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CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Ninth meeting
Bonn, 19-30 May 2008
Item 4.3 of the provisional agenda*

REPORT OF THE MEETING OF THE AD HOC TECHNICAL EXPERT GROUP ON TECHNOLOGY TRANSFER AND SCIENTIFIC AND TECHNOLOGICAL COOPERATION

INTRODUCTION

A. Background

1. The Meeting of the Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation was held in Geneva from 10 to 12 September 2007, with the financial assistance from the Government of Spain, and in cooperation with the United Nations Environment Programme (UNEP) and the United Nations Conference on Trade and Development (UNCTAD). The meeting was held in response to decision VIII/12 of the Conference of the Parties, on technology transfer and scientific and technological cooperation. In paragraph 4 of this decision, the Conference of the Parties established an Ad Hoc Technical Expert Group with a view to:

(a) Collect, analyse and identify ongoing tools, mechanisms, systems and initiatives to promote the implementation of Articles 16 to 19 of the Convention; and to

(b) Propose strategies for practical implementation of the programme of work on technology transfer and scientific and technical cooperation adopted by the Conference of the Parties in decision VII/29.

2. In paragraph 10 of the same decision, the Conference of the Parties also decided that the Ad Hoc Technical Expert Group would undertake this work *"with the mandate as set out in decision VII/29, paragraph 7."* This paragraph requested the Executive Secretary, with the assistance of an expert group on technology transfer and scientific and technical cooperation, to:

(a) Prepare proposals on options to apply institutional, administrative, legislative and policy measures and mechanisms to facilitate access to and adaptation of technologies by developing countries and countries with economies in transition, and in particular of means and mechanisms that:

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(i) Foster an enabling environment in developing and developed countries for cooperation as well as the transfer, adaptation and diffusion of relevant technologies;

(ii) Present obstacles that impede transfers of relevant technologies from developed countries;

(iii) Provide, in accordance with existing international obligations, incentives to private-sector actors as well as public research institutions in developed country Parties, to encourage cooperation and transfer of technologies to developing countries, through, e.g., technology transfer programmes or joint-ventures;

(iv) Promote and advance priority access for Parties to the results and benefits arising from technologies based upon genetic resources provided by those Parties, in accordance with Article19, paragraph 2 of the Convention, and to promote the effective participation in related technological research by those Parties;

(v) Promote innovative approaches and means of technology transfer and cooperation such as Type 2 partnerships, in accordance with the outcome of the World Summit on Sustainable Development, or transfers among actors, involving in particular the private sector and civil society organizations; and to

(b) Explore possibilities and mechanisms of cooperation with processes in other conventions and international organizations, such as the UNFCCC Expert Group on Technology Transfer (EGTT).

3. In accordance with this earlier decision, the Executive Secretary established the expert group and the results of the consultation were submitted to the eighth meeting of the Conference of the Parties as document UNEP/CBD/8/19/Add.2. In decision VIII/12, the Conference of the Parties took note of the proposals and of the exploration contained in this document, and invited Parties to make submissions thereon to the Executive Secretary no later than four months prior to the meeting of the Ad Hoc Technical Expert Group. The Conference of the Parties requested the Executive Secretary to analyse the views submitted and to forward the results together with the proposals and the views of Parties to the Ad Hoc Technical Expert Group for its work. The views submitted are also annexed to the present report, as requested by decision VIII/12.

4. In decision VII/30, the Conference of the Parties adopted a provisional framework for assessing progress towards the 2010 biodiversity target, and also identified a number of indicators for development by SBSTTA or working groups, including an indicator for technology transfer. In annex IV of decision VIII/15, the Conference of the Parties *inter alia* invited the Expert Group on technology transfer and scientific and technological cooperation to consider this matter.

5. The Executive Secretary convened the Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation with the financial assistance from the Government of Spain, and in cooperation with the United Nations Environment Programme (UNEP) and the United Nations Conference on Trade and Development (UNCTAD).

B. Attendance

6. Participants in the meeting were selected from among government-designated experts, based on their expertise and taking into account gender balance and fair and equitable geographical distribution. Representatives of competent stakeholder organizations and international intergovernmental and non-governmental organizations also attended the meeting as observers. A list of participants is provided in annex I.

ITEM 1. OPENING OF THE MEETING

7. The meeting was opened by Mr. Ahmed Djoghlaf, Executive Secretary of the Convention on Biological Diversity, at 10 a.m. on Monday, 10 September 2007. Opening remarks were also provided by the representatives of the United Nations Conference on Trade and Development (UNCTAD) and the United Nations Environment Programme (UNEP), Mr. Mongi Hamdi and Mr. Hussein Abaza.

8. Mr. Djoghlaf welcomed participants and, expressing his appreciation for UNCTAD and UNEP co-hosting the meeting, also welcomed the representatives of these organizations. He reminded the meeting that access to and transfer of relevant technologies is essential for the implementation of the Convention and noted that, despite the adoption of the ambitious programme of work on technology transfer and scientific and technological by the seventh meeting of the Conference of the Parties, in 2004, the third national reports indicated that progress in implementing the pertinent provisions of the Convention has been limited so far. In light of the challenges identified by many Parties, the task of the present meeting would therefore be much-needed and timely, in particular in the context of the enhanced phase of implementation of the Convention. He reviewed pertinent activities of the Secretariat, and took the occasion of this meeting to launch the latest issue of the business 2010 newsletter, which focused on technology transfer and cooperation under the Convention.

9. Mr. Hamdi, Chief of UNCTAD's Science and Technology Section, expressed his pleasure to co-host the Ad-Hoc Expert Group on Technology Transfer and Scientific and Technological Cooperation and said that he looked forward to further cooperation with the Convention on Biological Diversity on technology-related issues such as the development of technology transfer indicators. Drawing from UNCTAD's work on technology transfer, he highlighted the important role that technology transfer plays in promoting trade and development and bridging the technology gap. Noting the importance of industry partnerships and scientific and technological cooperation, he welcomed the Group addressing how to encourage such partnerships and cooperation, and pointed to a number of specific good practice cases that could be further used.

10. Mr. Abaza, Chief of the Economics and Trade Branch of UNEP's Division on Technology, Industry and Economics, underlined UNEP's commitment to cooperating with and supporting MEA implementation, including the promotion of technology transfer. He noted that technology transfer is a prerequisite to achieving sustainable development objectives, but that there is a need to move beyond rhetoric to action. He highlighted the importance of engaging the private sector to the extent feasible, and also noted the importance of focusing on all aspects of technology transfer, including the transfer of accompanying software, training, and maintenance of equipment. In conclusion, he urged the experts to explore ways of stimulating south-south cooperation on technology transfer, including through the development of economic incentives.

11. Following the introductory statements, participants briefly introduced themselves.

ITEM 2. ORGANIZATIONAL MATTERS

2.1. Officers

12. Participants elected Mr. Peter Johan Schei (Norway) as Chair of the Group.

2.2. Adoption of the agenda

13. After a presentation by the representative of the Secretariat, Mr. Markus Lehmann, describing the background, objectives and expected outputs of the meeting, summarized in the introduction of the

present report, the Group adopted the following agenda on the basis of the provisional agenda that had been circulated as document UNEP/CBD/AHTEG-TTSTC/1:

1. Opening of the meeting.

2. Organizational matters:

   2.1. Election of officers;

   2.2. Adoption of the agenda;

   2.3. Organization of work.

3. Collection, analysis and identification of ongoing tools, mechanisms, systems and initiatives to promote the implementation of Articles 16 to 19 of the Convention.

4. Development of strategies for practical implementation of the programme of work on technology transfer and scientific and technical cooperation.

5. Development of an indicator for technology transfer as part of the framework for assessing progress towards the 2010 target.

6. Other matters.

7. Adoption of the report.

8. Closure of the meeting.

14. Referring to the Convention Articles enumerated in agenda item 3, it was noted that Articles 15 as well as 8(j) and 10(c) were also relevant for the work of the Group, and the Group subsequently decided to keep these Articles in mind during its deliberations.

2.3. Organization of work

15. At its opening session, the meeting decided to work in plenary, and to break out in groups as needed. No such need arose during the meeting.

ITEM 3. COLLECTION, ANALYSIS AND IDENTIFICATION OF ONGOING TOOLS, MECHANISMS, SYSTEMS AND INITIATIVES TO PROMOTE THE IMPLEMENTATION OF ARTICLES 16 TO 19 OF THE CONVENTION

16. Following a brief introduction by the representative of the Secretariat, experts were invited by the Chair to share their knowledge of, and experiences with, existing tools, mechanisms, systems and initiatives to promote technology transfer and scientific and technological cooperation in accordance with Articles 16 to 19 of the Convention, recalling, as previously agreed, that Article 15 and other Articles of the Convention are also relevant (see paragraph 14 above). Representatives of UNEP, UNCTAD and the WTO also made presentations on their pertinent work. The representatives of stakeholder and other international organizations were also invited to share their knowledge and experience as well as to report on pertinent activities of their organizations.

17. In his introduction, the representative of the Secretariat referred participants to document UNEP/CBD/AHTEG-TTSTC/2, which was structured in accordance with the mandate set out in paragraph 7 of decision VII/29. He also drew the attention of the meeting to decision VIII/17 on private sector engagement, reproduced in document UNEP/CBD/AHTEG-TTSTC/3, explaining that, in this decision, the Conference of the Parties invited the Ad Hoc Technical Expert Group to address the role of the private sector in achieving the three objectives of the Convention and to consider the relevance of decision VIII/17 for the work of the Expert Group.

18. The meeting decided to use document UNEP/CBD/AHTEG-TTSTC/2 as a basis for its deliberations under this agenda item. The meeting decided to first undertake a general analysis of relevant tools, mechanism, systems and initiatives, and to address the individual sub-items of the mandate provided in paragraph 7 of decision VII/29 in subsequent stages.

A. General analysis

19. **Defining technology transfer** – Experts noted the importance of clearly conceptualizing or defining technology transfer. The sheer breadth of technologies, from traditional to modern technologies, would call for the prioritization of activities with the greatest impact in fostering effective transfer, in accordance with the type of technology under consideration. Experts recommended focusing on specific and practical elements, suggesting for instance that pursuing "quick wins", where tangible results could be quickly realized, might be a useful way of proceeding.

20. **Available technologies** – The Group emphasized the need to undertake more effort to identify available relevant technologies and disseminate this information through online databases and other means, for instance in areas such as the production of food, feed and fibers; the production of energy, transport and IT. A need was identified to classify relevant technologies for a more effective transfer. Experts emphasized that more use should be made of low-key local technologies and traditional technologies, while noting with regret that no representative of indigenous and local communities was present at the meeting.

21. **Technology needs and priorities** – There was general consensus among the experts about the importance of promoting demand-driven technology needs assessments involving consultations with a wide range of stakeholders. Experts reviewed existing tools and projects focused on identifying technology needs, such as the Technology Needs Assessments (TNA) undertaken under the UNFCCC with support by GEF, as well as the UNDP/GEF guidebook on the preparation of needs assessments for climate change mitigation and adaptation technologies. It was noted that training is essential given that there is currently a lack of capacity to undertake assessments.

22. **Databases** – Experts highlighted the importance of online databases for providing information for the needs assessments, noting that one of the challenges is accessing technology information and databases given the breadth of information that currently exists. It was suggested that the development of a database of technology databases, for instance through the clearing house mechanism of the Convention, might be useful.

23. **Technical and financial capacity** – Experts highlighted the importance of relevant training and capacity-building in terms of, *inter alia*, building trust among key actors and stakeholders, noting that training individuals with a "big picture" focus, such as policymakers, is just as critical as training technology specialists. Building capacity in developed countries, particular on prior informed consent and access and benefit sharing – was also seen as critical. Several experts highlighted the importance of identifying and promoting successful and concrete good practice examples for effective promotion of technology transfer ("champions of technology transfer"). The lack of adequate funding was also

highlighted as a major hindrance to the transfer of technology. In particular, it was noted that the GEF funding would currently not cover technology needs under the Convention.

24. **Legislation and policies** – Underlining that regulations can in fact facilitate technology transfer if they provide a predictable, proportionate, transparent and consistent framework for orientation, thus contributing to building trust, it was noted that many countries still lack adequate legislation and policies which relate to access to genetic resources and the fair and equitable sharing of benefits, and the transfer of relevant technology. This was viewed by many experts as a major constraint to adequate technology transfer.

25. **Brain drain** – Expert also noted the important concern associated with the "inverse transfer" of scientific and technical knowledge resulting from the migration of scientists and technicians from developing countries to developed countries, and stressed the need to improve the national research and innovation system of developing countries, including by providing adequate infrastructure and remuneration.

26. **Technology intermediaries** – The importance of technology intermediaries, organizations linking providers of technology to users of technology, was highlighted as an effective mechanism for translating concepts into action. In this regard, the CGIAR centers were mentioned as good examples of intermediaries facilitating technology transfer. It was noted that technology intermediaries must remain impartial, and that some intermediaries may not be competent or committed to identify national and regional needs.

27. **Bilateral cooperation** – Collaborative research projects on conservation and sustainable use of genetic resources, funded under bilateral agreements, offer opportunities for technology transfer and capacity building. The Group appreciated the usefulness of this mechanism in training and conducting joint research on developing needs-based technologies.

28. **Participatory research** – Carrying out scientific research on genetic resources, provided by other Contracting Parties, with full participation of and where feasible, in, such Contracting Parties, as provided under Article 15 (6), was also noted as a potential tool for technology transfer.

29. **Relationship with other technology transfer processes and fora** – Experts highlighted the importance of linking the technology transfer activities of the Convention on Biological Diversity to other processes and fora focused on technology transfer, such as the World Trade Organization (WTO) as well as the other two Rio Conventions, the United Nations Convention to Combat Desertification (UNCCD), and the United Nations Framework Convention on Climate Change (UNFCCC). Cooperation with the UNCCD would be useful with regard to its work on the transfer of traditional technologies for coping with desertification and drought, and cooperation with the UNFCCC would be of particular importance, because climate change is becoming a reality in many countries, with a subsequent need for close coordination and cooperation between the Convention on Biological Diversity and UNFCCC including on technology transfer. It was, however, noted that the Convention on Biological Diversity is focused on a specific and distinct set of technologies and issues that will require independent focus and activities. With regard to cooperation with the WTO, the Group called upon the Executive Secretary to continue observing relevant WTO negotiations, and to continue seeking for observer status in relevant WTO bodies.

30. The representative of the WTO Secretariat, Ms. Marie-Isabelle Pellan, gave a presentation on the ongoing **WTO negotiations on trade liberalization of environmental goods and services**, under paragraph 31 (iii) of the Doha work programme. She noted that the negotiations are premised on the belief that liberalization of these goods and services would present an opportunity to foster technology transfer, thus generating a triple-win for trade, environment and development. She explained that some

WTO Members advocate using lists of potential environmental goods for liberalization while others have suggested that goods tied to specific environmental projects should be liberalized, and noted that, like the WTO negotiations more generally, negotiators have so far not reached an agreement in these negotiations.

31. In his presentation, the representative of the UNEP Secretariat, Mr. Benjamin Simmons, reviewed the technology transfer activities being undertaken by the UNEP Division of Technology, Industry and Economics (DTIE). DTIE's International Environmental Technology Centre (DTIE-IETC) supports an **Environmentally Sound Technology Information System** (ESTIS), which is a free information system management tool that includes a service to support organizations in building their own customized websites to share environmentally sound technology information. Once the website has been created, it can be linked to other ESTIS websites in order to form a virtual community of cooperating institutions and initiatives.

32. Mr. Simmons also briefed participants on a new **Sustainability Assessment of Technology** (SAT) methodology they is under development with a view to guide potential buyers through the process of assessing various technologies according to economic, environmental and social criteria. The methodology is still in the testing stage and is scheduled for release within the next year. He explained that the DTIE Economics and Trade Branch's work on technology transfer is focused primarily on the links between the WTO negotiations on the liberalization of environmental goods and services, and MEA implementation. Finally, he updated participants on the implementation of the Bali Strategic Plan for Technology Support and Capacity-building.

33. In his presentation, the representative of the UNCTAD Secretariat, Mr. Victor Konde, highlighted the concentration of the global technology generation, flow, use and trade, in developed countries as well as a few developing countries. Such concentration is also observed in international industrial alliances as well as science and technology cooperation agreements. He noted that one of the challenges is a perception that technology would flow automatically to developing countries as soon as barriers were removed, and further explained that such an assumption would omit the need for **identifying technology needs** and for **building or strengthening of absorptive capability**. Likewise, there would also be a need to recognize that technology exporters or providers and the technology importers or recipients have sometimes **divergent interests**.

B. Analysis of the sub-items of the mandate

1. Obstacles that impede transfers of relevant technologies from developed countries

34. Experts underlined that one of the most important obstacles is the **lack of trust** and dialogue on technology transfer issues. In this connection, it was pointed out that specific **technology regulations**, such as those related to biosafety, liability or intellectual property, may either help or frustrate technology transfer. **Trade-related policies and regulations** were also noted to sometimes constitute an obstacle for effective technology transfer, in particular for recipients from the private sector or from non-governmental organizations. **Ineffective governance** was also seen as a major obstacle to technology transfer.

35. Improving public participation in decision-making about technology, with a view to establish a genuinely **participatory decision-making process**, will lead to increased public acceptance of technologies and facilitate their transfer. In this respect, it was noted that risk assessments may contribute to building trust if focused and adequate information is provided.

36. Another critical obstacle identified by experts is the **lack of knowledge** of what technology information is already available.

37. Other obstacles identified include: the lack of **legal capacity** in drafting technology transfer contracts and negotiating these contracts; the lack of a centralized **national focal point on technology transfer**; and the **lack of adequate infrastructure** in many developing countries, such as transportation and communication systems, as this infrastructure is a prerequisite to sustain and maintain technologies once they are transferred.

2. Provision of incentives to private-sector actors as well as public research institutions in developed country Parties to encourage cooperation and transfer of technologies to developing countries

38. Experts highlighted the importance of promoting **match-making programmes**, which seek to encourage private partnerships by promoting investment projects between private firms in developed and developing countries and counterparts in developing and transition countries.

39. Underlining the important role of the private sector in technology transfer and scientific and technological cooperation, experts also noted the need for **clear and consistent laws and regulations** as a prerequisite to sending the right signals and creating the necessary incentives for private sector actors.

3. Measures and mechanisms to promote priority access to the results and benefits arising from technologies based upon genetic resources

40. Experts underlined the importance of clearly understanding the expectations associated with access and benefit sharing agreements, noting that these agreements should include a certain amount of flexibility. Emphasizing the complexity and unique nature of genetic materials, a number of experts highlighted the importance of building capacities to draft clear access agreements and contracts. In this connection, **model access agreements** were said to be useful in facilitating the drafting of these contracts and increasing the likelihood that essential components are included, such as the concerns of the public research community or of local and traditional communities. These model access agreements should be coupled with **capacity-building** efforts. In this regard, experts also noted that the importance of linking with **existing efforts** to compile model agreements, such as a project currently being undertaken by the Catholic University of Leuven, Science Commons, and the CGIAR. The importance of **engaging the private sector** in the development of model access agreements was also emphasized.

41. Experts also noted the need for **clear laws and policies** regulating access to and benefits derived from genetic resources, emphasizing that these laws and policies should distinguish between access granted for basic research and access granted with a commercial focus. In this connection, it was noted that one of the challenges associated with this activity is to **clearly identify and define associated traditional knowledge**, and to trace the associated traditional knowledge back from the final products.

4. Innovative approaches and means of technology transfer and cooperation such as Type 2 partnerships

42. Experts underlined the importance of establishing **long-term** partnerships. Successful partnerships should be promoted as **good practice examples**; in this connection, it was noted that the existing numerous **small partnerships** between governments, universities and research institutes are providing good examples of successful partnerships which deserve more attention and visibility. The existing partnerships with **CGIAR centers** were noted as providing a model of successful partnerships.

43. One expert shared his experiences on the practical difficulties associated with establishing effective cooperation. Given that technology transfer is typically relevant to the work of a number of different government ministries, in particular the environmental, trade, agricultural, development cooperation, and research ministries, experts suggested that countries establish **coordinating units** as a

means to facilitate partnerships. The need to **empower indigenous and local communities and farmers** by **recognizing their rights, welcoming their participation, and rewarding their contribution** was also mentioned as an important element in the development of partnerships. Finally, an **ecosystem approach** to partnerships was suggested whereby the partnerships are based on the focus on different ecosystems. This would also lead to the establishment of ecosystem-specific priorities.

5. Cooperation with processes in other conventions and international organizations

44. Experts noted the importance of identifying **key individuals** in international organizations as an important practical condition for the establishment of effective cooperation. In terms of specific opportunities, the possibility of partnering with other MEAs, such as the other **Rio conventions** and **biodiversity-related conventions** was highlighted, as well as with the **International Treaty on Plant-genetic Resources** for Food and Agriculture (ITPGRFA). The **UNEP Bali Strategic Plan** for Technology Support and Capacity-building was also mentioned as a possible opportunity for cooperation.

ITEM 4. DEVELOPMENT OF STRATEGIES FOR PRACTICAL IMPLEMENTATION OF THE PROGRAMME OF WORK ON TECHNOLOGY TRANSFER AND SCIENTIFIC AND TECHNICAL COOPERATION

45. The representative of the Secretariat introduced document UNEP/CBD/AHTEG-TTSTC/3, explaining that this document would provide an analysis of the views submitted on the initial proposals contained in document UNEP/CBD/COP/8/19/Add.2. He recalled that the document would also provide information on other relevant decisions and recommendations, namely, decision VIII/17 on private sector engagement and recommendation 2/1 of the Second Meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention. The document would identify a number of strategic elements for consideration by the group in its further elaboration of the initial proposals into a strategy for implementing the programme of work. As requested by decision VIII/12, the initial proposals were made available to the Expert Group as document UNEP/CBD/AHTEG-TTSTC/3/Add.1, and the compilation of views submitted was made available as document UNEP/CBD/AHTEG-TTSTC/INF/1.

46. He explained that one of the suggested strategic elements for consideration by the group, the launching of a Biodiversity Technology Initiative, came further to a request of the Conference of the Parties, directed to the Executive Secretary, to explore possibilities of developing a "Biodiversity Technology Initiative", taking into account the Climate Technology Initiative (CTI) (see decision VIII/12, paragraph 15). A draft report providing such an exploration was made available to the Group as document UNEP/CBD/AHTEG-TTSTC/INF/2.

47. The Group based its work under this agenda item on the documents enumerated above as well as on the results of the compilation and analysis undertaken under agenda item 3. The suggested strategy for practical implementation of the programme of work as developed by the Group is provided in annex III of the present report. As requested by decision VIII/12, the compilation of views on the initial proposals is provided in annex II.

ITEM 5. DEVELOPMENT OF AN INDICATOR FOR TECHNOLOGY TRANSFER AS PART OF THE FRAMEWORK FOR ASSESSING PROGRESS TOWARDS THE 2010 TARGET

48. In introducing the agenda item, the representative of the Secretariat referred to decision VII/30, by which the Conference of the Parties adopted a provisional framework for assessing progress towards

the 2010 biodiversity target, and also identified a number of indicators for development by SBSTTA or working groups, including an indicator for technology transfer. He explained that, in annex IV of decision VIII/15, the Conference of the Parties invited the expert group on technology transfer and scientific and technological cooperation to consider this matter. Document UNEP/CBD/AHTEG-TTSTC/4 would provide additional information, and he invited the Expert Group to use it as a basis for its consideration of the matter.

49. The Group noted that, while it is not necessarily premature to begin a discussion on indicators for technology transfer, there are a number of important conceptual and practical challenges and open questions associated with the development of such an indicator or set of indicators, and that, consequently, there is a need for more conceptual work to be undertaken. Challenges and/or open questions include:

(a) That it will arguably not be possible to agree on one easy and comprehensive indicator, given the complex subject matter, and that a **set of complementary indicators** would need to be developed;

(b) The challenge to develop an indicator which also **reflects the success of technology transfer**, that is, the positive impact on reducing the current rate of biodiversity loss;

(c) The additional **reporting burden** for the national statistical reporting and survey system which is associated with the application of a scientifically rigorous indicator which would go beyond the compilation of anecdotal evidence;

(d) The substantial **baseline information** that needs to be in place, given that the deadline for attaining the 2010 biodiversity target is only three years away;

50. The Group noted that the indicators, in general, should **be based on the strategy** for implementation of the programme of work and, having due regard to the challenges identified in the previous paragraph, tentatively identified a number of potential indicators which may merit further consideration in subsequent discussions, or may be useful as domestic indicators:

(a) Information from **national reports** as a basis for building a set of indicators;

(b) The number of **technological needs assessments** undertaken;

(c) The extent to which technology transfer is inserted in **funding agreements**;

(d) The number of **ABS agreements** divided by the number of such agreements where both parties are satisfied;

(e) The number of **joint research projects**, based on patent database information;

(f) The **increase in yields** subsequent to the transfer of technologies for sustainable use of components of biodiversity; e.g., the increase in yields from beekeeping after landscape restoration;

(g) The number of **partnerships** concluded;

(h) The amount of **royalties** paid by the private sector and re-invested in the process;

(i) The number of **farmers or local organizations involved** in the process of technology transfer;

(j) The level of **national investment** associated with transfer of relevant technologies;

(k) The number of **demonstration fields** to indicate merits of biotechnology;

(l) The status of **human resource development** on technology transfer.

ITEM 6. OTHER MATTERS

51. The Group expressed its appreciation to the Government of Spain for the financial support provided to the meeting.

ITEM 7. ADOPTION OF THE REPORT

52. The present report was adopted by the Group on 12 September 2007.

ITEM 8. CLOSURE OF THE MEETING

53. Following the customary exchange of courtesies, the Meeting was closed at 5 p.m. on Wednesday, 12 September 2007.

Annex I

LIST OF PARTICIPANTS

Country	Expert
Argentina	Mr. Florencio Gilberto Acenolaza
Brazil	Ms. Maria Jose Sampaio Ms. Grace Tanno (permanent mission Geneva)
China	Mr. Guobin Cui
Costa Rica	Mr. Jesús Armando Ugalde Gomez
Germany	Mr. Horst Freiberg
India	Mr. Rai S. Rana
Japan	Mr. Motohiro Hasegawa
Malaysia	Mr. Leng Guan Saw
Morocco	Mr. Chafik Kradi
Mozambique	Ms. Maria dos Anjos Ernesto Hauengue
Norway	Mr. Peter Johan Schei
Philippines	Ms. Leuvina M. Tandug
Thailand	Ms. Vullapa Arunpairojana
Uganda	Mr. Maxwell Otim Onapa
Zimbabwe	Mr. Kudzai Kusena

Observers

United Nations and Specialized Agencies

United Nations Conference on Trade and Development (UNCTAD)	Mr. Mongi Hamdi Mr. Victor Konde
United Nations Environment Programme (UNEP)	Mr. Hussein Abaza Mr. Benjamín Simmons
United Nations Framework Convention on Climate Change (UNFCCC)	Mr. Bert van der Plas
World Trade Organization (WTO)	Ms. Marie-Isabelle Pellan Ms. Xiaoping Wu

Intergovernmental Organizations

Consultative Group on International Agricultural Research (CGIAR)	Ms. Victoria Henson-Apollonio
International Rice Research Institute	Mr. Kong Luen Heong

Non-Governmental Organizations

Edmonds Institute	Ms. Beth Burrows
Public Research and Regulation Initiative (PRRI)	Mr. Piet van der Meer

Industry	
BIO-Biotech Industry Organization, Eli Lilly & Co.	Ms. Patrizia Carlevaro
World Business Council for Sustainable Development	Mr. Joaquim A. Machado

Convention on Biological Diversity (CBD)	
Executive Secretary	Mr. Ahmed Djoghlaf
Economist	Mr. Markus Lehmann
CBD liaison officer Geneva	Mr. David Duthie

Annex II

COMPILATION OF VIEWS ON PROPOSALS AND OPTIONS TO APPLY MEASURES AND MECHANISMS TO TECHNOLOGY TRANSFER AND COOPERATION PROVIDED BY PARTIES, GOVERNMENTS AND RELEVANT CONVENTIONS AND INTERNATIONAL ORGANIZATIONS

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I SUBMISSIONS FROM PARTIES

COLOMBIA

Convenio sobre la Diversidad Biológica
Notificación SCBD/SEL/MN/GD/54988

Comentarios de Colombia al Documento UNEP/CBD/COP/8/19/Add.2-
Transferencia de Tecnología y Cooperación Técnica y Científica – Addendum
Preparación de propuestas sobre opciones para aplicar medidas y mecanismos para facilitar el acceso y la adopción a las tecnologías, e investigación de posibilidades y mecanismo de cooperación con procesos de otros Convenios y Organizaciones Internacionales

El documento presenta los progresos en la aplicación del programa de trabajo de transferencia de tecnología y cooperación científica y técnica. Cabe anotar que las propuestas contenidas en el documento no son jurídicamente vinculantes, por lo que se limitan a identificar opciones para las actividades.

En este sentido, si bien el Convenio de Diversidad Biológica establece en el Art. 16 que la transferencia de tecnología es un elemento importante para alcanzar los objetivos del mismo, se concluye del documento que existe aún un vacío significativo para alcanzar un conjunto de directrices que regulen el entorno jurídico y técnico necesario para permitir procesos permanentes de transferencia de tecnología, así como de cooperación científica y técnica, tarea imperativa para avanzar en la implementación del Convenio.

En aras de maximizar la eficiencia de los procesos de transferencia de tecnología, se debe optar por la asignación de prioridades de acuerdo con las necesidades específicas nacionales en materia de transferencia de tecnología que en su orden, deberán estar orientadas a:

- Fortalecer las capacidades nacionales y las capacidades relacionadas con los sistemas de investigación e innovación.
- Prioridades tecnológicas (técnicas de valoración y supervisión, procesos para la utilización sostenible de la diversidad biológica).

Así mismo, es importante distinguir entre las nociones de transferencia de tecnología y cooperación tecnológica, teniendo en cuenta que en el contexto del Convenio, la transferencia de tecnología no debe ser un elemento único y temporal sino un proceso continuo dentro de los mecanismos de cooperación integral a largo plazo, orientado a la creación de capacidad para el manejo sostenible de la diversidad biológica.

Por otra parte, el documento establece que las tecnologías pertinentes conforme al Convenio son aquellas que contribuyen a cumplir con los tres objetivos del Convenio, léase: la conservación de la diversidad biológica; la utilización sostenible de sus componentes; y la distribución justa y equitativa de los beneficios dimanantes de la utilización de los recursos genéticos. Aunque ésta distinción es válida, es importante aclarar que el objetivo de las tecnologías en cuestión no debería ser expresamente relacionado con los objetivos de la Convención, en el sentido de que pueden haber tecnologías accesorias que contribuyan al cumplimiento de los mismos, sin que su objetivo principal y/o primario sean éstos específicamente. Considerando esto, el alcance de la política debe abarcar una noción ampliada de las tecnologías que contribuyen – directa o indirectamente - a cumplir los objetivos del Convenio.

Se considera conveniente el marco dispuesto por el Art. 16 del Convenio que insta por condiciones preferenciales para la transferencia de tecnología para los países en desarrollo, de conformidad igualmente con las disposiciones relacionadas con el mecanismo financiero contenidas en los Art. 20 y 21, sin ir en detrimento de la protección otorgada por los Derechos de Propiedad Intelectual en virtud del

acceso y la transferencia de tecnología, lo cual constituiría un desincentivo para el proceso mismo. En este sentido, la cooperación y el financiamiento internacional, en asociación con instituciones financieras es clave para la creación de capacidad, la sostenibilidad y el impacto en términos de productividad y desarrollo.

Teniendo en cuenta el predominio que tiene el control del sector privado sobre la tecnología relevante a nivel global y, aunque conceptualmente es aceptable la noción que se argumenta en el documento por la función facilitadora que deben prestar los países en desarrollo para permitir el acceso a las iniciativas de naturaleza privada, se considera un tanto limitada la expresión "política y legislación que actuarán como incentivo". Los incentivos deben establecerse de manera expresa – en la forma de exenciones fiscales, rentas de inversión etc. –, los cuales obviamente serían considerados dentro de los instrumentos de legislación adecuados.

Es fundamental que se implemente la primera actividad complementaria para generar un ambiente propicio para la transferencia de tecnología, que insta a la identificación de las necesidades específicas de cada Estado como una condición previa para que se den los procesos de transferencia de tecnología y una cooperación tecnológica y científica satisfactoria. Lo anterior con el fin de atender las deficiencias en eficacia de las tecnologías que se incorporen a los procesos productivos en el marco del Convenio a raíz de la falta de evaluaciones de impacto y diagnósticos técnicos adecuados.

Esto iría de la mano con inactivas orientadas a la creación de capacidad tanto técnica como institucional – que incluso pueden ser considerados como otras formas de transferencia de tecnología – que garanticen la continuidad, aplicabilidad y efectividad de estos procesos. En este sentido, el documento, adecuadamente señala que *"La transferencia de tecnología, especialmente en el contexto del tercer objetivo del Convenio, no resultará eficaz como actividad temporaria, sino que debe estar incluida en mecanismos de cooperación científica y tecnológica integrales y a largo plazo, que también proporcionarían un mecanismo clave para crear o mejorar la capacidad en los países en desarrollo y los países con economías en transición."*

Las disposiciones de las políticas que reglamenten los procesos de transferencia de tecnología también pueden y deben tomar la forma de incentivos negativos donde las estrategias, planes y políticas más sólidas y bien aplicadas, que aumentan el costo del incumplimiento, resultando en instrumentos eficaces para promover la demanda de tecnologías ambientalmente racionales en los países receptores.

Si bien la inversión extranjera directa es el mecanismo predominante para la transferencia de tecnología a países en vías de desarrollo, la diversificación de instrumentos es alcanzable no sólo por vía de la acción de los Estados receptores en la forma de flexibilización de las barreras arancelarias y no arancelarias al comercio y la inversión, sino también a través de la creación de incentivos monetarios y no monetarios en las economías de oferta[1].

[1] Asimismo, la eliminación de las barreras arancelarias y no arancelarias de parte de los países desarrollados para determinados bienes basados en la diversidad biológica de los países en desarrollo podría alentar la demandada de estos bienes y, en consecuencia, la demanda de tecnología para la utilización sostenible de los activos subyacentes de la diversidad biológica en dichos países en desarrollo. *Véase Actividad de Apoyo A3. UNEP/cbd/cop/8/19/Add.2*

CUBA

Observaciones al documento sobre Transferencia de Tecnología Cooperación Técnica y Científica en el Marco del Convenio de Diversidad Biológica

Como resultado del análisis del documento UNEP/CBD/COP/8/19/Add.2 hemos arribado a las siguientes observaciones:

1. En el párrafo 14 consideramos importante explicitar lo referente a la capacidad de absorción de las transferencia de tecnología que deben poseer los países receptores, los que deben contar con determinados conocimientos y aptitudes para poder adoptar con éxito los conocimientos tecnológicos foráneos.

   La capacidad de absorción abarca las fases de aprendizaje y adaptación de la transferencia de tecnología y la misma está determinada por los siguientes factores:

   - El nivel y la naturaleza del sistema de enseñanza;
   - La aplicación de los resultados de la investigación básica a usos concretos y el desarrollo de nuevos productos;
   - Régimen de propiedad intelectual empleado en el país receptor;
   - El desnivel tecnológico entre la tecnología usada en el mercado nacional y el de la tecnología que se importa;
   - Capacidad de los empresarios locales de hacer inversiones arriesgo, y a sus aptitudes en materia de gestión y organización empresarial.

2. En el párrafo 17 proponemos adicionar al final: En ocasiones ocurre que durante el proceso de cooperación científica y tecnológica entre países desarrollados y países en desarrollo se produce transferencia de conocimientos y tecnología como resultado del éxodo de profesionales universitarios y tecnólogos hacia los países desarrollados, por diversos motivos vinculados con vías mas expeditas para alcanzar niveles superiores de especialización, mejoras económicas, etc. En general, en este éxodo el capital humano que se traslada hacia los países desarrollados es el de mas alta calificación.

   Estos problemas provocan que se produzcan desequilibrios en la equidad de los procesos de cooperación y como consecuencia de ello se profundizan y ensanchan las diferencias entre los países en desarrollo y los desarrollados.

GERMANY

View submitted by Germany

Notification 2006-057 und 2006-127
Decision VIII/12: technology transfer and cooperation

1. Germany appreciates the information on the proposals and options to apply measures and mechanisms to technology transfer and cooperation contained in document UNEP/CBD/COP/8/19/Add.2

2. In general we believe that it is urgently needed to make a real effort in translating the today academic theories and our commitments presented in the decisions on TT into action. This may be done in small steps in a well designed step-by-step approach and by learning by doing but it could also, if the framework allows such development, done in an ambitious broader and visionary approach.

3. Any effective implementation and development of TT relevant to the Convention depends on a clear commitment by all Parties. We fully agree with para 14 (a) that biodiversity TT needs to be driven by demand/the recipient country needs. This requires as a crucial precondition that the host country must assess what knowledge and technologies are needed. This further requires that this shall be part of a national implementation plan which indicates the national actors and who needs which technology.

4. Only a clear understanding of the concrete TT needs relevant to the Convention by Parties will allow a focussed commitment and strategic support in implementing the PoW TT and any related activities in support.

5. We also believe that it will be necessary to adopt a general understanding of the term "technology transfer". The EG TT CBD has started to reflect on "technology transfer" and "technology cooperation". We should find a definition which reflects both concepts. To facilitate this discussion we have attached in Annex (a) two definitions of "technology transfer". One is presented in our publication "TT via the German CHM" and the other stems from the IEA/CTI document "Technology without Borders".

6. Before starting the development and implementation of an extensive work programme with heavy work load on TT it will be also important to clearly "screen" the existing initiatives actually facilitating TT relevant to the Convention. The document contains two good examples of such initiatives: the ISAAA and the CGIAR.

7. It may be a result of the national analysis of the concrete needs of technologies relevant to the Convention that new initiatives like ISAAA may be created by "pooling patents" and technologies for developing countries and countries in transition facilitating an easier access to and the transfer of those technologies, including long-term partnerships and capacity building.

8. We should avoid duplication of efforts and make maximum use of synergistic work between the different TT-Expert Groups of the CBD and UNFCCC as well of the joint liaison group of the three Rio conventions. In bundling efforts the private sector may become more interested in mobilizing financial and technological resources that match the TT needs relevant to the Convention. This could also help to broaden the base of financing for TT.

9. Information systems are supportive elements to the development of the PoW on TT. But they can not replace personnel contacts. The Clearing-House Mechanism (CHM) of the CBD should be developed and promoted as the relevant mechanism to disseminate information on technologies and best practices in

technology transfer relevant to the Convention. It will be an important task to design the role and functionality of the information system facilitating TT. Any development in this direction needs to be based on concrete needs and also expectations presented by Parties and future users. The role and niche of the CHM in this respect should be clear. Any development should be demand-driven and not contain all and any area of technology. This development should be discussed in conjunction with the IAC CHM.

10. It will be also of importance to introduce new concepts on "facilitating TT" at CBD meetings like COP and SBSTTA. As we stated before the predominant majority of any TT is based on former personnel contacts – meetings. These meetings allow the exchange of ideas and facilitate contact building between future partners. We should discuss how we could make practical use of future COP and SBSTTA meetings for "TT match making" and contact building purposes. One option could be to organise special and TT-focussed "TT Fairs" or workshops "To Meet the Need" (see para 56). This could be for example done by identifying the needs of a sub-region/country and bring relevant technology supplier to this meeting.

11. It will be crucial of successful TT to promote policies and institutional changes that lead to the removal of barriers and increased market penetration of biodiversity friendly technologies.

12. We generally support the idea to identify if appropriate a central national consulting point on technology access and transfer (section D. page 8). This central consulting point could be the CHM NFP itself who might organise the relevant activities related to the use of the CHM as the information mechanism of the CBD to facilitate access to and transfer of information on CBD relevant technologies.

13. We also support the idea of the AHTEG on TT exploring the value of a Biodiversity Technology Initiative (BTI) as a central initiative for the implementation of an overall Biodiv-TT-Strategy. One major role of a BTI could be Capacity Building through workshops and training seminars but also a facilitator in preparing project proposals for Technology cooperation.

14. The Equator-Initiative should be much more promoted and disseminated as important initiative offering a basket of practical TT experiences relevant to Developing countries.

15. In any TT or T. cooperation activity it will be important to carefully consider the adaptation and impact assessment (risk assessments) of the transferred technology.

16. We also see a need to analyse the existing materials as guidelines, hand-books (UNDP-GEF Handbook on Tech. Needs Assessment) etc. relevant to technology transfer and explore the potential and practical applicability of these materials for the purpose of the Convention.

17. In support of the first implementing steps of the PoW of TT Germany is undertaking a concrete national survey on existing, biodiversity relevant technologies. The result will be a "catalogue of biodiversity related technologies/technology suppliers" which is the basis for any future contribution to TT.

Annex (a) Two descriptions of Technology Transfer

***1) Source: BfN Skript 160 "*Technology Transfer via the Clearing-House Mechanism (CHM), 2005, DE-CHM.**

The real value of any TT lies in the local adaptation and integration of the technology on community or national level. The whole process integrates transfer of knowledge and hardware as well as capacity building, training and financial support. TT should enable the recipient to control and further develop the

technology according to his needs so that it contributes in a sustainable way to strengthen local economies, to generate additional income and to reduce poverty. This should be realised in long-term technology cooperation partnerships.

2) Source: Technology without Borders – International Energy Agency / CTI 2001

What do we Mean by Technology Transfer?

The Report defines the term "technology transfer" as a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organisations (NGOs) and research/education institutions.

Therefore, the treatment of technology transfer in this Report is much broader than that in the UNFCCC or of any particular Article of that Convention. The broad and inclusive term "transfer" encompasses diffusion of technologies and technology co-operation across and within countries. It covers technology transfer processes between developed countries, developing countries and countries with economies in transition, amongst developed countries, amongst developing countries and amongst countries with economies in transition. It comprises the process of learning to understand, utilise and replicate the technology, including the capacity to choose it and adapt it to local conditions and integrate it with indigenous technologies.

The Report generally makes a distinction between developed and developing countries. Although economies in transition are included as developed countries under the UNFCCC, they may have characteristics in common with both developed and developing countries.

II SUBMISSIONS FROM RELEVANT CONVENTIONS AND INTERNATIONAL ORGANIZATIONS

INTERNATIONAL CHAMBER OF COMMERCE (ICC)

ICC Contribution to Preparation Work of the CBD Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation

Comments on document UNEP/CBD/COP/8/19/Add.2 per the notification dated 5 June 2006, concerning the proposals and options to apply measures and mechanisms to technology transfer and cooperation

The ICC is grateful for the opportunity to provide comments on the proposals and options to apply measures and mechanisms to technology transfer and cooperation, and welcomes the intensified work envisioned in the coming months on this subject. Given the private sector's critical role in effecting technology transfer and scientific and technological cooperation, the ICC also looks forward to being a partner in work aimed at eliminating obstacles and facilitating both access to and adaptation of technologies with the necessary accompanying know-how.

General Comments

The ICC places high priority on development of effective technology transfer policies that promote the capacity of people to benefit economically and/or socially from innovation. More specifically, *technology transfer* is the process of developing practical applications from the results of scientific research.

There is an important role for governments in funding basic research and promoting science literacy. However, technology transfer policies need to rely on the marketplace for commercialization of basic science if society is to benefit from the strength of the market in distributing resources, as shown through examination of national experiences*. An effective and successful technology transfer system incorporates both government support and private sector incentives and is based on three pillars:

1. *A durable government commitment to science in education, research, regulation and related infrastructure.* There is no substitute for a national commitment to science literacy in education and research, and also in enforcing systematic science-based regulation. Without commenting on funding options, it is vital for the government to create an enabling environment for science and technology by investing in education and training, supporting basic and early applied research, and improving technology-related physical infrastructure. Clear and consistent processes for meeting legal requirements underpin science-based regulation.

2. *Broad rule-of-law protections, including strong intellectual property protections (IPP), in a just and consistent court system.* The assurance of a rule-of-law culture (enforceable contracts, accurate and fair court systems, etc.) justifies investment and enables innovation

* Finston SK. 2007. "Technology Transfer Snapshots from Middle-Income Countries: Creating Socio-Economic Benefits through Innovation". In *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices* (eds. A. Krattiger, RT Mahoney, L Nelsen, et al.). MIHR: Oxford, U.K., and PIPRA: Davis, U.S.A. Available online at www.ipHandbook.org.

for all commercial actors, both local and foreign. Among these rule-of-law protections, effective IPP protects commercially valuable, proprietary materials and/or information, and is essential to promote technology transfer. This is particularly true in innovative industries using new technologies, where patents are the primary assets for generating investment in innovative but risky endeavors. It is important that strong, predictable protections are afforded for all inventions.

3. *Legal means for private actors to benefit from investment in technology transfer.* ICC recognises that countries operate under a range of political systems. Market-oriented policies encourage risk taking and increase private sector investment because the market can provide rewards commensurate with risks taken by entrepreneurs. Moreover, cross-border investment generates technology spill-over effects including through the transfer of proprietary technologies, know-how and management techniques†. Private sector engagement in technology transfer is driven by a potential opportunity to realise financial benefits from the investment

Specific Comments

1. The ICC agrees that prioritization is necessary to ensure the success of work on this topic and recommends that efforts focus on the following:

   - Making full use of information systems (programme element 2) to increase access to information about new technologies, their uses, potential, and case studies about the transfer of technologies and adaptations made to date;
   - Conducting a review of national trade policies, investment regimes and export controls to ensure that they support technology transfer (options *iii*, *iv*, *and xi*).
   - Providing guidance to countries on programmes to enhance access to capital, guarantees, etc for small and medium-sized companies (option *viii*) and to public institutions on options for working in consortia, etc. (option *xiii*); creating twinning arrangements (option *xiv*); and public-private partnerships (option *xv*);
   - Creating incentives for the private sector and foreign actors to engage in technology transfer (options *xvii* and *xviii*).

2. The ICC is particularly supportive of the proposal (see item S6) to hold international technology fairs and workshops in connection with Convention meetings to bring together technology providers and users but also to build awareness among delegates of the important role of technology in achieving the Convention's objectives.

3. The ICC believes that a separate body or group to serve as a "consulting point" on technology access and transfer (see option *xii*) is not necessary under the Convention but that the Convention could serve a central role in providing information (both about available technologies and needs) through the Clearing House and other information systems.

4. We do not see as a priority and, in fact, have concerns about undue focus on technology assessment (programme element 1) as a means of contributing to enabling environments. Any efforts to harmonize or guide or dictate such assessments may well result in administrative requirements or other filters that serve to block governments, organisations, companies or institutes from obtaining necessary new technologies rather than facilitate timely access.

† OECD, 2006, "Economic and Other Impacts of foreign Corporate Takeovers in OECD Countries", p10

5. We also are concerned about the terminology found in Document 8/19/Add.2 and its predecessor documents that suggests the need for impact assessments and risk analysis to "ensure that transferred technologies are economically viable, socially acceptable and environmentally friendly." Countries, and their citizens, should be free to evaluate and seek access to new technologies without screening or steering from the international community because what is economically viable or socially acceptable will vary widely among countries but also within countries. Under Article 16 of the Convention, the technologies for which we must create enabling environments are those "that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment," not a subset of this which some - but not others - may consider to be "socially acceptable" or "environmentally friendly." Relevant impact or risk assessments by regulatory authorities should be made available, along with information about the technologies, via the information systems discussed above.

   In short, many of the options already identified can be expected to contribute to the shared goal of increased access to and transfer of technologies as well as enhanced scientific and technical cooperation and the ICC is ready and willing to work as a partner in the Convention process to realize these goals. Great care must be taken, however, that the very effort aimed at creating enabling environments does not itself create barriers or administrative burdens that undermine our objective. Similarly, expert and working groups established under the Convention for other purposes, should be informed of the work being undertaken to facilitate technology transfer and cooperation and ensure that their own work does not frustrate these efforts by creating new barriers.

UNEP DTIE INTERNATIONAL ENVIRONMENTAL TECHNOLOGY CENTRE (IETC)
United Nations Environment Programme
Division of Technology, Industry, and Economics

IETC is active in the four areas relevant to document UNEP/CBD/COP/8/19/Add.2: technology assessment, information systems, creating enabling environments and capacity-building and enhancement. It should be noted, however, that most IETC activities are focused on industry and pollution control technologies rather than biodiversity-related technologies.

Regarding *technology assessments*: IETC has developed a Sustainability Assessment Tool (SAT), which guides a potential buyer through the process of assessing various technologies according to economic, environmental and social criteria. The methodology is still in the testing stage, and IETC is planning to test it in several projects in order to verify the relevance and usefulness of the methodology in selection processes. The goal is to have a final version ready within 6 months to 1 year.

Regarding *information systems*: IETC has decided to discontinue its technology database, *Maestro*, which was a internet-based information system where technology producers were encouraged to provide basic information about their technologies. *Maestro* was discontinued for a number of reasons, including the fact that the number of new technologies listed in the database was relatively low as compared to the technologies actually available and being developed. Moreover, the database was not up-to-date, and therefore risked becoming misleading in some cases. Ensuring the database was kept up-to-date would have required significant financial resources to, among other things, actively search for new technologies. IETC did not have the resources required to maintain such an up-to-date and comprehensive database.

As an alternative, IETC developed an internet-based information system (ESTIS) for technology networks to be able to share experiences and lessons learned. This system, which is free of charge, can also be used to share experiences within specific networks. UNEP is currently using this system for network management, and the World Health Organization and the United Nations Department of Economic and Social Affairs have also started using this tool. IETC establishes and maintains servers around the world so the users do not have to maintain their own servers. Please see http://www.estis.net/ and/or contact Mr. Robert Rodriguez (ietc@unep.or.jp) for more details.

The same internet-based system could also serve as an enabling environment, where specific, targeted networks linked with specific issues could operate and share information and best practices. The network may also be a useful tool in the promotion of South-South cooperation.

Regarding *capacity building*: IETC almost always includes a capacity building component as a part of any project, but, as stated earlier, IETC is mainly focused on pollution control/industrial technologies. However, a few of the capacity building activities aimed at Government ministries, local authorities, local communities and universities, under the UNEP Iraqi Marshlands project, included elements of biodiversity management as their focus.

In addition to these comments, IETC has the following general observations on the document:

- The document appears as more as a “wish list” of possible activities and would benefit from prioritisation. For example, there are no cost estimates included, which adds to the impression that this is just a first attempt to put all possible ideas on the table. Although this may be a good point of departure for discussion, it will be important at some point for specific activities to be prioritized and linked to costs.

- The document appears more delivery-driven rather than demand-driven. Although it is useful for various UN agencies, and other international groups, linked with this issue to provide information on what they are doing and/or where they can deliver support, it will be essential that this be met by real needs, expressed by the potential users.
- Best practices and various techniques are not really covered in the document. One would assume that there is significant knowledge at the national and local level that can be utilized by other countries.
- The document says little about the experiences gained through scientific research and how these results can be widely disseminated. In a field like integrated pest management, for example, there have been a number of interesting field experiences that could be replicated by others depending on the information provided in research journals.
- The document tends to focus on legal, trade and finance-related issues, which may not be a priority in the short run. Again, the more practical approaches and needs should be covered in order to balance out the delivery approach.

Finally, it should be noted that neither UNEP nor most international organizations are involved in technology transfer *per se*. Rather, technology transfer is normally conducted through business-to-business arrangements. The document does make clear, however, that current national import tax system, particularly in some developing countries, may represent a barrier for the import of cutting-edge technologies.

Annex III

SUGGESTED STRATEGY FOR THE PRACTICAL IMPLEMENTATION OF THE PROGRAMME OF WORK ON TECHNOLOGY TRANSFER AND SCIENTIFIC AND TECHNOLOGICAL COOPERATION

I. OBJECTIVES AND BACKGROUND

1. The present framework identifies strategic activities for the practical implementation of the programme of work on technology transfer and scientific and technological cooperation. The programme of work was adopted by the Conference of the Parties at its seventh meeting, in Kuala Lumpur, in February 2004, in order to develop meaningful and effective action to enhance the implementation of Articles 16 to 19 as well as related provisions of the Convention, by promoting and facilitating the transfer of and access to technologies from developed to developing countries as well as among developing countries and other Parties. According to Article 16 (1) of the Convention, relevant technologies under the Convention are those that contribute to meeting the three objectives of the Convention, that is, technologies that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.

2. Biodiversity is under massive and increasing pressure as a result of global changes such as population growth, poverty alleviation, reduction of available arable land and water, environmental stress, climate change, and the need for renewable resources, and this requires that the full range of technologies, ranging from traditional to modern technologies, is made widely available in order to address the challenges associated with the implementation of the three objectives of the Convention. Much scientific and technological cooperation, including the transfer of technologies, is already undertaken, in particular on a smaller scale. This strategy aims to increase the visibility of such cooperation, and to enhance the efficiency and effectiveness of technology transfer and scientific and technological cooperation under the Convention.

II. CONCEPTUALIZING AND DEFINING TECHNOLOGY TRANSFER AND SCIENTIFIC AND TECHNOLOGICAL COOPERATION

3. It is important to recognize the crucial **links between technology transfer and scientific and technological cooperation –** the two elements addressed by the programme of work. Technology transfer, in particular in the context of the third objective of the Convention, will not be effective as an on-off and one-way activity, but needs to be **embedded in a participatory decision-making process** as well as in **integrated, long-term scientific and technological cooperation**, which, as based on reciprocity, would also provide a key mechanism for the effective building or enhancement of capacity in developing countries and countries with economies in transition.

4. The concrete process leading to technology transfer, as well as the cooperative mechanisms applied, will necessarily differ in accordance with the largely varying socio-economic and cultural conditions among countries, as well as the type of technologies transferred. Hence, this process needs to be **flexible, participatory, and demand-driven**, moving along different cells of matrices of potential types of technologies and cooperative mechanisms.

5. The concept of technology as generally understood under the Convention includes both **"hard" and "soft" technology**. The notion of hard technology refers to the actual machinery and other physical hardware that is transferred, while the category of soft technology refers to technological information or

know-how. Such "soft" technology is often transferred within long-term scientific and technological cooperation.

6. Consistent with the programme of work, **local solutions to local issues** should be identified and their transfer and use facilitated, as the most innovative solutions are often developed locally, but remain unknown to the a wider community of potential users even though they could be transferred comparatively easily.

7. Strategic activities can be distinguished according to whether they focus on fostering the *provision* of technologies or on the *reception, adaptation and diffusion* of technologies. While many countries may be mainly providing or mainly receiving technologies, it has to be borne in mind that individual countries may sometimes simultaneously provide and receive technologies from abroad. The programme of work recognizes that **enabling environments are necessary in both developed and developing countries** as a tool to promote and facilitate the successful and sustainable transfer of technologies for the purpose of the Convention on Biological Diversity. Consequently, the strategic elements identified below cover measures to be taken both on the providing as well as on the receiving end.

8. Development of a strategy for implementing the programme of work on technology transfer and scientific and technological cooperation suggests applying a rational, structured approach. However, the reality of effective technology transfer is to take advantage of opportunities as they arise, implying that the **implementation of the strategy should not delay the immediate transfer of relevant technologies** in those cases where technology needs and opportunities are identified and the institutional, administrative, policy and legal environment does not prevent their successful transfer and adaptation.

III. ENABLING ENVIRONMENT ON THE RECEIVING END

9. Based on knowledge of the range of available technologies, **assess priority technology needs through consultative multi-stakeholder processes** on the national or regional level, possibly in collaboration with regional or international organizations such as for instance FARA, IICA, CGIAR, or others.

10. Design and implement **policies and regulations** of relevance to the transfer and application of technology that are **consistent, clear to all relevant actors, and conducive** to the transfer of technology.

11. Design and implement an **institutional and administrative framework and governance system** which is **conducive to technology transfer** by ensuring, *inter alia* through effective **internal coordination**, that administrative processes do not put an onerous administrative burden on prospective technology users and providers.

12. Consider the designation of appropriate existing institutions that could act, in close cooperation with National Focal Points to the Convention and to its clearing-house mechanism, as a **central consulting point on technology access and transfer** for other national or international actors to turn to. This function could also be assumed, as appropriate, by the National Focal Points to the clearing house mechanism.

13. Consider the use of **incentives** to encourage foreign actors to provide access to and transfer of technology to domestic public or private institutions.

14. Generate an **environment conducive to the application of a participatory approach**, including by establishing mechanisms for effective public information and public participation.

IV. ENABLING ENVIRONMENT ON THE PROVIDING END

15. Provide, through multiple channels, **information on available technologies**, including on projected costs, risks, benefits, constraints; necessary infrastructure, personnel, capacity; sustainability, etc. (see also section V below).

16. **Pre-assess the adaptability of prospective technologies** to be transferred.

17. **Be aware, foster understanding of, and comply with relevant regulations** of recipient countries – build trust.

18. **Recognize, and act on, any capacity-building needs** of recipients and ensure sustainability of the transferred technology.

19. Consider the designation of appropriate existing institutions that could act, in close cooperation with National Focal Points to the Convention and to its clearing-house mechanism, as a **central consulting point on technology access and transfer** for other national or international actors to turn to. This function could also be assumed, as appropriate, by the National Focal Points to the clearing-house mechanism.

20. Establish or strengthen programmes that **enhance access to capital markets**, in particular for small and medium enterprises in recipient countries, for instance through the establishment of small-scale loan facilities that provide seed capital, the bundling of projects, or the provision of collateral and/or performance guarantees.

21. Consider the use of measures and mechanisms that **provide incentives** to the private sector to enhance the transfer of pertinent technology, in accordance with international law, for instance:

(a) The use or adaptation of existing provisions in domestic tax systems on **tax breaks or deferrals for charitable activities**, with a view to provide adequate incentives for private companies to engage in the transfer of relevant technologies and related capacity-building activities;

(b) The adaptation of existing guidelines for eligibility to **research-oriented tax breaks or deferrals** with a view to generate incentives for private-sector actors that engage in research making use of genetic resources, to implement adequate mechanisms for the promotion and advancement of priority access to the results and benefits arising from the biotechnologies that result from such research, in accordance with Article 19, paragraph 2 of the Convention;

(c) The application of **subsidized export credits or loan guarantees** that act as insurance against risks in international transactions with a view to provide incentives to private sector actors to engage in technology transfer for the purpose of the Convention.

22. Review the **principles and guidelines that govern the funding of public research institutions** and develop them further with a view to provide adequate incentives to follows the pertinent provisions and guidance of the Convention on technology transfer. In particular, the guidelines could foresee the implementation of adequate mechanisms for the promotion and advancement of priority access to the results and benefits arising from the biotechnologies that result from such research, in accordance with Article 19 (2) of the Convention.

23. Incite relevant institutions to **provide funds** (see also section VII below).

V. FACILITATING MECHANISMS

24. Generate and disseminate **information on available relevant technologies**, including small-scale technologies that were developed locally, by, *inter alia*:

(a) Establishing or strengthening relevant **databases**;

(b) **Strengthening the clearing house mechanism** of the Convention as a central gateway for technology transfer and scientific and technological cooperation, in accordance with element 2 of the programme of work, by **linking relevant databases** to the clearing house mechanism, **establishing interoperability** as appropriate, and by the more active use of the clearing house mechanism as a **communication platform**;

(c) Using **offline tools for information dissemination**, such as print material as well as CD-Roms;

(d) Convening **technology fairs** and **workshops**, such as the planned technology fair on the margins of COP/MOP-4 and COP-9.

25. Encourage the work of **intermediate institutions** and **networks** with pertinent experience in different areas, such as CGIAR, which can assist in the establishment of partnerships by, *inter alia*: translating priority needs of countries into clearly formulated requests for technology transfer, facilitating fact-based negotiations of transfer agreements, and facilitating access to financing facilities.

26. The Executive Secretary could be requested to compile and analyse, in cooperation with relevant organizations and initiatives and with assistance by the expert group on technology transfer, existing **technology transfer agreements** or **technology transfer provisions/clauses** in other agreements such as for instance contractual agreements relating to access to genetic resources and associated traditional knowledge and the fair and equitable sharing of benefits arising out of their utilization. This compilation and analysis could also include existing templates for standard technology transfer agreements/provisions/clauses, and could be used to develop **international guidance** that could act as reference for good/best practice on the application of technology transfer agreements/provisions/clauses.

27. Encourage the development of **cooperative partnerships** involving governmental agencies, public and private research institutions, the private sector, non-governmental organizations, indigenous and local communities and national and local stakeholders, including south-south cooperation, through, among others:

(a) Support the establishment of **research consortia** among research institutions in developing countries, including through for instance the establishment and work of patent pools or intellectual property commercialization agents;

(b) Foster cooperation between universities and other research institutions of developed and developing countries through for instance the establishment and financing of **twinning arrangements**;

(c) Promote the interaction between universities and other institutions of education and training as well as of research and development on the one side and the private sector on the other side, through **alliances, joint ventures** or **public-private partnerships**;

(d) Support the set-up of long-term technological cooperation between private firms in developed and developing countries, including the co-financing of local businesses with little or no

access to long-term investment capital, through for instance the establishment and strengthening of so-called **matchmaking programmes**.

28. Establish or strengthen **cooperation with relevant processes** in other conventions and international organizations, with a view to ensure consistency and mutual supportiveness, maximize possible synergy, and avoid duplication of work, by requesting the Executive Secretary to:

(a) **Link relevant existing systems** of national, regional and international information exchange to the clearing-house mechanism, including, as appropriate, through interoperability mechanisms;

(b) Continue to **exchange information** on activities with other relevant expert bodies, such as the Expert Group on Technology Transfer under the United Nations Framework Convention on Climate Change, as well as through the joint liaison groups of the three Rio conventions and the biodiversity-related conventions;

(c) Explore options for **joint workshops** with other conventions, for instance on technologies of joint interest and relevance;

(d) Cooperate with the United Nations Environment Programme (UNEP) to explore the nature and scope of the **Bali Strategic Plan for Technology Support and Capacity-Building** with a view to identify possible collaborative activities and options to synergize.

VI. THE ROLE OF CHAMPIONS AND THE POSSIBLE ESTABLISHMENT OF A BIODIVERSITY TECHNOLOGY INITIATIVE

29. Committed Parties and organizations that act as **champions of technology transfer** can play an important role in promoting and supporting the effective implementation of Articles 16 to 19 and the programme of work on technology transfer and scientific and technological cooperation, in particular if competitive mechanisms are put in place. For example, the Climate Technology Initiative (CTI), which was launched in 1995 by 23 OECD/International Energy Agency member countries and the European Commission to support the technology-related objectives of the United Nations Framework Convention on Climate Change, indicates the useful role of such an international network of champions for the effective implementation of provisions on technology transfer. The establishment of a similar **'Biodiversity Technology Initiative'** would be useful and welcome if effectively contributing to the implementation of the present strategy. Several open questions remain, including on the funding needs, the potential portfolio of activities, and other questions as identified in the draft report prepared by the Executive Secretary for consideration by the ninth meeting of the Conference of the Parties. Parties and relevant organizations could be invited to provide their views on these open questions, for inclusion into the report.

30. A **Biodiversity Award** could be established for the best contribution made by projects, individuals, non-governmental organizations, Governments (including local governments) etc, to attaining the 2010 biodiversity target, including best practices on technology transfer and scientific and technological cooperation. The international award would highlight and recognize relevant good practices that could be replicated (with modifications as appropriate) by others in the future.

VII. FUNDING MECHANISMS

31. After a decade of continuous recognition of the continual need for the effective transfer of technologies of relevance for conservation and sustainable use of biodiversity or make use of genetic

resources and do not cause significant damage to the environment, including biotechnology and traditional technologies, the Ad hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation is amazed to note that:

(a) Implementing the objectives of the Convention has not been the aim of many existing technology transfer activities and mechanisms;

(b) There is a lack of synergy among existing funding mechanisms dedicated to technology transfer for the implementation of the objectives of the Convention; and

(c) The long-standing needs of many countries with regard to the implementation of the objectives of the Convention have not been well-addressed.

32. Underlining the need for a **diversity of sustainable funding mechanisms**, such as the Global Environmental Facility, bi- and multilateral funding organisations, private charitable foundations, and others, there is a need to:

(a) **Think creatively** about fund-raising, for instance by mobilizing *pro bono* activities; use technology fairs for mobilizing seed money, etc;

(b) **Cluster funding needs** with other Rio conventions and biodiversity-related conventions, at all levels;

(c) **Integrate technology transfer** modules into existing capacity building and training programmes;

(d) **Raise the biodiversity agenda**, and subsequent funding needs, within existing funding programmes;

33. Generate **information on potential funding sources** for different sectors, thus creating awareness of available funding.

34. Sustainable funding *inter alia* needs to be provided:

(a) For **training of technology transfer personnel**;

(b) For the **establishment and maintenance of databases** on available technologies as well as on transactional instruments;

(c) For the proposed **Biodiversity Technology Initiative**.

35. The Conference of the Party may wish to consider:

(a) Ensuring that the **strategy for resource mobilization** fully reflects the technology needs, and related capacity-building needs, for effective implementation of the Convention;

(b) Encouraging Parties and other Governments to honour their **commitments under Agenda 21**, and reiterated at the World Summit, by intensifying their contribution to technology transfer and scientific and technological cooperation, and thereby implementing their obligations under Articles 16 to 19 of the Convention;

(c) Providing **guidance to the Global Environmental Facility**, acting as financial mechanism of the Convention, to the effect that:

(i) GEF provides support the preparation of **national assessments of technology needs** for implementation of the Convention, analogous to the support provided to the preparation of Technology Needs Assessments (TNA) under UNFCCC;

(ii) GEF establishes a programme to **support ongoing national programmes** for the conservation and sustainable use of biodiversity through improved technologies.

(iii) GEF establishes a **fast-track programme in order to provide training** on (i) technologies for conservation and sustainable use; (ii) legal aspects associated with technology transfer and negotiation skills; (iii) design and implementation of relevant public policies.
