

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 specific thematic report on technology transfer and technology cooperation builds on previously obtained information from several stakeholders relevant to the issue. In addition updated information from some institutions is also obtained.

The issues in the report have also been discussed internally with several experts within the Directorate for Nature Management.

Information has been obtained from and discussed with the Norwegian Agency for Development Cooperation.

Some of the information has also come to us through the preparation of the Trondheim Conference 2003 on the issue Capacity building and Technology transfer. See also:

<http://www.dirnat.no/wbch3.exe?p=2392>

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 (see below)
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	X
b) yes, please give some examples	
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	X (see below)
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 (see below)
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	X
b) yes	
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	X
b) yes, please provide some details	
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 (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	X
b) yes, please provide some examples	

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

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	X (see below)

Further comments

1.

Here we refer to the answer in question 3. Inventories are mainly conducted in connection with Parliament Reports for development of new policy and measures.

3b.

In the preparation of the Parliament Report to the Storting on Biodiversity and cross-sector cooperation, some need for relevant technologies to achieve the Government goals was highlighted. Needs addressed here are information technology with specific focus on Geographic Information systems as decision making tools, remote sensing as monitoring technology, establishing a species databank, strengthen cooperation and effectiveness in monitoring biodiversity, co-ordination of research activities and increase of knowledge on genetic resources and genetic technology. See English summary:

<http://odin.dep.no/md/engelsk/publ/stmeld/022001-040019/index-dok000-b-n-a.html>

4.

The most relevant results achieved on technology cooperation would be the Nordic cooperation (with Denmark, Finland, Iceland and Sweden) storing genetic resources. The Nordic Gene Bank (<http://www.ngb.se/>) aims to conserve and document the genetic variation in Nordic material from plant species useful for agriculture and horticulture. A corresponding gene bank on animal resources is also established: The Nordic Gene Bank Farm Animals (<http://www.nordgen.org/english/index.htm>). This Gene Bank aims to assist in creating values by conserving and utilizing the genetic resources of Nordic farm animals. Both are institutions under the [Nordic Council of Ministers](#).

The Nordic Gene Bank has also been involved in technology transfer through development aid projects in the SADEC-region and project with the Baltic States.

There are also some examples of technology cooperation in sustainable harvesting on marine resources. Development of Fish capture technology which selects on species and sizes has been an international cooperation with the North-Sea states, where the Norwegian Institute of Marine Research has been in charge.

For several years the Norwegian Agency for Development Cooperation (NORAD) has been running a programme on sustainable harvest of marine resources in African countries. Norway is using a research vessel, "Dr. Fridtjof Nansen", for technology transfer like monitoring technology and prediction of stocks.

5.

By the time being an environmental cooperation programme with South Africa is under development, hereby a specific programme on threatened species. Under this programme a project on introduced alien species is suggested.

There has also been some cooperation with Russia on handling the introduced salmon parasite *Gyrodactylus salaris*, based on the Norwegian experiences in technologies to fight the parasite.

6.

Norway cooperates with many countries on environmental issues and sustainable use, including development countries, countries with economy in transition and neighbouring states. On the issue sustainable use we have lot of activity in managing marine resources together with neighbouring states. This includes technology cooperation, especially on monitoring technology, and at some extends technology transfer. Important areas for such cooperation are the North Sea with EU-states and Iceland, and the Barents Sea with Russia.

Norway has also been establishing environmental agreements with South-Africa, Indonesia and China, where the aim is to strengthen these countries capacity on several environmental subjects, including biodiversity and sustainable use. In addition these matters are also subject in bilateral cooperation with a wide range of countries.

10.

The Nordic Gene Bank (Plant genetic resources) and Nordic Gene Bank Farm Animals have developed technology for preserving genetic resources with importance for agriculture production. The Nordic Gene Bank has also established a safety base collection under Arctic conditions on Svalbard. The Nordic Gene Bank has also been involved in technology transfer through projects in the SADEC-region and project with the Baltic States, helping to build up regional gene banks in these two regions (<http://www.ngb.se/Organization/Presentation/aidwork.shtml>).

12.

Our knowledge relates to Norwegian private and part-private research institutions which have activities in several development countries and countries with economy in transition. These activities are often connected to development aid from Norway. One example is the Norwegian Institute for Water Research's activities in Palestine for sustainable water management, including organising a national Palestine water laboratory service.

Other examples are connected with technology components in monitoring pollution, and development of geographical information systems for area management and monitoring.

13.

Norway has several programmes that encourage private sectors, research institutions and NGOs on technological cooperation with developing countries. However these are mainly not directed to biodiversity or environmental issues alone. The Norwegian Agency for Development cooperation (NORAD) funds development of environmental technology. Together with the Norwegian Export Council, they have developed the "MatchMaking Programme" directing towards the private sector for cooperation and technology transfer within areas like information and communication technology, biotechnology, aquatic culture and environmental issues. To some extent this would be relevant for the question asked.

17.

Access to relevant technologies is not considered to be a constrain I Norway, and the necessary adequate institutions are in place.

20.

There are several examples of technologies with more or less relevance to conservation and sustainable use of biodiversity in Norway. Many of these are connected to mapping and monitoring of biodiversity and ecosystems. In this we will give following examples:

- Norway has since 1998 developed a national mapping programme on biodiversity for all municipalities in Norway, where the use of GIS and decision making tools are central.
- The Directorate for Nature Management is cooperating with the Norwegian Space Centre to develop technology and methods for mapping and monitoring biodiversity through remote sensing technology.
- Other use of remote sensing for monitoring algae growth, oil spills and other pollution indicators.
- Norway is using technologies for reducing alien species like the salmon parasite *Gyrodactylus salaris* through river treatment with Rotenone.
- Freshwater ecosystems affected by acid rain are treated with liming technology in order to restore the diversity.

- Developing new technology for marine fish capture for more targeted and sustainable harvesting of fish stocks.

21.

The political priorities are already been established through different Parliament Reports to the Norwegian Storting (ex. St.meld.42 on biodiversity, St.meld. 19 Globalisation, last State of the environment and the Governments environmental policy). In several of these, technology transfer and capacity building are highlighted.

Several institutions are involved in this work as mentioned under the other questions, like the Nordic Gene Bank.

22.

Joint programmes within Norway where development of relevant technologies, examples:

- Cooperation with the Directorate for Nature Management and the Norwegian Space Centre on mapping and monitoring biodiversity with remote sensing.
- Cooperation between environmental authorities and agriculture authorities on monitoring the cultural landscape with its biodiversity.
- Cooperation with several stakeholders on biotechnology and management of genetic resources.

Joint programmes including other contracting parties, examples:

- Nordic Gene Bank, developing storing technologies, databases etc.
- Joint management of marine resources in the Barents Sea with Russia, monitoring technology
- Development of fish capture technology with North-Sea states

23.

Norway has several mechanisms that can facilitate transfer of technology and technology cooperation, especially through environmental agreements and bilateral agreements and cooperation with developing countries and countries in transition.

A lot of these activities are coordinated by the Norwegian Agency for Development Cooperation (NORAD). The Norwegian Export Council is also encouraging technology transfer and cooperation through their work, but not environmental technology alone. NORAD's MatchMaking programme supports private firms cooperating with private sectors in developing countries where environmental technology transfer is a potential subject.

Several other funding mechanisms are able to support use of environmental technology. One example could be The Nordic Environment Finance Corporation (NEFCO), which is a risk capital institution financing environmental projects in Central and Eastern Europe.

25.

We have chosen these two examples of success where transfer of technology and technology cooperation has been an important part:

- Since 1989 the aid agencies of the five Nordic countries have jointly supported a 20-year project to build up a regional gene bank for the SADC countries. The Nordic Gene Bank is responsible for implementing this in practice and is also a model for regional co-operation. The SPGRC (SADC Plant Genetic Resources Centre) is located in Chalimbana outside Lusaka in Zambia.
- The Nansen Programme and use of the research vessel Dr. Fridtjof Nansen in Southern/Western Africa In general and in Namibia in special, has been a major contribution to sustainable fisheries in these waters. Monitoring, research and analysis technologies have been vital for a knowledge based and sustainable harvesting of the fish resources.

For Namibia the value of the fisheries today make about 10 % of the BNP, while it made only 1% in 1990. The value of the countries fish export was in 1999 increased to ca. 400 mill USD, which amount to 25% of total export value. Education has also been a key factor in building up a fishery management in Namibia.

We would also like to mention a programme under development on genetic resources and biotechnology between Norway and Zambia. This programme hopefully will help Zambia to identify and handle genetic modified organisms. The programme will include technology transfer on these subjects.
