, 16 b [viii], 34)
Taxonomic research (as specified in the Global Taxonomy Initiative) must not to be hindered. Providers shall facilitate the acquisition of material for systematic use. This may include establishing special terms and conditions under

Mutually Agreed Terms, including special terms for the transfer of samples to third parties. This is always subject to the condition that the objectives of the research and the transfer are strictly non-commercial and purely taxonomic or systematic.

Useful tips

By taking the following precautions you can enhance the certainty of your legal position as user of genetic resources:

- Document all negotiations;
- Maintain all relevant data, in particular documentary evidence concerning the PIC and information concerning the origin and the use of genetic resources.

1. The procedures for obtaining access permits are very complicated. The government agency even wants public notification and participation, and the right to appeal the final decision. Is all this really necessary?

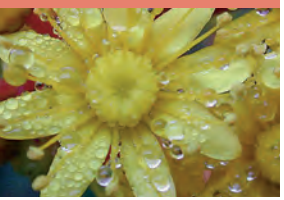
If this procedure is required by the national legislation, it has to be applied. If you are planning a complex project involving, for example, different government levels, communities and/or a geographically extensive area, the applicable procedure may ultimately simplify matters. It mobilizes potential opposition before the research begins and makes it possible to take decisions on potential objections in an impartial way. If the procedures for access are too burdensome, you may have to look for other countries to carry out your research.

2. Do the PIC and MAT cover all the necessary permits?

This may only apply in exceptional cases. Thus, it is essential that you do not take this for granted and ensure that you have all other necessary permits (e.g. research, collection, export, and CITES permits).

3. There is no focal point, no designated competent national authority in the country in which I would like to carry out research. What should I do?

Up to now, only a minority of the CBD member states have designated the competent national authorities (see “National Implementation” on p. 56, Sources). Try to find out whether colleagues from your scientific community have already carried out research in this country. If you are unable to obtain any information in this way, contact the Swiss ABS Focal Point (see Contacts/Support p. 58). Consider



carrying out the research in another country that has the necessary ABS structures.

4. Local people may be interested in/opposed to my research, but the competent national authority sees no need to inform them. What should I do?

Try to contact the local communities anyway. Contact the community leaders and discuss with them how best to inform the community about the proposed research (e.g. by being invited to a community assembly) in a way that is understandable to them, i.e. if possible in their own language and using suitable means (some may not be able to read).

5. Local NGOs are campaigning against our research. According to them the locals are selling their biological patrimony. What should I do?

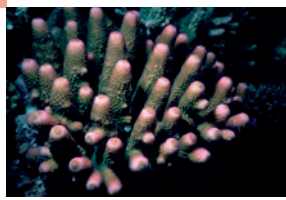
If you encounter NGOs in the region in which you intend to do your research that actively advocate to local and indigenous people that they conserve their "biological patrimony", contact them before you start your research and inform them of your plans. Transparency is essential throughout the entire research process. It is essential to provide reassurance on the following points: 1) the nature of the objectives of your research (e.g. non-commercial); 2) the fact that the implementation of the project will fully respect local customs and privacy; 3) the fact that no information about the communities will be published without their consent; 4) the willingness of the project organizers and researchers to provide information about the research to the local community; 5) the advantages the research will bring to the local community/country.

6. Local people are refusing to grant access to the material I require for my research. What should I do?

Check whether they were involved in the PIC/MAT procedure. If not and if they have the right to be involved, this step of the procedure must be repeated. If this is not the case, try to inform them yourself (see question 4 on p. 40). If they insist on their refusal, this must be respected. In any case, if you are working on privately owned land and the local people or private landowners need not be included in the ABS procedure in accordance with the national legislation, it is still wise (and polite) to approach the owners officially before embarking on the research.

Checklists

These checklists are intended as an aid in the preparation of a research project that is compliant with the Access and Benefit Sharing system.



These checklists contain elements of Prior Informed Consents and Mutually Agreed Terms, and the possible benefits to be shared. They are as comprehensive and as complete as possible, thus not all of the elements mentioned here need to be included in your negotiations and contracts. They should be adapted to your specific research in cooperation with the resource providers.

1. Prior Informed Consent (PIC)

It is recommended that stakeholders who are entitled to give their Prior Informed Consent to your project/access be informed about the following elements (BGL 36):

Basic information

- Legal entity and affiliation of the applicant and/or collector; contact person if the applicant is an institute
- Project organization, possibly budget
- Treatment of confidential information

Basic research

- Type and quantity of genetic resources, to which access is sought
- Starting date and duration of the research
- Geographic area in which Geographic prospecting will take place
- Evaluation of how the access activity may impact on conservation and the sustainable use of biodiversity
- Purpose of the collection, research, and expected results; accurate information regarding intended use (e.g. taxonomy, collection, research, commercialization)

Research and development

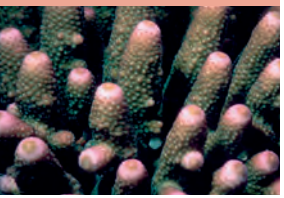
- Identification of where the research and development will take place
- Information on how the research and development will be carried out
- Identification of local bodies for collaboration in research and development
- Possible third-party involvement

Benefits

- Nature of benefits that could arise from obtaining access to the resource, including benefits of products arising from the commercial and other utilization of the genetic resource
- Indication of benefit-sharing arrangements
- Stakeholder information/communication scheme

Useful tips

- Obtain PIC from:
  - the competent national authorities;
  - the relevant stakeholders, such as indigenous and local communities, as appropriate to the circumstances and subject to domestic law.
- The BGL recommend public participation at local level with regard to all government decisions regarding resource and permit matters that affect the public.
- PIC may have to be obtained from different levels of government.
- For *ex situ* resources, PIC should be obtained from the national authority and the body governing the *ex situ* collection.
- If later you make fundamental changes to your research plan, you must apply for new PIC.
- If you obtain the resources from an intermediary, ensure that the PIC of the original holder of the material covers your planned research intent.



Introductory provisions

- Reference to the Convention on Biological Diversity (CBD) and the BGL in the preamble
- Legal status of the provider and user of genetic resources
- Mandate and/or general objectives of provider and, where appropriate, user of genetic resources

Access and Benefit-sharing provisions

- Description of genetic resources covered by the material transfer agreements, including accompanying information
- Permitted uses, bearing in mind the potential uses of the genetic resources and their products under the Material Transfer Agreement (e.g. research, breeding, commercialization)
- Statement that any change of use would require new Prior Informed Consent and Material Transfer Agreement
- Indication of whether intellectual property rights may be sought and if so under what conditions
- Terms of benefit-sharing arrangements, including commitment to share monetary and non-monetary benefits
- No warranties given by provider regarding the identity and/or quality of the provided material
- Indication of whether the genetic resources and/or accompanying information may be transferred to third parties and if so the conditions that should apply
- Definitions
- Obligation to minimize environmental impact of collection activities

Legal provisions

- Obligation to comply with the Material Transfer Agreement
- Duration of agreement
- Notice required to terminate the agreement
- Fact that the obligations in certain clauses survive the termination of the agreement
- Independent enforceability of individual clauses in the agreement
- Events limiting the liability of either party (such as *force majeure*, fire, flooding, etc.)
- Arrangements for the settlement of disputes
- Assignment or transfer of rights
- Assignment, transfer or exclusion of the right to claim any property rights, including intellectual property rights, to the genetic resources obtained through the Material Transfer Agreement
- Choice of jurisdiction
- Confidentiality clause
- Guarantee

Useful tips

- Enquire about standardized agreements, facilitated conditions for basic non-commercial academic research, standard material transfer and benefit-sharing agreements with the responsible agency (BGL 42).
- For details regarding the negotiation, conclusion and content of the agreements, contact your institute's technology transfer unit.

Sharing of academic benefits

- Provide access to scientific data resulting from the research, including the necessary infrastructure
- Provide access to *ex situ* facilities
- Integrate partners into the reviewing process
- Co-publish research findings with research partners
- Support the academic careers of research partners
- Maintain institutional and professional relationships

Capacity building, scientific cooperation, participation, technology transfer

- Train local researchers in the field and in the laboratory
- Share samples
- Secure finance for maintenance of collections
- Provide research infrastructure (e.g. laboratory equipment)
- Provide communication infrastructure
- Integrate local researchers in scientific and practical work
- Integrate local assistants in practical work
- Implement research on a cooperative basis: cooperative project design; cooperative project implementation (see Sources: Guidelines for Research in Partnership with Developing Countries p. 57)

Increased availability of information and knowledge

- Provide ongoing information about research, progress and expected results

- Inform all involved stakeholders about results in a form that is adapted to the target audience
- Maintain contact with (local) representatives of administration, government agencies and research institutes

Application, R&D, commercialization of results

- Develop research directed at the practical needs and problems of the providing country
- Promote participation in product development
- Establish joint ownership of relevant intellectual property rights based on the level of contribution
- Share economic benefits

Useful tips

- Benefits should be aimed at the conservation and the sustainable use of biological diversity (BGL 48).
- Benefits should be shared fairly and equitably between all those who have contributed to the resource management and scientific and/or commercial process (BGL 48).
- Differences exist in benefit-sharing options between basic research, applied research and R&D for commercial uses.
- It may be necessary to explain carefully that academic research does not lead to economic benefits in most cases.
- A large part of the sharing of benefits may have to be carried out during the research itself.
- There are benefits, that can only be shared once research in itself has been accomplished.

Appendix

1. Glossary

Access	The term "access to genetic resources" is not defined in the CBD and the BGL and therefore varies according to national legislation and practices. Access may consist of various activities, such as: • entering a location/place where genetic resources are found; • surveying activities; • obtaining/acquiring genetic resources; • the use of genetic resources; • the study or systematic investigation of genetic resources for scientific and/or commercial purposes.
Benefit	Economic or academic advantages arising from research on/utilization of genetic resources.
Biological Resources	Biological resources include genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity (CBD Art. 2).
Biopiracy	Utilization and/or appropriation of genetic resources that is not based on the necessary access permits or does not fulfil the agreed conditions and is, therefore, illicit.
Bonn Guidelines (BGL)	Guidelines adopted by Decision VI/24 of the Conference of the Parties to the CBD. The aim of the Bonn Guidelines is to clarify regulations on ABS contained in the CBD. The BGL are an interpretative instrument and not binding in themselves.
Competent Authorities	(Government) agencies or institutions designated by national legislation as competent to negotiate with users of genetic resources and to grant access to them (PIC and MAT). Different levels and types of agencies may be involved in the procedures for granting PIC.
Genetic Material	Genetic material refers to any material of plant, animal, microbial or other origin containing functional units of heredity (CBD Art. 2).
Genetic Resources (GR)	Genetic resources are genetic material, i.e. any material of plant, animal, microbial or other origin containing functional units of heredity that is of actual or potential value (CBD Art. 2). The value need not be commercial (i.e. monetary), but may be scientific or academic in nature. The valuable information must not be genetic; it may also consist, for example, in the biochemical information contained in the material. Since "value", and specifically the potential value, has not yet been defined, virtually all biological resources may fall under this definition.
Global Taxonomy Initiative (GTI)	The GTI has been established by the Conference of the Parties of the CBD to address the lack of taxonomic information and expertise available in many parts of the world, and thereby to improve decision-making in conservation, sustainable use and equitable sharing of the benefits derived from genetic resources. The GTI is specifically intended to support implementation of the work programmes of the Convention.
International Regime	The Conference of the Parties to the Convention on Biological Diversity (CBD) decided in 2004 to create an International Regime on access to genetic resources and the sharing of benefits arising out of their utilization. Negotiations started in 2005 and are meant to end in 2010.
Mutually Agreed Terms (MAT)	Also termed, as e.g., "ABS contracts", "access permits", "ABS agreements": various types of authorization, defining the conditions for access and benefit sharing, by means of which users obtain access to/permission to use genetic resources in order to collect, study and utilize them commercially.
National Focal Point	Each party should designate a national focal point for ABS that informs applicants for access to genetic resources on procedures necessary for acquiring prior informed consent and mutually agreed terms, and on competent national authorities, relevant indigenous and local communities and relevant stakeholders (BGL 13; see Sources p. 56).
Party to the CBD	States having ratified or accessed to the Convention on Biological Diversity.

Prior Informed Consent (PIC)	Prior Informed Consent is the consent of the relevant competent national authority/authorities in the provider country granted for the research and utilization of genetic resources. The consent of relevant stakeholders, such as indigenous and local communities, should also be obtained, as required by individual situations and subject to domestic law.
Procedure	Administrative and/or legal steps necessary to obtain an official decision on a specific issue.
Providers / Providing Countries	All Contracting Parties to the CBD that provide access to resources situated in their country to users.
Stakeholders	All institutions, agencies, organizations, communities and individuals that may be involved in the ABS procedure in accordance with national law or based on case by case decisions: i.e. government agencies, regional and local governments and representatives of indigenous and local communities, local organizations.
Standardized Material Transfer Agreement (SMTA)	Standardized contract or binding legal agreement between the owner of genetic material and the recipient of the material.
Traditional Knowledge (TK)	TK has not been defined in the CBD and the BGL. The CBD speaks of "knowledge, innovations and practices of indigeneous and local communities embodying traditional lifestyles relevant for the conservation and the sustainable use of biological diversity" (Art. 8j). The concept of TK is not limited to ancient wisdom, but also includes innovative knowledge acquired on the basis of traditional methods.
Users	In the academic context, all researchers who access genetic resources (cf. above) and/or make use of genetic resources.
Value	The (actual or potential) value of genetic resources has not yet been generally defined; thus virtually all possible uses may be applicable. The implementation depends on national legislation and practice.

2. Abbreviations

ABS	Access and Benefit Sharing
AMF	Arbuscular mycorrizhal fungi
Art.	Article
BGL	Bonn Guidelines
CBD	Convention on Biological Diversity
CHM	Clearing House Mechanism
CGIAR	Consultative Group on International Agricultural Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
FOEN	Swiss Federal Office for the Environment
GR	Genetic Resources
IITA	International Institute of Tropical Agriculture
IPEN	International Plant Exchange Network
IT PGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
KFPE	Swiss Commission for Research Partnerships with Developing Countries
MAT	Mutually Agreed Terms
PGRFA	Plant Genetic Resources for Food and Agriculture
PIC	Prior Informed Consent
R&D	Research and Development
SMTA	Standardized Material Transfer Agreement
TK	Traditional Knowledge

3. Sources

Swiss Federal Office for the Environment (FOEN)

ABS website:
www.bafu.admin.ch/biotechnologie/01773/03695/index.html?lang=en

Swiss Informationsystem Biodiversity (SIB)
http://www.sib.admin.ch

Swiss Academy of Sciences (SCNAT)

ABS website
http://abs.scnat.ch

Convention on Biological Diversity (CBD)

General website:
http://www.cbd.int

Text:
http://www.cbd.int/convention/text

Parties to the Convention and the Nagoya Protocol:
http://www.cbd.int/convention/parties/list/

Access to Genetic Resource, general website:
http://www.cbd.int/abs

National Focal Points to the Intergovernmental Committee for the Nagoya Protocol on Access and Benefit-sharing (ICNP ABS NFP):
http://www.cbd.int/information/NFP.shtml

Competent National Authorities on Access and Benefit Sharing (ABS CNA):
http://www.cbd.int/information/nfp.shtml

Bonn Guidelines (BGL)

General website:
http://www.cbd.int/abs/bonn

Botanic Gardens

International Plant Exchange Network (IPEN), general website:
http://www.bgci.org/resources/ipen

Royal Botanic Gardens Kew, The CBD for Botanists:
http://www.kew.org/data/cbdbotanists.html

Swiss Commission for Research Partnerships with Developing Countries (KFPE)

General Website:
http://www.kfpe.ch

A Guide for Transboundary Research Partnerships, 11 Principles:
http://www.kfpe.ch/11-Principles/

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

General website:
http://www.planttreaty.org

World Intellectual Property Organization (WIPO)

Searchable database of biodiversity-related Access and Benefit-sharing Agreements:
http://www.wipo.int/tk/en/databases/contracts/index.html

MOSAICC

Micro-Organisms Sustainable Use and Access Regulation International Code of Conduct:
http://www.bccm.belspo.be/projects/mosaicc/

Swiss State Secretariat for Economic Affairs (seco)

ABS-Management Tool. Best Practice Standard and Handbook for Implementing Genetic Resource Access and Benefit-sharing Activities. Focus on commercial research:
http://www.iisd.org/abs/

4. Contacts and Support

Swiss Focal Point for ABS

Dr. Marco D'Alessandro
Swiss Federal Office for the Environment (FOEN)
3003 Bern – Switzerland
Phone: +41 (0)31 322 9395
E-mail: marco.dalessandro@bafu.admin.ch

Swiss Academy of Sciences

http://abs.scnat.ch
abs@scnat.ch

Universities and Universities of Applied Sciences

Technology Transfer Units, Legal Service Departments

Acknowledgement

This manual was commissioned and sponsored by FOEN. We would like to thank its representatives and the representatives of other government agencies for their cooperation. It is part of Switzerland's commitment to the CBD to promote voluntary measures and contribute to the establishment of a transparent ABS procedure.

We received substantial input in the development of the manual from the Swiss Biodiversity Forum and the Forum on Genetic Research (both Swiss Academy of Sciences), and from the Swiss Commission for Research Partnerships with Developing Countries of the Council of the Swiss Scientific Academies.

The Consultative Group on Access and Benefit Sharing assisted in the compilation of the manual by critically evaluating the various drafts from the point of view of the academic disciplines involved in the ABS system. We thank all members of the group for their willingness to accompany the project and for their valuable input.

The compilation of the manual was preceded by a survey of members of the Swiss academic community on their experiences with research on genetic resources accessed in other countries. The case studies were selected from this information pool and edited in cooperation with the involved researchers. The final version of the manual was subject to a broad evaluation process within academic and science policy circles. We are grateful to all contributors for their comments and suggestions which helped us to clarify the implications of the ABS system for academic research and, hence also, to enhance the ease of the use of this manual.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Office for the Environment FOEN

The purpose of this manual is to inform the academic community about the system governing access to genetic resources and the sharing of the benefits arising from their use as established by the Convention on Biological Diversity. It explains the steps that must be taken when accessing biological resources for research purposes.

ISBN: 978-3-033-01907-2