

Thematic Report on Transfer of Technology and Technology Cooperation

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Please provide summary information on the process by which this report has been prepared, including information on the types of stakeholders who have been actively involved in its preparation and on material which was used as a basis for the report.

This report has been written after extensive consultations with German industry organisations, botanical gardens, zoos and other stakeholders involved in the transfer of technology and technology cooperation.

This report is also the result of consultations between different government bodies working in various areas of technology transfer. The following Federal Ministries have been consulted: Environment, Foreign Affairs, Finance, Justice, Development Cooperation, Economics and Labour, Education and Research, and Agriculture.

Transfer of Technology and Technology Cooperation

Inventory and assessment

1. Has your country developed an inventory of existing technologies or category of technologies, including from indigenous and local communities, for the conservation and sustainable use of biological diversity and its components, in all the thematic areas and cross-cutting issues addressed by the Convention?	
a) no	X
b) an inventory under development	
c) an inventory of some technologies available (please provide some details)	
d) yes, a comprehensive inventory available (please provide details)	
2. Has your country assessed the potential impacts of relevant technologies on biological diversity and their requirements for successful application?	
a) no	
b) yes, please give some examples	X (see below)
3. Has your country carried out an assessment of the needs for relevant technologies?	
a) no (please specify the reasons)	
b) yes, and please specify the needs met and the needs not met for existing technologies and for new technologies	X (see below)

Implementation of some relevant articles of the Convention, relevant decisions adopted at the previous meetings of the Conference of the Parties and recommendations of SBSTTA

4. In implementing the thematic programmes of work adopted by previous meetings of COP, has your country achieved the outcomes identified in these programmes of work through technology transfer and technology cooperation? (Decisions II/10, III/11, IV/6, IV/7 and V/4)	
a) no	
b) yes, but only a few activities in some programmes	
c) yes, and a wide range of activities in many programmes of work	
d) if yes, please specify these activities and programmes of work	
Not relevant	

5. Has your country undertaken technology cooperation with other Contracting Parties that lack the expertise and resources to assess the risks and minimize the negative impacts of introducing alien species? (Decision V/8)	
a) no	X
b) yes – please give details below (including types of technology transferred, actors involved, terms for transfer and means of access to technology)	
6. Has your country taken any steps or measures to facilitate transfer of technology to and technology cooperation with other Parties to develop and/or strengthen their capacity to implement the policy, program and practice for sustainable use of biological diversity? (Decision V/24)	
a) no	
b) yes, please specify detailed measures and steps	X (see below)
7. Could you provide examples or illustrations of benefit-sharing contractual agreements which have included technology cooperation and technology transfer as benefits to be shared? (Article 15)	
a) no	
b) yes	X (see below)
8. Has your Government taken measures, as appropriate, to ensure, as set out in the Article 16(3) that Contracting Parties providing genetic resources are provided access to and transfer of technology which makes use of those genetic resources? (Article 16)	
a) no	
b) yes, please provide some details	X (see below)
9. Have the taxonomic institutions in your country taken any initiatives in developing national priorities, both individually and regionally, in new technology? (Decision IV/1)	
a) no	
b) yes, in early stages of development	X (see below)
c) yes, in advanced stages of development	
d) yes, some initiatives in place and some priorities identified	
e) yes, comprehensive priorities identified	
10. Has your country been involved in technology development and/or transfer for the maintenance and utilization of ex situ collections? (Decision V/26)	
a) no	
b) yes – please give details below (including types of technology transferred, actors involved, terms for transfer and means of access to technology)	X (see below)
11. Has the clearing-house mechanism in your country been further developed in order to assist in obtaining access to information concerning access to and transfer of technologies? (Decision V/14)	
a) no	
b) yes, please provide some examples	X (see below)

Role of public and private sectors in technology transfer and technology

12. Do you know of any examples of technology partnerships between public R&D institutions from developing countries and private-sector firms from industrialized countries? If so, to what extent have these partnerships involved	
a) the training of developing country scientists in the application of new technologies for the conservation and utilization of genetic resources	Yes (see below)
b) information exchange on new scientific exchange and technological advances	Yes (see below)
c) providing various technology components to developing country partner institutions	Yes (see below)
d) engaging in joint R&D?	Yes (see below)
13. Has your country taken any measures or developed any programmes to encourage the private sector or the public-private partnership to develop and transfer technologies for the benefit of governments and institutions of developing countries, including South-South cooperation?	
a) no	
b) yes, please give details	X (see below)
14. Have any type of incentives been established in your country to encourage the participation of the private sector in conservation and sustainable use activities as sources of new technologies and potential financiers of conservation programmes?	
a) no	X
b) yes, please give details	

Impact of intellectual property rights on technology transfer and technology cooperation

15. Are the technologies your country has accessed or wishes to access in the public domain or covered by intellectual property rights?	
a) public domain	
b) intellectual property rights	
c) both	
Not Relevant	
16. Have intellectual property rights been a limiting factor in acquiring technologies for the conservation and sustainable use of biological diversity?	
a) no	X
b) yes, please provide an example and specify the following: the type of technology sought (hard or soft technology); the area to which it is to be applied (e.g. forest, marine, inland waters, agriculture, etc.)	

Capacity-building for technology transfer and technology cooperation

17. Have adequate institutional structures been established and/or is adequate human capacity available to access relevant technologies, in your country?	
a) no	
b) yes	X
18. What, if any, have been the limiting factors in implementing relevant technologies?	
a) institutional capacity	
b) human capacity	
c) others - please specify	

19. Does your country consider that access to information and training or lack thereof has been a limiting factor in access to and transfer of technology?	
a) no	X
b) yes, please provide some examples	
20. Has your country been able to identify relevant technologies in specific areas for the conservation and sustainable use of biological diversity in your country?	
a) no	
b) yes, please give details	X (see below)
21. Has your country developed national policy and established international and national institutions to promote technology cooperation, including through the development and strengthening of technical, human and institutional capabilities?	
a) no (please specify the reasons)	
b) yes, please give some details or examples	X (see below)
22. Has your country established joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention?	
a) no	
b) yes, please give some details or examples	X (see below)

Measures for facilitating access to and transfer of technology

23. Has your country established the mechanisms and/or measures to encourage and facilitate the transfer of technology to and technology cooperation with other Contracting Parties?	
a) no	
b) yes, please provide some details	X (see below)
24. Has your country established channels for access to the technologies developed and applied for attaining the objectives of the Convention?	
a) no	
b) yes, please provide detailed information	X (see below)

Success stories of and constraints to technology transfer and technology cooperation

25. Has your country identified any success stories and opportunities of and constraints to transfer of technology and technology cooperation?	
a) no	
b) yes, please provide detailed information	See answer to 6) above

Further comments

2 b)

Several research projects and analyses have been conducted in Germany, which either deal with the identification of technologies that can have a positive impact on biological diversity, or impacts of existing technologies on biological diversity. These studies cover a wide range of technologies, such as methods for the identification of species for purposes of trade control¹, methods for *ex situ* conservation of species and genetic diversity², technologies to avoid unintended bycatch of small cetaceans in fisheries³, technologies applied in agriculture⁴, technologies for the production of renewable energies at sea⁵, technologies for conservation and sustainable use of genetic resources for food and agriculture⁶ or technologies related to the genetic modification of organisms⁷.

Studies of relevant technologies specifically aimed at the situation in developing countries have been conducted to some extent within the framework of German development cooperation, e. g. under the GATE-programme (German Appropriate Technology Exchange) of the German Technical Cooperation (GTZ).

In the case of biotechnology, technologies generally do not specifically serve the purpose of conservation or sustainable use, however they make use of genetic resources.

3 b)

Assessments have been carried out in some sectors. One example is an assessment of potential needs of on-farm conservation and management of plant genetic resources for food and agriculture.

6 b)

Since 1985 Germany has supported approximately 360 projects worldwide, which contribute to the conservation and sustainable use of biological diversity as well as the fair and equitable sharing of benefits arising thereof. The type of projects extends from short small-scale measures to complex programmes running over many years. Practically all of them include the transfer of technologies and know-how relevant to the sustainable use of biological diversity and its components, and the strengthening of concerned institutions in the partner countries.

Biodiversity issues have rapidly developed in German Development Cooperation in recent years. The first Technical Cooperation projects were started in the early 1980's. Among these were the Tanzanian "Selous Conservation Project" with wildlife management as its focus, which is still operating; the project "Resource Conservation and Game Management" in Tunisia (1982–1995); and the "Applied Tropical Ecology Program (Visayas State College, the Philippines)" (1988–1999). Starting in 1990, nature conservation and sustainable use of biodiversity became an integral part of German Technical and Financial Development Cooperation, and 20–25 new biodiversity projects were pledged annually to developing countries in the mid and late 1990's.

- *Project "Implementing the Biodiversity Convention"* – <http://www.gtz.de/biodiv>

This project is intended to enhance the implementation of the Convention on Biological Diversity (CBD) in development cooperation areas in which Germany is involved, and to promote the further development of the Convention itself, its tools and bodies. Moreover, the project supports developing countries in their efforts to implement the CBD at the national level.

The tasks performed include support to the regulation of access to genetic resources in developing countries. Concepts are elaborated to permit utilization of genetic resources that originated in developing countries while equitably sharing the benefits deriving from their utilization and using them to conserve biodiversity. Direct support is given in this context to the Philippines, Bolivia, South Africa, and Vietnam.

¹ e. g. Veith et al. (2000): A test for correct species declaration of frog legs imports from Indonesia into the European Union. – *Biodiversity and Conservation* 9:333-341.

² e. g. Keller et al. (2002): Chances and Limitations of "ex-situ" Conservation of Species and Genetic Diversity on a Global Perspective. – Bundesamt für Naturschutz, Bonn.

³ e. g. BMVEL (2002): Neues vom Schweinswal. – *Natur und Landschaft*, 77. Jg., Heft 11, S. 469.

⁴ e. g. Oppermann & Krismann (2001): Naturverträgliche Mähtechnik und Populationssicherung. – BfN-Skripten 54.

⁵ e. g. Merck & von Nordheim (2000): Technische Eingriffe in marine Lebensräume. – BfN-Skripten 29.

⁶ e.g. ZADI/IBV – Schriften zu Genetische Ressourcen, 17 Bände, <http://www.genres.de/infos/igrreihe.htm>

⁷ e.g. Lemke & Winter (2001): Bewertung von Umweltwirkungen von gentechnisch veränderten Organismen im Zusammenhang mit naturschutzbezogenen Fragestellungen. *Berichte/Umweltbundesamt 2001,3*. Berlin.

Another task performed by the project are provisions to support the implementation of the *Clearing-house Mechanism* (CHM) of the Convention with the aim to promote international cooperation and information transfer in the field of biodiversity. For instance, the project provides assistance to Cameroon, Bolivia and Colombia to establish their own national nodes of the CHM. To this end, the project provides advice, analyses needs, and supplies equipment. Today the expertise of the Colombian partner institution is requested by neighbouring countries in their efforts to establish their own CHM nodes.

Furthermore, the project has developed a “*Capacity-Building Initiative for the Implementation of the Cartagena Protocol on Biosafety*”, which was launched by the BMZ in 2000. This initiative aims at providing effective support to developing countries in establishing the necessary environment for implementing the Biosafety Protocol at the national level, thus enabling these countries to guarantee their own national biological safety and avoid negative impacts of transnational transport and use of products of modern biotechnology on man and the environment. The main elements of the initiative are policy advice; institution building (public administration; Biosafety Clearinghouse; monitoring, evaluation and inspection services); basic and further training of decision makers, experts and multipliers; as well as public awareness raising, education and promotion of public participation. Support will be given to several countries, starting with Algeria and China.

- Project “*Managing Agrobiodiversity in Rural Areas*” – <http://www.gtz.de/agrobiodiv>

The objective of the project is to establish conservation and sustainable use of agrobiodiversity as an important issue in development cooperation. The project supports the development of action plans, identifies focal areas and provides advice to partner projects. Capacity building of relevant governmental bodies and NGOs is primarily achieved through training measures, workshops and case studies focussing on the following topics:

- Implications of the “Bonn Guidelines on Access and Benefit-Sharing” for farm animal genetic resources.
- Development of under utilized crops and species (CBD Programme of Work on Agricultural Biological Diversity): product development, processing techniques, marketing etc.
- Methods for the documentation of traditional knowledge (Article 8j) related to farm animal genetic resources.
- Role of incentives for the sustainable use of agrobiodiversity (Article 11).
- Implementation of the CBD in harmony with the International Treaty on Plant Genetic Resources for Food and Agriculture.

- *Promotion of International Agricultural Research*

Within the scope of this project GTZ is executing the German contribution to the *Consultative Group on International agricultural Research (CGIAR)*. The project is intended to alleviate poverty in developing countries by way of agricultural research, achieve food security, and conserve natural resources. In order to attain this goal GTZ strongly supports networking and linking of national agricultural research institutions of developing countries, international agricultural research centres and research institutions in the industrialized countries.

Some examples of supported programmes and projects related to biodiversity are:

- Efficient Management of Genetic Diversity in Wheat: DNA Markers for Use in Wheat Breeding Programmes and Gene Banks – *International Maize and Wheat Improvement Centre (CIMMYT)*, 1999-2002.
- Fish Biodiversity in the Coastal Zone: A Case Study on the Genetic Diversity, Conservation and Sustainable Use of Tilapia in West African Lagoons and Watercourses – *International Centre for Living Aquatic Resources Management (ICLARM)*, 1997-2002.
- Patterns of Genetic Diversity and Genetic Erosion of Traditional Crops in Peru: Rapid Assessment and Risk Prediction GIS Tools – *International Plant Genetic Resource Institute (IPGRI)*, 2000-2002.

Within the context of Development Cooperation, biotechnology procedures and methods are applied almost exclusively in projects dedicated to the breeding of agricultural crops and the promotion of gene banks. Projects and project components of this kind can also be found at international agricultural research centres, which guarantee transfer of results to national institutions in the developing countries free of charge. Germany supports the work of international gene banks in Ethiopia (Biodiversity Institute, Institute of Agricultural Research), Costa Rica (Centro Agronómico Tropical de Investigación y Enseñanza – CATIE), and the national gene bank in Kenya (Kenya Agricultural Research Institute – KARI).

- German Appropriate Technology Exchange (GATE) – <http://www.gtz.de/gate>

GATE's objectives are a) improvement of the technological competence of NGOs and other groups involved in self-help-oriented poverty alleviation and b) development of information and knowledge management systems for NGOs and self-help groups. For more than 20 years GATE has supported transfer and exchange of technological knowledge through regional partners and a 'question and answer service', testing and dissemination of innovative technologies and networking and professionalizing of information services. Information services and supported small-scale projects are primarily aimed at marginalized groups, who can only compete in the market, if they use available resources efficiently and in a sustainable manner, thus contributing to the conservation and sustainable use of biological diversity, including agricultural biodiversity.

Some biodiversity related examples of the many specific measures for technology transfer:

- Environmentally sound and diverse land use concepts:
Introduction of Agroforestry Systems, Brasil 2001-2003
Seed Multiplication in Communal Plots, Bolivia 1999-2002
- Ecological sound plant protection:
Local Production of Biological Insecticides, Bolivia, 1997-1999
- Processing and marketing of products of organic farming:
Strengthening Community Based Organic Marketing Initiatives, India 2000-2002
- Sustainable use of under-utilised crops:
Indigenous Vegetables as an Alternative Strategy for Household Food Security, Zimbabwe, 1998-1999

Germany has also recently funded an R&D project on the sustainable use of African Blackwood (*Dalbergia melanoxylon*), which included the elaboration of practices for sustainable forestry in cooperation with a key wood importing company and local experts, as well as the organization of capacity-building workshops for forestry authority staff in Mozambique and Tanzania.

Under the EU's twinning programme, which promotes partnerships between authorities in EU countries and EU candidate countries, the Federal Agency for Nature Conservation has provided training and information on available technologies including IT-structures and software options to authorities involved with the regulation of international trade in endangered species in Bulgaria. A cooperation with Slovenian authorities on the same subject has been carried out on a bilateral basis.

- European Cooperative Programme for Crop Genetic Resources Networks (ECP/GR) –
<http://www.ecpgr.cgiar.org>

Germany is a member of ECP/GR. ECP/GR's objectives are (1) to facilitate the long-term in situ and ex situ conservation of plant genetic resources in Europe; (2) to facilitate the increased utilization of plant genetic resources in Europe; (3) to strengthen links between all plant genetic resources programmes in Europe and promote the integration of countries that are not members of ECP/GR; (4) to encourage cooperation between all stakeholders, including NGOs and private breeders; (5) to increase the planning of joint activities including the development of joint project proposals to be submitted to funding agencies; (6) to encourage the sharing of conservation responsibilities for plant genetic resources for food and agriculture (PGRFA) in Europe; (7) to increase awareness, at all levels, of the importance of PGRFA activities including conservation and sustainable use; and (8) to seek collaboration with other relevant regional and global initiatives.

ECP/GR's Inter-regional Cooperation Network promotes cooperation including transfer of technology between Europe and other regions throughout the world.

Through this network and in cooperation with the ECP/GR Documentation and Information Network, ECP/GR has recently supported the West African Network GRENEWCA in a training and planning workshop on documentation and information of plant genetic resources (2003).

7 b)

The German government is not in a position to provide information on benefit-sharing contractual agreements, which are concluded by private companies.

German research institutions (i.e. BAZ, ZADI, BBA) and more than 20 private plant breeding companies and an NGO have agreed to a cooperation related to the establishment of an evaluation programme of plant genetic resources of cereals (EVA II). The agreement is aimed at a public-private-partnership to share in-kind benefits arising from evaluation of cereal genetic resources. It may serve as a model agreement related to other crops or partners. <http://www.genres.de/eva>

German botanic gardens have a series of formal (Colombia) and informal (Georgia, Italy) international co

operations with other botanic garden networks. A formal cooperation with the botanic garden network of Ecuador is in preparation. These include full access to the data and information technology used by the German botanic garden network. A group of Italian botanic gardens uses the IT-infrastructure of the German network to disseminate information about their collections worldwide.

Within the BMBF funding programmes BIOLOG and BioTeam (www.biolog-online.info) at least one project intends to develop concrete mechanisms and methods for a fair benefit sharing (PRO-Benefit-Bioprospecting, ecosystem research and benefit-sharing in Ecuador). Furthermore all BIOTA-projects of the BIOLOG-programme are based on bilateral cooperation contracts between German and African institutions which regulate the joint planning and realization of the working plan, measures with respect to capacity building and technology transfer as well as the common use of project results.

8 b)

The German government regularly informs the public and relevant stakeholders about pertinent regulations of the CBD and other relevant international agreements such as the International Treaty for Plant Genetic Resources for Food and Agriculture. An awareness-raising campaign on the CBD was launched last year.

9 b)

As a member of the Global Biodiversity Information Facility (GBIF) Germany contributes to the further development of internet software and databases. In the context of R&D programmes innovative technologies for taxonomy are being promoted.

Under the framework of the Federal Information System Genetic Resources (BIG) an internet-based taxonomic reference list (BIGTAX) has been developed that includes references of wild and cultivated taxa.

<http://www.big-flora.de>

See also Question 22).

10 b)

The development and refinement of technologies for the maintenance of ex situ collections in Germany is carried out by various institutions, including universities, federal research institutes and state genebanks.

Some projects of German development cooperation have included technological support to institutions holding ex situ collections, e.g. the Institute for Biodiversity Conservation and Research of Ethiopia, the Kenian Genebank, the genebank at CATIE in Costa Rica and local institutions for the maintenance of plant agrobiodiversity in Southern India.

The German genebanks of the leading research institutions in this field, IPK and BAZ, have been involved in international cooperation related to maintenance and utilization of ex situ collections of various crops, including repatriation of ex situ collections to countries that had lost part of their germplasm.

The German government has supported a number of projects on the subject of "Botanic Gardens and the Implementation of the CBD". Within the framework of these projects and in collaboration with the Botanic Gardens of the German-speaking area, a Code of Conduct and Material Transfer Agreements for Botanic Gardens has been developed by which Botanic Gardens oblige themselves to "strive to contribute to conserving biological diversity in the host country [i.e. of collection activities] and to transferring scientific knowledge and technology". This Code of Conduct has been accepted by the Association of Botanic Gardens in German-speaking countries in 2000. Under the leadership of the German Botanic Gardens an "International Plant Exchange Network (IPEN)" has been developed. Currently Botanic Gardens of 5 European Countries have fulfilled the criteria of IPEN.

German botanic gardens have further been involved in the development of a Federal information system genetic resources (BIG – <http://www.big-flora.de>). This system includes ex-situ collections in botanic gardens as well as the ex-situ collections of genebanks for agricultural and horticultural crops. The system supplies a technical infrastructure which allows general and easy access to all major collections within Germany. In its supra institutional structure BIG is unique in the world and is furthermore an important step towards the full transparency of all collections. The national information system is designed to organize collections in a more efficient and complementary way and to direct potential users directly to the relevant stakeholder. The system not only gives access to the genetic resources themselves, but also to different kinds of information about them (taxonomic information, geographic distribution, origin of the sample etc.) It is integrated into the national CHM and will be integrated into the national node of GBIF (Global Biodiversity Information Facility). A reasonable part of the resources and connected information is still represented in BIG, but a large amount of data will have to be digitized and integrated in the future. Ongoing projects funded by different national funding bodies will lead to a full representation of any genetic material within Germany. Through the FAO Global System on Plant Genetic Resources information about the German ex situ collections are linked to other countries' collections.

In addition, several German research projects, such as ZEFOD (www.genres.de/zefod/) and BIOCASE (www.biocase.org) deal at least to some extent with the conservation and sustainable use of ex situ collections. Co operations exist with the National Museum of Kenya in Nairobi, as well as with the National Botanical Research Institute in Windhoek, Namibia. Furthermore, the GTZ has promoted cooperation between SYSTAX and the herbarium in Manaus, Brazil (www.biologie.uni-ulm.de/systax/manaus.html) and collections in La Paz, Bolivia.

11 b)

For general information on technology transfer the CHM Germany <http://www.biodiv-chm.de> provides a list of some relevant Technology Transfer websites in a section entitled “International Cooperation”. Germany has started to explore options for the possible use and/or further development of the CHM Germany to facilitate access to and transfer of technologies relevant to the Convention. A study undertaken in 2003 will analyse the relevance to the CBD of existing technology transfer initiatives in Germany. The study will make concrete proposals on how the CHM could be either part of a national technology transfer network relevant to the CBD and/or how the CHM could/should develop concrete facilities and functions in order to provide access to and the transfer of technologies including biotechnology. It is envisaged to present the results to SBSTTA 9 and/or COP 7.

In addition, the German government supports an Information Secretariat <http://www.i-s-b.org/> for the transfer of biotechnology. This Secretariat is linked to the European Federation of Biotechnology <http://www.efbweb.org/>.

12 a) b) c) d)

The pharmaceutical company *Bayer AG* (<http://www.bayer.de/de/bayer/china.php>) has developed cooperation with public R&D institutions in China, which include training, technology transfer as well as the provision of equipment.

Many German companies engage and support R & D institutions in developing countries. German companies are often clients of public R & D institutions in developing countries, and they often employ these institutions to carry out research projects. Such research projects typically include training, exchange programs and technology and know-how transfer.

13 b)

Since 1999 GTZ (see question 21) has supported private companies' long-term activities in developing countries by way of Public-Private Partnerships. Behind these partnerships stands the conviction that if both parties pool their resources, they can achieve their respective objectives better, faster and at lower costs. PPP projects between GTZ and companies are jointly planned, financed and implemented. In the first three years of the PPP programme (<http://www.gtz.de/ppp>), in cooperation with German companies and associations, GTZ launched more than 200 projects in 60 countries. GTZ supports PPP projects with up to €200,000 and a significant number of projects deal with natural resources management and sustainable use of biological diversity. Training of local staff and technology transfer are typical elements of these projects.

Some examples:

1. Sustainable collection from the wild, habitat conservation and cultivation of the endangered Andean plant species *Ratanhia*, Peru

Objective: sustainable wild harvesting, habitat conservation and cultivation

Technology Transfer:

- a. Certification of sites and know-how transfer for sustainable collection from the wild
- b. Establishing pre-conditions for cultivation (research on hemi-parasitism)
- c. developing guidelines for cultivation and marketing

2. Organic farming and controlled collecting of wild aromatic plants in Peru and Nepal for the production of essential oils for the German market

Objective: sustainable production of aromatic plant rosewood and other aromatic plants which are endangered by overexploitation

Technology Transfer:

- a. Identification of appropriate cultivation sites and development of cultivation technologies
- b. Training of farmers for sustainable collection from the wild and for cultivation
- c. Installation of facilities for the distillation of essential oils

3. Conservation and sustainable management of the Brazil nut in Brazil for the production of violin bows
Objective: Providing the basis for sustainable management of Brazil nut trees (Pau Brasil)

Technology Transfer:

- a. Methods for stock-taking of Brazil nut trees and detailed knowledge on their biology (bloom, fruiting, and seed production) as well as upbringing and cultivation of trees
- b. Demonstration sites for reforestation with Brazil nut trees, development of sustainable management criteria

20 b)

Relevant technologies have been identified by several institutions. Technologies are extremely diverse and refer to a huge number of uses of components of biodiversity. Therefore, a detailed list would be too extensive to be included in this document.

21 b)

German Development Cooperation projects are conducted within the framework of "Financial Cooperation" (FC), "Technical Cooperation" (TC) and "Human Resource Cooperation", with different organisations responsible for their implementation.

Financial Cooperation funds are deployed by the 'Kreditanstalt für Wiederaufbau' (KfW), on commission from and in consultation with the German government. The task of Financial Cooperation is to provide investment capital to enhance partner countries' productive potential. In the field of biodiversity, most projects are implemented in cooperation with the 'Gesellschaft für technische Zusammenarbeit' (GTZ), which is responsible for Technical Cooperation. The GTZ is a government-owned corporation for international cooperation with worldwide operations.

Human Resources Cooperation is a principal element in Development Cooperation and comprises the education and training of experts and decision makers from developing countries and the secondment of experts to developing countries. In addition to measures conducted within the framework of Technical Cooperation projects, several governmental and non-governmental institutions implement Human Resources Cooperation. These include:

- *German Development Service (DED)*
- *Centre for International Migration and Development (CIM)*
- *Capacity Building International (InWEnt), Germany, established in 2002 through a merger of the German Foundation for International Development (DSE) and the Carl Duisberg Gesellschaft (<http://www.cdg.de/english/indexz.htm>).*

22 b)

To further international cooperation in nature conservation Germany gives support to a number of bilateral projects in the field of scientific-technological cooperation. Some of these projects are relevant to the objectives of the CBD and include aspects of technology development, e.g. the German-Brazilian research and development projects under the programmes "Studies on Human Impact on Forests and Floodplains in the Tropics" and "Water Availability, Vulnerability of Ecosystems and Society in north-eastern Brazil".

Other projects focus on nature conservation specifically, such as the collaboration with Central Asian scientists on the elaboration of techniques to identify subspecies of urial sheep on the basis of horns (in order to create possibilities for better protection of endangered subspecies) or the development of recommendations and measures for the conservation and sustainable use of turtles in South-East Asia (including breeding programmes), which involve local scientists.

Biodiversity-related research programmes include in particular:

A) BIOLOG (Biodiversity and Global Change) and Mata Atlantica

BIOLOG is an important scientific response to the UN Convention on Biological Diversity and the renewal process of the international framework programme on biodiversity research, DIVERSITAS. Its overall goal is to provide a scientific basis for the development of strategies and tools for sustainable management for ecosystems and societies, especially with regard to global environmental changes and varying socio-economic conditions.

Research within BIOLOG is focused on

- the functional role of biodiversity within ecosystems,
- dynamics of biodiversity and its changes due to external forces (e.g. human influence)

➤ on concepts for the sustainable utilization of biological resources.

The Programme Mata Atlantica is in the line with BIOLOG, but is founded on the longstanding bilateral cooperation between Germany and Brazil.

Projects in the framework of BIOLOG and Mata Atlantica include elements of technology transfer and especially capacity building with the host countries, such as education and training, joined experimental and scientific work and project – financed infrastructure measures (laboratories, biodiversity observatories). In doing this, these projects make contributions to provide host countries with the necessary know-how for planning an implementing appropriate nature management.

B) The international GBIF Project (Global biodiversity information facility)

Germany participates in the international GBIF initiative which aims at providing free access and practical exchange of biodiversity data and information worldwide and which has a special focus on supporting developing countries to set up, run and make use of their own information interfaces and platforms.

C) BIOTEAM (Integrative and applied model projects on biological research)

Many changes in the biosphere can be attributed to the influence of man. Therefore research on concepts to protect the biosphere and to use it in a sustainable manner must integrate natural and socio-scientific research in a mutual interdisciplinary approach. This is the main objective of a new German funding initiative called BIOTEAM. This more user-oriented biodiversity research is intended to develop strategies for local sustainable biodiversity management by implementing the provisions of the UN Convention on Biological Diversity. BIOTEAM has a special focus on cooperation with developing countries including strong elements of transfer of technology and know-how with active participation of stakeholders and scientists of the respective host country. Currently four projects are established in this context:

- a) Conservation and concepts of sustainable use of Coffee Arabica in mountain rain forest of Ethiopia
- b) PRO-Benefit – Benefit-sharing, ecosystem research and bioprospecting, in Ecuador
- c) Evaluation of biological diversity for the island Navarino (southern Chile) taking into account the ecosystem conservation perspective as well as the UN convention on biological diversity.
- d) Evaluation of biodiversity in land use systems in a mega-diverse region in Ecuador

More background information on these programmes can be found at www.biolog-online.info.

D) see also under no. 6: Germany's contribution to the CGIAR, ECP/GR

23 b)

The *Federal Agency for Nature Conservation* maintains the *Clearing House Mechanism Deutschland /CHM Germany* (<http://www.biodiv-chm.de>) as the CHM node of the Convention. Information and links are provided on technical cooperation, research projects and technology transfer:

<http://www.i-s-b.org/firmen/sme.htm>: Biotech Companies in Germany, The database holds roughly 530 companies;

<http://www.cleaner-production.de/wwwcpg/htmlneu/index.html>: Cleaner Production Germany, This gateway offers comprehensive information about the capabilities of German environmental technologies.

<http://www.sd-eudb.net/>: European DataBank Sustainable Development EUDB, The DataBank informs about "Sustainable Development" in supplying profiles of experts and institutions as well as offering links to homepages of related institutions.

<http://www.biosicherheit.de/projekte/>: Research projects on Biosafety

<http://www.dfg.de/gepris/>: GEPRIS - Informationssystem on Research projects funded by DFG

<http://www.gtz.de/unternehmen/deutsch/fakten/projekte.htm>: GTZ project information; information structure: country pages; projects; supraregional sectoral projects.

<http://www.genres.de> : specific information related to genetic resources activities

24 b)

In Germany, like other countries with a patent system, information on technologies which are protected by intellectual property rights is freely available in databases, as patent applicants are required to disclose the technical elements on which their patent is based.
