

Thematic Report on Transfer of Technology and Technology Cooperation

Please provide the following details on the origin of this report.

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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 prepared by the division of International Affairs of the Swiss Agency for Environment, Forests and Landscape (SAEFL) - in co-operation with the Swiss Agency for Development and Co-operation (SDC), the State Secretariat for Economic Affairs (seco), and the Swiss Federal Institute of Intellectual Property Rights.

Information was obtained also, through consultation of experts of the Federal Research Stations and Laboratories, the Swiss Biodiversity Forum, CABI Bioscience, the Research Institute of Organic Agriculture and of taxonomic institutions.

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	
b) an inventory under development	
c) an inventory of some technologies available (please provide some details)	X
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
3. Has your country carried out an assessment of the needs for relevant technologies?	
a) no (please specify the reasons)	X
b) yes, and please specify the needs met and the needs not met for existing technologies and for new technologies	

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	X
c) yes, and a wide range of activities in many programmes of work	
d) if yes, please specify these activities and programmes of work	

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	
b) yes – please give details below (including types of technology transferred, actors involved, terms for transfer and means of access to technology)	X
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
7. Could you provide examples or illustrations of benefit-sharing contractual agreements which have included technology co-operation and technology transfer as benefits to be shared? (Article 15)	
a) no	
b) yes	X
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 (*under development, see our comment)	* X
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
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
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 (*see our comments)	X

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	X
b) information exchange on new scientific exchange and technological advances	X
c) providing various technology components to developing country partner institutions	X
d) engaging in joint R&D?	X
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
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	
b) yes, please give details	X

Impact of intellectual property rights on technology transfer and technology co-operation

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	X
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 *(see addition remarks)	X
b) human capacity *(see addition remarks)	X
c) others - please specify *(see addition remarks)	X

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
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
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

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 co-operation with other Contracting Parties?	
a) no	
b) yes, please provide some details	X
24. Has your country established channels for access to the technologies developed and applied for attaining the objectives of the Convention?	
a) no	X
b) yes, please provide detailed information	

Success stories of and constraints to technology transfer and technology co-operation

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	X

Further comments

Introductory information :

The main Swiss federal Agencies concerned with technology transfer and technology co-operation include :

The **Swiss Agency for Development and Co-operation (SDC)** aims at strengthening the local capacities and the regional institutions in developing countries and in countries with economies in transition. The SDC supports the reinforcement or the development of partnerships in the fields of agricultural research and international research collaboration as well as regional and global initiatives that are relevant for biodiversity. The SDC supports notably various programmes for the maintenance and utilisation of in-situ and ex-situ collections. For instance a special support (more than 12 million Swiss francs annually) is granted to the CGIAR research centres. Further, the SDC supports the General Conservation Fund, which is supported by various governmental and private institutions. The General Conservation Fund supports ex-situ conservation of germplasm.

→ www.sdc.admin.ch

The **State Secretariat for Economic Affairs (SECO)** is the Federal Office working on issues related to economic policy. In foreign trade policy, SECO is active in the shaping of efficient, fair and transparent rules for the world economy. The SECO's Department entitled Development and Transition (ET) is a working toward sustainable development, and the integration of developing and transition countries into the world economy. In particular it contributes to the mobilisation of private sector resources both in Switzerland and partner countries to promote development and transition processes.

→ www.seco.admin.ch

The **Swiss Agency for the Environment, Forests and Landscape (SAEFL)** is the federal government's centre of environmental expertise. It is responsible for the protection of the environment through providing a scientific basis for environmental protection measures. SAEFL is in charge of drafting laws and ordinances and implement the environmental measures in co-operation with the cantonal authorities, the industry, the non-governmental organisations (NGOs) and with other stakeholders. The SAEFL promotes global co-operation through its involvement in international environmental bodies.

→ www.umwelt-schweiz.ch

The **Swiss Federal Institute of Intellectual Property** is the centre responsible for intellectual property rights in Switzerland. The Institute's activities are notably in charge to publicise intellectual property legislation in Switzerland.

The Federal Institute of Intellectual Property provides information products, such as research into technological developments and trademark searches, and training courses, which are designed to show the vital importance of intellectual property rights to the country's economy.

→ www.ige.ch

The **Swiss federal Office for Professional Education and Technology**, the OPET is the federal competence centre for professional education, Universities of Applied Sciences (UAS) and innovation policy. The heart of its work is innovation, whether in society, in the economy, in education or in science. It aims to create synergies among various service centres.

<http://www.bbt.admin.ch/kti/aufgaben/e/index.htm>

Further comments on specific questions

1c)

The **Swiss Federal Research Station for Agricultural Economics and Engineering (FAT)** publishes 15-25 reports annually, to provide any interested parties, with specific up-to-date information on the results of latest research projects. The FAT reports contain recommendations for agriculture and for the implementation of new technologies. The FAT reports are available in French and in German.

→ www.sar.admin.ch/fat/f/publi/pubberichte.html

The **Swiss Federal Institute for Forest, Snow and Landscape Research (WSL)** also edits a series, aiming to provide guidance for practitioners in forestry and nature conservancy which provide for an overall picture on newest technologies available in the field of the agricultural engineering and silviculture.

→ www.wsl.ch/lm/publications/series/merkblatt-de.ehtml

2b)

The **Centre for Technology Assessment** "TA-SWISS" provides independent information on the benefits, the risks, and the impacts of new technologies, especially concerning life sciences, and information technologies. The dialogue between the public and the scientific community, is also one of the tasks which the Centre for Technology Assessment has taken on, through the development and implementation of participative methods.

→ www.ta-swiss.ch/framesets/home-e.htm

The **Swiss Expert Committee for Biosafety** (SECB) is a permanent federal advisory committee. It issues statements on licence applications, and publishes recommendations on gene biotechnology and biosafety. For instance, the SECB discussed the effect on the environment of the use of the techniques of control of the genetic expression and of field studies with transgenic plants. The SECB informs the Federal Council and the public about its activities in its Annual Report.

→ www.umwelt-schweiz.ch/buwal/eng/fachgebiete/fg_efbs/rubrik_organisation/aufgaben/index.html

The impact of technologies on biodiversity is also assessed by private and federal research institutes. For instance, for the last 24 years the "DOK" trials have compared conventional agricultural practice with organic agriculture. The experiment yields impressive statistics which shows that organic agriculture is beneficial for the environment and more sustainable. The "DOK" trials are being conducted in Switzerland by the **Research Institute of Organic Agriculture** (FiBL) and the **Swiss Federal Research Station for Agroecology and Agriculture** (FAL).

→ www.fibl.ch/english/research/annual-crops/dok/index.php

3a)

This question is more relevant for developing countries. Switzerland contributes to the assessment of countries' needs for relevant technologies through development co-operation. For instance, through sustec (sustainable technology co-operation), an interdisciplinary team of engineers and scientists of the **Swiss Federal Laboratories for Materials Testing and Research** (Empa), acting as a dedicated clearing house for technological co-operation between Switzerland and developing and transition countries. Knowledge transfer and technical consultancy are the main ways, in which sustec contributes to sustainable development in the partner countries. Current activities include:

- Administrative and technical programme management of "Centro Nacional de Producción Más Limpia y Tecnologías Ambientales" ("Clean Development Center") in Medellín, Colombia, on behalf of seco, the State Secretariat for Economic Affairs
- Administrative and technical programme management of "Centro Eficiencia Tecnológica del Perú" (CET Perú) on behalf of seco, the State Secretariat for Economic Affairs
- Technical support for "Centre Marocain de Production Propre" (CMPP) in Casablanca, Morocco, on behalf of UNIDO, the UN Industrial Development Organization, based in Vienna
- Technical support for "Centro de Produção Mais Limpa" (CPC-SP) in São Paulo, Brazil, on behalf of the University of Applied Sciences of the canton of Basel (FHBB) in Muttenz and of seco, the State Secretariat for Economic Affairs
- Technical support for the REDEMI programme in Ecuador on behalf of "Centro Nacional de Producción Más Limpia y Tecnologías Ambientales" in Medellín, Colombia and Swisscontact Ecuador
- Joint management of a sustainable tropical forest management project on behalf of Corporación Autónoma Río Negro-Nare (CORNARE) and the International Tropical Timber Organisation (ITTO), Yokohama, Japan

→ www.empa.ch

5b)

As a first step to prevent and manage IAS, the current status of non-indigenous species in Switzerland is assessed. Based on paragraph 32 of the Release Ordinance of 25 August 1999 and with the

objective to identify non-indigenous organisms that have the potential to damage the environment, a study is being carried out by CABI on behalf of the **Swiss Agency for Environment, Forests and Landscape** (SAEFL). This study is summarising the information available on alien species already established in Switzerland, and on species that are likely to invade the country in the near future, together with their actual and potential impact. As well as synthesising information on alien species, an important aspect - currently in development - is the establishment of closer contacts and information exchanges with national and international specialists on various taxonomic groups to collect and collate the data needed on alien species.

6b)

Switzerland collaborates with many countries on environmental issues, sustainable use and sustainable development. Some examples are given in the answers to questions 3, 22, and 23.

7a) (2 examples among others)

A partnership for drugs development in Costa Rica : the "Bioprospecting and Profiling Centre",

Costa Rica and ETH Zurich have initiated a collaborative project entitled "Bioprospecting and Profiling Centre", or "BioProfil" for short, in which the Costa Rican Instituto Nacional de Biodiversidad (INBio) and ETH pharmaceuticals researchers working together. This cooperation will benefit from Zurich's technological know-how to analyse biodiversity sample and chemicals extract and from Costa Rica's detailed expertise on their biodiversity.

More detailed information can be found in the website indicated below.

<http://www.ethlife.ethz.ch/e/articles/sciencelife/crvireal.html>

The Indo-Swiss Collaboration in Biotechnology promotes research partnerships between Swiss and Indian institutions in various areas of biotechnology and fosters the technology transfer to the private industry.

<http://www.biotech.biol.ethz.ch/india/>

8a)

This issue is currently under development in our national programme and Committee in charge of implementing the Bonn Guidelines on ABS.

10b)

Several institutions are involved in the development and transfer of technologies for the maintenance and utilisation of ex-situ collections, including universities, botanic gardens, zoos, private research institutes, federal research stations and federal agencies.

For instance, the **Institute for Systematic Botany of the university of Zurich** is developing the basic principles of a database of digital images and label information of the ca. 350'000 type specimens in herbaria and museums in Switzerland. The long-term intention is to make this information accessible globally over BioCASE and GBIF.

The "**conservatoire et jardin botanique de la ville de Genève (CJB)**" has developed an information application for management of digitised collections, which could easily be distributed. Further, the CJB recently developed an application for online access of type specimens in their herbaria.

The Swiss zoos are committed to the World Zoo Conservation Strategy. Swiss zoos are conducting scientific research on their own or in collaboration with other zoos and/or in co-operation with universities, so as to refine and develop technologies. The development of technologies for the maintenance of ex-situ collections concerns a broad field of interests, such as breeding (artificial insemination, international breeding programmes), telemetry, capture management, animal behaviour in captivity and in the wild. ZOO Schweiz, the umbrella organisation of the leading zoos in Switzerland, has organised in collaboration with several zoos in Bavaria (Germany) a meeting about breeding and rearing of zoo animals. The proceedings of various Symposiums (such as the Rigi-Symposium) are available as a publication of the series "WAZA Meetings" of the World association of Zoos and Aquariums.

→ www.zoo.ch
→ www.waza.org

The **Swiss Agency for Development and Co-operation (SDC)** supported various initiatives in

several countries, for instance in Bolivia, where the production of seeds in protected seedbeds or by using biological insecticides has been supported. Further, germplasm of local varieties has been released from viruses and were commercialised.

11b)

To some extent, some information in the CHM-Switzerland may assist in obtaining access to information concerning access to and transfer of technologies. The section “Switzerland’s international commitments” contains a list of biodiversity co-operation projects which many of them include information on activities supported by Switzerland on access to and transfer of technologies.

For instance, the **Swiss Agency for Development and Cooperation** (SDC) supports a project in the Lao Peoples Democratic Republic on rice biodiversity. The goal of the project is to ensure that Lao indigenous rice biodiversity and associated farmer knowledge is conserved, documented and used by researchers, extensionists and farmers. This will improve the livelihoods of Lao rice farmers and the sustainability of their rice based farming systems and also contribute to the Convention on Biological Diversity on the use and maintenance of indigenous knowledge. The project has four major components:

- Indigenous knowledge: activities will capture, analyse, and record the indigenous knowledge on rice varieties. Participatory and ethno-botanical methods will be used to document and analyse knowledge held by Lao farmers belonging to different ethnic groups for managing rice cultivars and rice crop variability.
- Knowledge dissemination: the Indigenous knowledge collected will be widely disseminated to Lao stakeholders and international audience.
- Ex-situ conservation: the large collection of 13'500 samples currently held will be reduced to a core collection of some 1'500 lines/cultivars and decentrally stored and maintained in a cost-effective manner on five national research stations.
- In-situ conservation and use of germplasm: will evaluate the traditional rice varieties through participatory variety selection and participatory plant breeding.

The partners in the project are the International Rice Research Institute (IRRI) through its Lao-IRRI office, and the National Agriculture and Forestry Research Institute (NAFRI) of the Ministry of Agriculture and Forestry (MAF).

An other example to illustrate our cooperation is the SDC support to a project of the South Africa Development Community (SADC) on development of maize germplasm, to increase its yield under conditions typical for resource-poor farmers without further depleting natural resources (see answer to question 13).

Both projects include indigenous knowledge, knowledge dissemination, ex-situ conservation as well as in-situ conservation and use of germplasm.

→ www.ch-chm.ch
→ www.sdc.admin.ch

12a) b) c) d)

Several Swiss private and semi-private institutions are actively involved in activities in developing countries and countries with economy in transition. Such activities include training of scientists, information exchange, transfer of technology components, and may include a joint R&D.

One example is the **Swiss Agency for Development and Cooperation** (SDC) activities concerning the collaborative programme for the conservation and use of biodiversity of Andean roots and tubers. This programme is implemented by the **Centro Internatcional de la Papa** (CIP, Lima) in collaboration with governmental research institutions, universities and NGO's in Bolivia, Peru and Ecuador, and the International **Plant Genetic Resources Institute** (IPGRI, Rome). This program includes the conservation of plant genetic resources, the production of the germplasm, and a campaign to increase the interest of the producers, traders and consumers for the roots and tubers concerned.

→ www.cipotato.org
→ www.ipgri.cgiar.org

13b)

Switzerland has several programmes to encourage private sectors, research institutes and NGO's to development and transfer technologies for the benefit of developing countries and countries with economy in transition:

The **Swiss Agency for Development and Cooperation** (SDC) funds the “**Southern African**

Drought and Low Fertility Project" (SADLF). The SADLF is a collaborative effort between the International Maize and Wheat Improvement Centre (CIMMYT) and the National Agricultural Research Institutes of the Southern Africa Development Community (SADC). Its over-all objectives are: Develop maize germplasm, which has increased yield and yield stability, under conditions typical for resource-poor farmers without further depleting natural resources (Water, nutrients, and land), and Enhance the capacity in the SADC region to improve and disseminate maize germplasm with tolerance to drought and low soil fertility.

Another example - already mentioned under our comments to question 7 - is the "**Indo-Swiss Collaboration in Biotechnology**" (ISCB), which has been initiated at the beginning of the 1980s in order to promote research collaborations between Swiss and Indian institutions in various areas of biotechnology. In October 1999, a new programme phase started, which will last for a period of five years (1999-2004). The overall responsibility for the programme is held by the Swiss Agency for Development and Cooperation (SDC) in Berne and by the Department of Biotechnology (DBT) in New Delhi. The costs of the Indo-Swiss programme are shared between these agencies according to a bilateral agreement. At the moment, the Programme Management Unit (PMU) is located at the Institute of Biotechnology of ETH Zurich. An additional office will later be built up in India. ISCB's governing body, the Joint Apex Committee (JAC), consists of eight representatives from SDC, DBT, NGOs, academia, and industry.

The ISCB programme focuses on agriculture and environment, research areas which are central for the overall development of the rural and urban population in India. At the moment, ISCB is funding several joint projects related to the sustainable production of wheat and pulses in semi-arid and rainfed agricultural systems in India.

The ISCB mandate is:

- To develop products and biotechnological processes which have an impact on poverty alleviation and sustainable management of natural resources in India.
- To focus on innovative technologies in agriculture and environmental research.
- To build capacities and R&D partnerships between Swiss and Indian institutions and private companies with strong economic, social, and ecological relevance.

→ www.biotech.biol.ethz.ch/india/

14b)

The **Swiss Agency for Environment, Forests and Landscape** (SAEFL) encourages the participation of the private sector through its programme "**eco net**" and through the European network of experts "**PREPARE**".

The programme "**eco net**" has been developed by the division "Technologies" of the SAEFL to reinforce the position of Swiss environmental technologies on international level. The programme proposes measures including:

- A compilation of general and industry-specific market informations about priority countries
- Defining technology standards and approaches of priority countries
- Creation of an InterNet platform containing general informations about priority countries
- Strengthening the commitment of the federation in the promotion of new technologies.

→ www.umwelt-schweiz.ch/buwal/fr/fachgebiete/fg_tech/ur3_projekt/URP1_eco-net/index.html

PREPARE (Preventive Environmental Protection Approaches in Europe) is an informal, independent European network of experts in the field of cleaner production and sustainable development. The members come from research institutions, administration, governments, industry, and international organizations. PREPARE stands for :

- (i) the joint development of new ideas and initiatives in the area of cleaner production, sustainable products and systems.
- (ii) The exchange of information and dissemination of knowledge and skills
- (iii) The stimulation of innovative R&D projects
- (iv) The Co-operation between research, administration, industry, and international organizations.

→ www.prepare-net.org

17b)

In addition to the five main federal institutions indicated in our introductory comments (SDC, SAEFL, Seco, the OPET and the Swiss Federal Institute of Intellectual Property), various other institutions and programmes are involved in access to relevant technologies are described in the additional information related to question 21.

18c)

The situation differs when we consider the conditions in developed countries like in Switzerland or in developing countries and in countries in transition. In Switzerland, the institutional structure and the human capacity are not considered as factors limiting the implementation of relevant technologies, when in developing countries and in countries in transition it is often the case

In Switzerland and as well as in developing countries and in countries in transition, a limiting factor in implementing relevant technologies are observed, where competitors restrict the access to technologies with too strong or too many IPR's ; however, few cases of this situation are documented.

In general, at the global level, the implementation of technologies is also limited, when the technologies prove to be not competitive or are not accepted by the market.

20b)

Several Federal institutions, Federal Research Stations and universities, identified relevant technologies for the conservation and sustainable use of biological diversity.

For more details, please refer to the additional information given and related to the questions 1, 10, 11, 22, 23.

21b)

As mentioned for the question 17b, a part from the five federal institutions indicated in our introductory comments (SDC, SAEFL, Seco ,OPET and the Swiss Federal Institute of Intellectual Property), Switzerland has several national, international institutions and programmes aiming to promote technology co-operation. The main ones include :

The **CTI** is the **Swiss Innovation Promotion Agency** depends from the OPET. It focus on the rapid conversion of state-of-the-art laboratory findings to marketable products. Hence, the CTI backs joint R&D projects involving tertiary level institutions and the industry.

It aims for threefold impact:

- Strengthening market-oriented innovation processes
- Establishing practice-oriented qualifications for academic researchers and improving co-operation between educational institutions and the industry
- Ensuring more generous project funding

Seven fields of activity have been defined to facilitate access to the CTI network:

- Life Sciences
- Nanotechnology / Microsystems Technology
- Enabling Technologies
- Engineering Sciences
- CTI – Universities of Applied Sciences (UAS)
- Start-up / Entrepreneurship
- International Issues

Approximately 3700 projects have been promoted since 1986, generating R&D to the extent of about CHF 2.2 billion. Over 60% of costs were covered by industry, with the Confederation funding the rest. Over 5,000 companies were involved, 80% of which were SME. 700 project applications were submitted in 2001, and over 1000 applications per year are expected by 2007.

For the 2004-2007 period, CTI focuses on boosting international co-operation activities, for example within the ESA, EUREKA and IMS framework.

→ www.bbt.admin.ch/kti/aufgaben/e/index.htm

Unictetra is the technology transfer organisation of the Universities of Berne and Zurich. With its services it supports the scientists in their collaborations with private industry and other public or private research institutions. The transfer of research results into new products and services is fostered through the definition of commercialisation strategies and their realisation together with the scientists. The transfer occurs either in collaboration with established companies or through the creation of new spin-off companies.

Unictetra has co-operation agreements with the University of Applied Sciences in Wädenswil and the Institute of Virology and Immunoprophylaxis in Mittelhäusern (Berne) whose scientists also have

access to Unictetra's services. The main services of Unictetra include:

- Establishment of commercialisation strategies
- Negotiation of agreements (research collaborations, licenses, MTA, etc.)
- Protection of intellectual property, patents
- Support for the creation of new spin-off companies
- Training and education in the field of technology transfer

Unictetra is a non-profit making limited company, which is entirely owned by the universities of Berne and Zurich.

→ www.unictetra.ch

The Bulgarian Swiss Forestry Programme

Bulgaria and Switzerland are jointly seeking a way of implementing sustainable forest management. The second phase of the co-operation between the two countries is currently under way.

The project is financed by the Swiss Agency for Development and Co-operation (SDC).

Intercooperation, a Swiss organisation that is specialised in technical co-operation, is responsible for the implementation of the project and the Chair of Silviculture at the Federal Institute of Technology Zurich is providing expert support.

The first phase of the co-operation, which has been completed, focused on forest training. Further training courses were organised jointly with the National Forest Authority and the forestry university in Sofia. The aim is to support the Bulgarian forestry sector in its efforts to achieve a balance between the ecological, economic and social functions of the forest. The forest enterprises are important local actors, and now they would like to have more influence on the management plans. The project's other objectives include the provision of information and public relations work. In order to maximise the project's efficiency, its directors created a foundation in early 2001, which has offices in Sofia.

→ www.sylvica.org

→ www.intercooperation.ch

The **Swiss Agency for Development and Co-operation (SDC)** supports for instance the International Centre of Insect Physiology (ICIPE) in Nairobi, Kenya. With its scope on research on insects and arthropods, ICIPE is today a unique pan-tropical centre of excellence and plays an important role in Africa, both in terms of research and capacity building. ICIPE's core research targets comprise medical vectors (e.g. malaria mosquitoes), vectors of cattle diseases (tsetse and ticks), crop pests, beneficial insects in the various ecologies and, to a lesser extent, in exploiting by-products of arthropods for additional income opportunities (e.g. honey and silk). Apart from readily-available technologies generated at ICIPE and adapted to the African socio-economic environment, ICIPE's main achievement is its human resource development, which is the key to successful adoption of improved agricultural, public health and micro-enterprise technologies.

22b)

Switzerland participates in several multilateral research programmes and initiatives, e.g.:

The Sixth Framework Programme (FP6) is the European Union's (EU) main instrument for the funding of research in Europe. Switzerland has the status of a "third country". A new agreement with the EU will ensure full participation of Switzerland as an "associated country" from January 2004. The FP6 is open to all public and private entities, large or small. Seven key areas for the advancement of knowledge and technological progress within FP6 have been chosen: genomics and biotechnology for health; information society technologies; nanotechnologies and nanosciences; aeronautics and space; food safety; sustainable development; and economic and social sciences.

→ www.europa.eu.int/comm/research/fp6/index_en.html

COST has developed into one of the largest frameworks for research co-operation in Europe and is a valuable mechanism co-ordinating national research activity in Europe. Today it has almost 200 Actions and involves nearly 30,000 scientists from 32 European member countries and more than 46 participating institutions from 11 non-member countries and Non Governmental Organisations.

The domains of Cost include (among others):

- Agriculture and Biotechnology
- Environment
- Forests and Forestry Products

EUREKA is a pan-European network for market-oriented, industrial R&D. EUREKA supports the competitiveness of European companies through international collaboration, in creating links and networks of innovation. The objective is to bring high quality research and development efforts to the market and to use the multiplying effects of co-operation. The aim is to advance and improve the quality of life.

EUREKA is tackling the challenge of a swiftly changing business environment and offers a platform for short-term as well as strategic collaboration. It offers flexible and dynamic support, quality label and expertise for market-oriented R&D projects.

EUREKA offers a frame for co-operation to small and large companies alike and operates through its network of members, while always remaining open to global co-operation.

Strategic projects are key drivers, which have a major impact on European competitiveness and economic and social conditions. The EUREKA Initiative understands these projects as:

- Projects of large scale having a Europe, often world-wide impact,
- Having long-term perspectives and often aiming at the development of norms and standards,
- Multilateral and multinational,
- High degree of risk and know-how sharing,
- Having government involvement and support.

→ www.eureka.be

National Research Programme (NRP) 48

An attractive, sustainable Alpine area is of eminent significance to the societies not only of Switzerland but also of all of Europe. The NRP 48 supports the discussion on the future of this habitat, and the active shaping of processes that enable a sustainable use of this valuable resource. The NRP will analyse and evaluate ecological, economic and cultural processes concerning landscapes and habitats dynamics in the Alpine region in inter- and trans-disciplinary research projects. The Research Foci are:

- Processes of perception
- Processes of change
- Designing goals in landscape evolution
- Land use and adding values
- Virtual representation

→ www.nrp48.ch

Swiss Agency for Development and Cooperation (SDC):

The International Institute of Tropical Agriculture (IITA), in collaboration with various National Agricultural Research and Extension Systems (NARES), emphasizes the development of sustainable farming systems that optimise host plant resistance, botanical insecticides, cultural and biological control methods. However, up to the mid-1990s, most available technologies remained unadopted by many farmers. After wide consultations with the stakeholders, it appeared that a concerted effort focusing on a participatory approach to assemble the technologies for farmer testing, validation and adaptation in a location specific manner would be required to improve the adoption chances for IPM technologies. Consequently, IITA, with financial assistance from the **Swiss Agency for Development and Cooperation (SDC)**, in 1994, initiated the pilot phase of a regional Integrated Pest Management (IPM) project "Protection Ecologique Durable du Niébé", PEDUNE. The project's aims are, to

- Test, on-farm, proven cowpea production and protection technologies.
- Develop with farmers, extension agents and NGO, 'best bet' options adapted to local conditions.
- Disseminate, through farmer field schools and other appropriate extension frame-works, and in collaboration with partners from national extension and NGO services, economically and environmentally sound technologies to farmers including resource poor farmers and women.
- Build and sustain technology development capacity in national institutions dealing with technology development and dissemination through training, workshops and exchange visits.
- Assess the impact of disseminated cowpea technologies on food security, income, environment and public health through the use of input saving and environmentally friendly technologies.

→ www.aramis-research.ch/e/7520.html

23b)

Switzerland has several mechanisms to encourage and facilitate the transfer of technology and technology co-operation, especially through multilateral environmental agreements and other international and bilateral initiatives.

Many activities are co-ordinated by the **Swiss Agency for Development and Cooperation (SDC)**, for instance, the support of the development on international scientific biosafety testing guidelines for transgenic insect-resistant plants:

As indicated in the Cartagena Protocol on Biosafety of Living Modified Organisms (Biosafety Protocol) under the Convention on Biodiversity (CBD) there is an urgent need in developing countries for comprehensive, transparent, scientific guidelines for meaningful pre-release testing and post-release monitoring of transgenic plants to ensure their environmental safety and sustainable use. The project supported has its focus on capacity building and on facilitating scientist to scientist exchange, because a strong science base may be a more sustainable result to achieve in most countries than a "simple" transfer of regulatory systems. The project plans to leverage its efforts by concentrating capacity building efforts on a few countries with economies in transition. By strengthening the scientific capacities in these countries, the expertise is expected to be available to neighbouring countries and achieving a critical mass of basic required competence in all regions.

The key elements of the project are:

- An international initiative including expert scientists from leading research institutions from developed (Europe, Australia and USA) and developing countries (Africa, Latin America, Asia)
- Co-ordination of the development and implementation of biosafety testing guidelines as a step-wise, dynamic process, which will include scientific and technical capacity building and communication among scientists and between scientists and policy makers
- Swift, serial publication of sections of the guidelines as they are completed
- Rapid and timely revision of previously published sections should new scientific biosafety issues arise.

The project is implemented by the Global Working Group on "Transgenic Organisms in Integrated Pest Management and Biological Control" of the International Organisation for Biological Control (IOBC).

25b)

One example can be illustrated with the Conservation of Forests in the Andean Regions - Project PROBONA

By the end of the 1980s the Andean forests were in danger of disappearing, although neither local NGOs, the local population nor the authorities seemed to realise that their natural resource base was at stake.

The project PROBONA (Proyecto de Bosques Nativos Andinos) is aiming to slow down this development. The main goal of this project, which is jointly administered by Intercooperation and IUCN, is to promote a sense of responsibility for the forests among the local population, and to develop social and technical models of sustainable forest use, which will guarantee conservation of the forests.

The project is composed of various specific measures, including fundamental analyses, development of models in co-operation with local organisations, and concrete advice, training and public relations work. Local organisations and communities carry out actual project implementation, in the form of training and advisory services.

The success of the project can be measured by the fact that the communities involved contribute to it with their own modest financial means. As the result of a pilot project, the main project has now been adopted and implemented in several neighbouring regions, with the financial backing of additional sponsors.

Economically viable manufacturing co-operatives have been established within a short period of time.

The Project approach is being adopted in neighbouring regions, where it is adapted to local conditions.

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