

# Technology Transfer and Cooperation under the Convention on Biological Diversity

## Towards more effective implementation

### 1. Introduction

The year 2010 has been designated as the International Year of Biodiversity (IYB) by the UN General Assembly as a way to recognise the contribution of biodiversity to human development and well-being. Sustaining biodiversity in the face of considerable threats from human activities constitutes a great challenge for the modern development paradigm. The Convention on Biological Diversity seeks to address this challenge by pursuing three objectives: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources<sup>1</sup>. The Convention recognises that both access to and transfer of technology among contracting Parties are essential elements for the attainment of these objectives<sup>2</sup>. Articles 16 and 19 of the Convention call upon Contracting Parties to facilitate access for and transfer of relevant technology to other Parties, including modern biotechnology.

The Convention's provisions on technology transfer reflect the global consensus among countries that the development, transfer, adaptation and diffusion of technologies, as well as the building of related capacities,

is critical for achieving sustainable development. In a world that is besieged with a lack of suitable technologies to achieving the objectives of multilateral environmental agreements (MEAs), concerted efforts are urgently needed for the more effective transfer of such technologies.

In order to enhance implementation of its provisions on technology transfer, the Conference of the Parties to the Convention adopted a programme of work in 2004<sup>3</sup>. An implementation strategy, identifying a limited number of critical policy actions to be undertaken, was developed in 2008 to complement the programme of work<sup>4</sup>. However, despite these important efforts towards developing global guidance on how to best implement technology transfer under the Convention, Parties continue to face significant challenges and constraints in implementation. In fact, a group of eminent experts on technology transfer and cooperation, convened in 2008 upon a request by the Conference of the Parties, expressed its "amazement" that, after a decade of continuous recognition of the need for effective technology transfer under the Convention, there has been limitations as the following:

- Implementing the objectives of the Convention has not been the aim of

many existing technology transfer activities and mechanisms;

- There is a lack of synergy among existing funding mechanisms dedicated to technology transfer for the implementation of the objectives of the Convention; and
- The long-standing needs of many countries with regard to the implementation of the objectives of the Convention have not been well-addressed<sup>5</sup>.

The present brief seeks to shed light on the underlying causes for this implementation deficit, and to identify possible remedies. The next section analyses the breadth of biodiversity-relevant technologies and derives some implications for policy action. Section three identifies a number of key issues of concern and section four describes UNEP's contributions for addressing these issues through its Bali Strategic Plan. Section five identifies critical conditions that need to be fulfilled for effective enabling environments for technology transfer. Section six provides conclusions and recommendations, aiming towards:

- inclusion of a strong target on technology transfer in the Strategic Plan of the Convention, combined with a set of specific and measurable indicators; and
- the establishment of an effective global initiative or mechanism to promote effective implementation of the pertinent provisions of the Convention related to technology transfer and cooperation.

## 2. Biodiversity-relevant Technologies

The Convention's provision on technology transfer covers "*technologies that are relevant to the conservation and sustainable use of biological diversity and make use of genetic resources and do not cause significant harm to the environment.*"<sup>6</sup> What does this mean in concrete terms?<sup>7</sup>

First, it is important to recognize that the concept of technology as used under the Convention covers both "soft" and "hard" technologies. While soft technology is enshrined in technological information and related know-how, hard technology refers to actual hardware and machinery. Soft technology is often something that is availed in the form of joint research and innovation, training and capacity building.

The role and relevance of technology in attaining the three objectives of the Convention can be well illustrated by a few examples. As regards the conservation and sustainable use of biodiversity, relevant technologies include soft technologies such as management techniques for *in-situ* conservation (for example integrated pest management) or technologies related to the sustainable management of biodiversity resources (for instance sustainable forest management, or integrated water resources management). But they also include hard technologies such as those used in *ex-situ* conservation – for example, preservation and storage technologies used in gene banks. In addition, many monitoring technologies (for example those used in remote sensing) are crucial for updated and accurate information for policy-making.

Technologies that make use of genetic resources include many examples of modern biotechnology. The Convention provides for the transfer of such technologies as a means to implement its third main objective, that is, the sharing of the benefits arising out of the utilization of genetic resources in a fair and equitable manner. In addition, many modern technologies – biotechnology including – can play an important role in achieving the other two objectives of the Convention, namely conservation of biodiversity and its sustainable use.

However, technologies of relevance to the Convention do not only include modern technologies, but also those developed and used by indigenous and local communities. Thus, there is a strong link between Articles 16 and 19, and Article 8(j) addressing protection and promotion of the knowledge, innovations and practices of indigenous and local communities. Recent studies undertaken by UNEP (2009) strongly suggest

that work under the Convention even on difficult issues – such as the further development of principles for access and benefit sharing – has a lot to learn from technologies used and shared by indigenous and local communities.

UNEP has compiled a set of 365 technologies that reflects the considerable breadth of biodiversity-relevant technologies, covering those most relevant and suitable for both conservation and sustainable use of biodiversity, as well as a range of industrial applications based on biodiversity. They are featured on the UNEP IYB webpage on a daily basis during 2010 – as a contribution from UNEP in identifying already options for technologies to implementation conservation action in addition to its contribution to celebrate the International Year of Biodiversity (IYB) in form of a ‘learning from Nature’ (<http://www.unep.org/IYB>).

This compilation confirms that there is no limitation to the number of technologies available to deal with achieving the objective of the Convention but there is limitation in the form of awareness, focus and policy actions to how to use such technologies. The technologies featured on the UNEP webpage comprise both technologies relevant to achieving CBD objectives but also technologies that are based on biodiversity. Such a breadth demonstrates the technical, technological and economic potential of biodiversity technologies.

The broad scope of different biodiversity-relevant technologies carries the important consequence that a multitude of different policy interventions will be needed to promote access to and transfer of technology under the Convention – and there will be a need to achieve coherence and consistency between these policy interventions. Two examples shall illustrate this:

*The role of intellectual property rights.*

While technologies that make use of genetic resources are mostly proprietary, many technologies of relevance for the conservation and sustainable use of biodiversity are in the public domain. As a consequence, several issues that are relevant to proprietary technologies, and

subsequent needs for policy intervention, will be less relevant to technologies in the public domain. However, the fact that technologies are legally in the public domain does not automatically imply that these technologies are readily available and accessible to potential users – they will also require policy measures to promote their transfer, such as the identification of transfer opportunities through appropriate access to and exchange of information with regard to the existence of technologies and their potential for application<sup>8</sup>.

*Ease of applying/copying transferred technology.*

Many biodiversity-relevant technologies are not easily copied, and/or are not easily applied before prior adaptation to local circumstances<sup>9</sup>. This is certainly true for ‘high-tech’ applications, but also for many soft technologies such as techniques for the sustainable management of ecosystems. Whenever technologies are not easily copied, additional input of technical expertise and know-how will be needed from the initial developer with regard to the use of the technology and its adaptation to local circumstances – implying that technical cooperation between the initial technology developer and the prospective user will be a critical precondition for a successful transfer.<sup>10</sup> Technological Cooperation is typically more fruitful when undertaken on an ongoing and long-term basis, and promoting such cooperation will require different policy tools than achieving on-off, one-time technology transfer.

### **3. Technology Transfer and Cooperation – Perspectives and Issues**

As a consequence of these considerations, technology transfer under the Convention, in particular in the context of the Convention’s third objective, will typically 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, trade and market policies, bilateral cooperation – including through the South-South cooperation, both through institutions and strategies. Such cooperation may involve the joint development of new technologies

and, as based on reciprocity, would also provide a key mechanism for the effective building or enhancement of capacity in developing countries<sup>11</sup>.

Since the process leading to technology transfer, as well as the cooperative mechanisms applied, will necessarily differ in accordance with the largely varying socio-economic conditions among countries, as well as the types of technologies transferred, the process needs to be flexible, participatory and demand driven, and be based on partnerships at national, regional and international levels among all relevant actors – involving the private sector, Governments, indigenous and local communities, bilateral and multilateral institutions, funding institutions, non-Governmental organizations, as well as academic and research institutions.

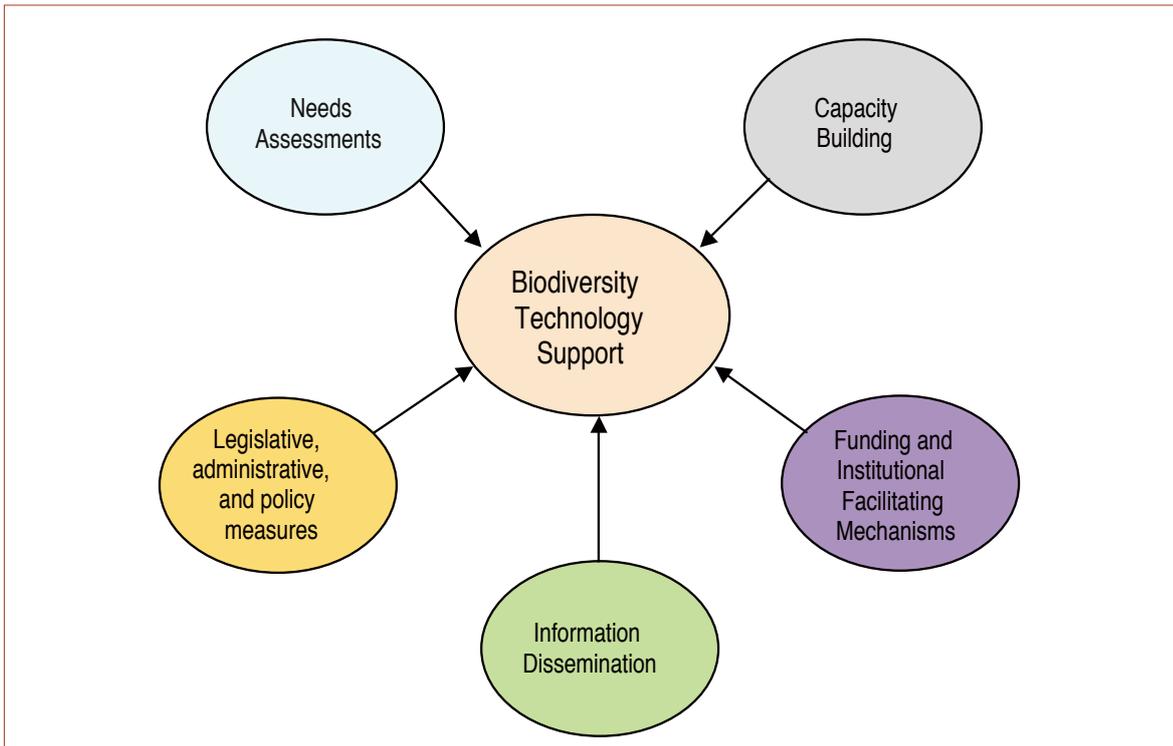
Conceptually, measures that seek to improve the enabling environment for technology transfer and cooperation involves may focus on the provision of technologies, or on the reception, adoption and diffusion of technologies. Importantly, receiving countries often also focus on incubation and further development of technologies as appropriate. Imported technologies, beyond serving the immediate need of the importing country – for instance, in helping improved implementation of environmental policies, will frequently have the potential to boost national capabilities for technological innovation in those sectors that are identified to be of strategic importance for the overall economic development of the recipient country<sup>12</sup>.

Implementing the associated portfolio of policy tasks is challenging. The available evidence suggests that many laudable activities are already being undertaken both by Parties<sup>13</sup>, as well as by key international partners (see Annex 1). For instance, incentives to private sector actors to engage in technological cooperation and technology transfer, including for the purpose of implementing the Convention, are frequently provided in the framework of bilateral development cooperation<sup>14</sup>. Despite these achievements, Parties continue to face significant challenges and constraints in implementing the

Convention's provisions on technology transfer and cooperation. These include, without claim of comprehensiveness:

- (1) Inadequate assessment of technology needs and related capacity needs to adapt and apply transferred technologies in largely varying socio-economic circumstances;
- (2) Difficulties in the identification of needed technologies and related policies for implementation;
- (3) Need for further development of suitable policies, including the review of policies and measures possibly impeding the transfer of relevant technologies, such as on Intellectual Property Rights (IPRs);
- (4) Lack of focus on technologies that are relevant for biodiversity, implying that even implementation progress is frequently an accidental by-product of other policies, and that opportunities to incubate and scale up existing technologies, including those developed and applied by indigenous and local communities, are far from being fully recognized and unlocked;
- (5) Insufficient policies and frameworks to promote public – private partnerships in technology cooperation, as a critical component for achieving sustainable development;
- (6) Limited linkages between technology transfer needs and capacities to use and promote such technologies, resulting in wastage of time and resources.
- (7) Lack of visibility of existing activities in particular through bilateral arrangements, caused by a lack of streamlined reporting on technology transfer and cooperation, largely due to limited efforts and information by countries in focusing on the issue to implement CBD.

The figure below summarises the enabling environments needed for both providers and receivers of technologies, including facilitating mechanisms in order to deal with challenges listed above.



#### 4. UNEP's Contribution through the Bali Strategic Plan

UNEP's Bali Strategic Plan for Technical Support and Capacity Building (BSP) was adopted in 2005. It aims to strengthen the capacities of governments of developing countries and of countries with economies in transition at all levels by providing systematic, targeted, long and short-term measures for technology support and capacity building. The Plan identifies areas that need to be addressed including the following cross-cutting activities, many of which are relevant in the context of creating enabling environments for technology transfer and technological and scientific cooperation under the Convention:

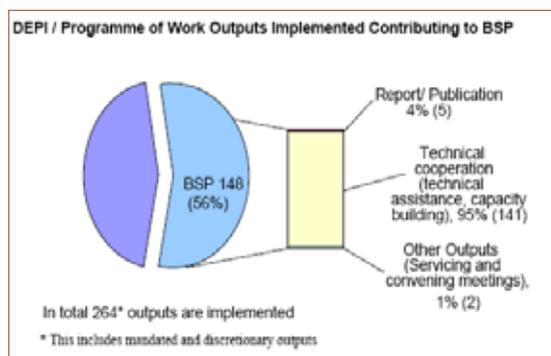
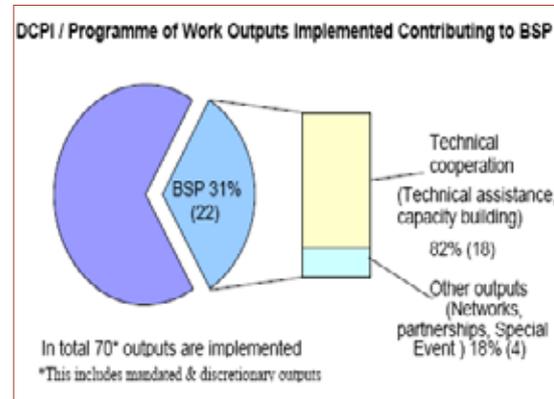
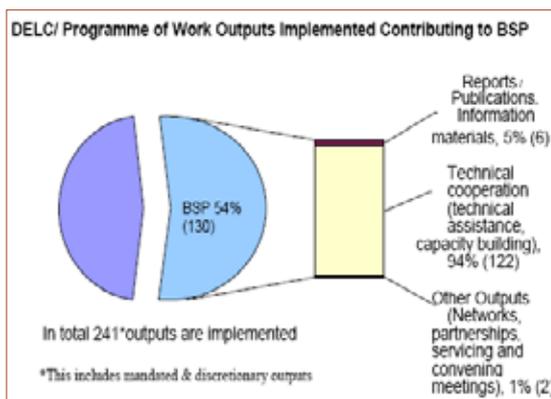
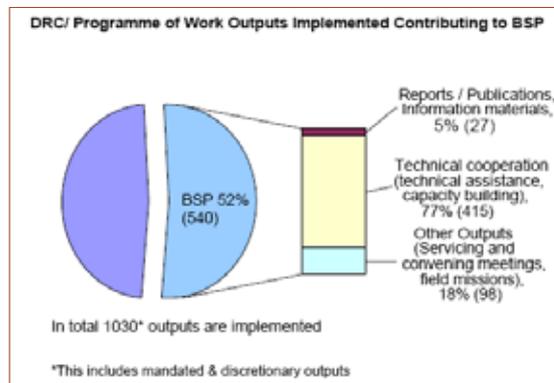
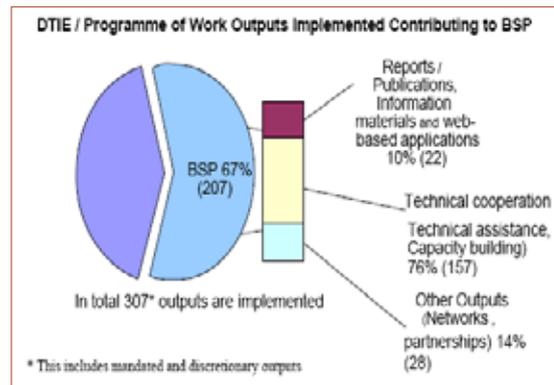
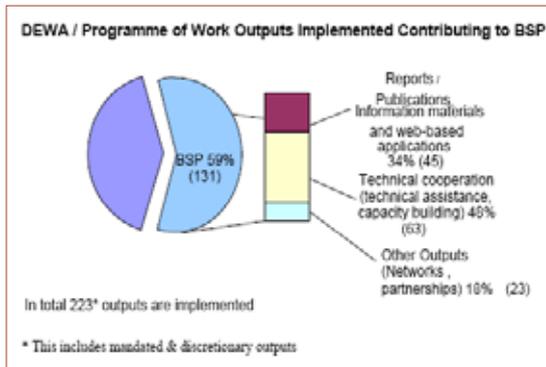
- strengthening of national and regional environmental institutions;
- developing national environmental law
- strengthening cooperation between civil society and private sector
- providing assistance to facilitate

compliance with and enforcement of obligations under MEAs and implementation of environmental commitments

- addressing poverty and environment, including the implementation of poverty reduction strategy programme
- facilitating access to and support for environmentally sound technologies and corresponding know-how.
- promoting sustainable consumption and production patterns, and
- developing gender mainstreaming strategies in environmental policies.

UNEP's programme of work during the last biennium (2008-2009) was strongly targeted towards implementation of the BSP. The following figures provide the number and kind of outputs UNEP divisions<sup>15</sup> were able to achieve for implementing the BSP. They demonstrate the significant level of activities designed and implemented by UNEP that contribute to technology cooperation and transfer by creating national and regional enabling environments, by enhancing capacities to achieve such cooperation, and, last but not least, by raising the necessary resources.

In addition, activities under the South-South Cooperation undertaken also provide contributions in developing capacities and train people to deal with the challenges of enhancing skills related to technology assessment, development, incubation and use.



## 5. Enabling Environments and Conditions Needed to Promote Technology Transfer

### (a) Macroeconomic and Policy conditions

One of the key means to foster technology transfer is to have appropriate macroeconomic and policy conditions at national level. This is especially needed for proprietary technologies as well as effective realisation of ABS principles within the CBD. With close to 60% of Foreign Direct Investment (FDI) accounting for technology flow to developing countries, the following issues need urgent consideration by the Parties to CBD:

- clear policies for exchange of genetic resources and related technologies;
- proper assessment of markets for biodiversity technologies;
- appropriate pricing and compensation package for biological goods and services;
- trade policies that are inclusive of biodiversity concerns;
- national enabling environments for innovation, and state support for biodiversity technologies.

The final reports of the Economics of Ecosystems and Biodiversity (TEEB) initiative, under the aegis of UNEP's Green Economy Initiative, come very handy to provide further analysis of the conditions needed for revising macroeconomic and policy frameworks, and to point to and good practice examples. Outcomes of Sub-global Assessments under the MA follow-up might also provide relevant information regarding the status of biodiversity goods and services and economic institutional bottlenecks at the national level for the distribution of benefits across the population at the country level.

### (b) Legal and Regulatory conditions

There is a general perception that investment in technologies and activities for conservation and sustainable use of

biodiversity, such as water management, coastal zone management, forestry, does not offer high or competitive returns to investors when markets are left unchanged. Against this background, it is often argued that one of the low demands for environmentally sound technology is the poor or absence of legal and regulatory framework for environmental management and protection<sup>16</sup>.

Approaches outlined in reports coming from the TEEB initiative and the Green Economy Initiative more broadly offer significant opportunities for developing stronger and more effective regulations. Policies and laws for promotion, exchange and adoption of biodiversity relevant technologies thus form a critical condition for effective transfer of technologies, thereby creating more opportunities for realising the potential value of biodiversity. While global and regional initiatives such as eco-labelling and certification schemes are possible available options, new approaches such as green support mechanisms as a part of encouraging green technologies including biodiversity relevant technologies are needed.

### (c) Property Right conditions

Intellectual and related property right conditions of both provider and receiver countries offer both constraints and opportunities to promote technology cooperation and transfer among countries<sup>17</sup>. While regional and special groupings such as the OECD have identified and promoted approaches that encourage and enhance technology transfer and cooperation amongst themselves, there is limited clarity if such approaches either work or exist amongst other countries, unless defined on strictly bilateral basis<sup>18</sup>. Guidelines such as the Bonn Guidelines on ABS call for specific intellectual property rights related mechanisms such as joint patents with stakeholders in countries of origin of genetic resources as well as joint research programmes with institutions in such countries<sup>19</sup>. Options such as "shared technology packages" and "Patent Pools" could be helpful to promote better transfer of technologies.

Under activities through BSP, initiatives such as open licensing schemes and IPR commons can offer solutions to deal with IPR issues related to biodiversity technologies.

#### **(d) Institutional and Capacity Conditions**

Development of institutional structures and capacities of relevant stakeholders is essential for any successful regime that aims to facilitate technology transfer and cooperation. Various initiatives such as the Global Genomics Initiative (GGI), activities by CGIAR centres as well as through the UN Regional Economic and Social Commissions (in form of regional technology transfer and cooperation programmes) can offer consistent and long term possibilities for technology identification, transfer and cooperation. UNEP's BSP also aims to deliver such activities at national level. However, there is a need to link and consolidate such initiatives along with strategies to implement the BSP.

#### **(e) Information, Monitoring and Implementation Conditions**

Recent reports on the review of Article 66.2 of TRIPs that is supposed to encourage technology transfer (to LDCs) indicate several challenges countries are facing with regard to technology transfer<sup>20</sup>. Many of these are related to information, monitoring and implementation of activities related to technology transfer and cooperation. Mirroring challenges identified above, some key challenges include:

- lack of definitional clarity regarding the terms technology transfer;
- lack of data to gauge the extent to which developed countries are actually working to promote technology transfer;
- unclear baselines;
- lack of indicators to measure implementation of actions or compliance, and;
- lack of dedicated programmes with appropriate funding and institutional structure to promote technology transfer and cooperation.

## **6. Conclusions and recommendations**

### **(a) Enhance visibility by developing indicators and improve reporting thereon**

Studies undertaken by UNEP-WCMC through the Biodiversity Indicators Partnership (BIP) project show that countries face serious challenges to clearly define and report on technology transfer and cooperation when it comes to implementation of the CBD<sup>21</sup>. It is not surprising to find that so far very few countries who are Parties to the CBD have reported on this target under the current global biodiversity targets (target 11.2)<sup>1\*</sup> mainly due to the lack of suitable and appropriate targets and indicators related to technology transfer and cooperation<sup>22</sup>.

In the absence of elaborated and clearly defined targets to deal with technology transfer and cooperation to effectively realize the CBD objectives, it may not be possible to expect concrete actions by Parties to deal with this issue. Based on the conditions provided above, several actions need to be put in place by both Governments and other stakeholders to ensure Parties consider this issue more seriously with better defined strategies, action plans and relevant funding.

Given the ongoing discussions in preparing and deciding on the future CBD Strategic Plan (SP) for the period 2011-2020 and the need to define the new global biodiversity targets and indicators within such a Plan, the following is being suggested as the possible target and indicators associated with technology transfer and cooperation.

#### **Target on Technology Transfer and Cooperation**

***By 2020, a mechanism to ensure technology transfer and cooperation under the Convention is put in place and fully operational as evidenced by the increased flow of technologies between Parties.***

<sup>1</sup> \* Target 11.2 of 2010 goals and targets under CBD reads 'technology is transferred to developing country Parties to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20'

## Milestone Target on Technology Transfer and Cooperation

By 2015, a mechanism to ensure effective technology transfer and cooperation under the Convention is agreed upon by Parties and concrete steps towards its implementation are being taken.

### Indicators to Achieve the Target

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.<sup>23</sup> 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.

Having considered the above, possible indicators for further consideration include:

- The number of Convention specific technology cooperation projects, schemes and programmes;
- Enhanced cooperation between Parties in exchange of technologies related to the three objectives of the Convention as seen by the impact of these technologies in achieving the objectives reported by the Parties, including on

ABS;

- Number and amount of technology assessments, transfers, incubations and uses accounted for the Parties through the National Reports, specifically designed to implement the Convention;
- The nature of support through UNEP BSP in terms of biodiversity technologies and related capacity development programmes;
- Number of regional and national biodiversity technology missions by the Parties.
- Information from national reports as a basis for building a set of indicators;
- The number of ABS agreements divided by the number of such agreements where both parties are satisfied;
- 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;
- The amount of royalties paid by the private sector and re-invested in the process;
- The level of national investment associated with transfer of relevant technologies;
- The status of human resource development on technology transfer.

### (b) Consider establishing a global initiative/mechanism to support implementation on technology transfer

The note by the Executive Secretary on technology transfer and cooperation (UNEP/CBD/WGRI/3/10) calls for the establishment of a 'Biodiversity Technology Initiative' (BTI), underlining the need to provide concrete support to implementation of Articles 16 and 19 of the Convention. It also suggests a portfolio of activities, as well as options for the structure, functioning and governance of such an Initiative.

Earlier discussions on the possible establishment of such a BTI during COP 9<sup>23</sup> were inconclusive, presumably owing to the lack of time and focus by Parties, and the overall assignment of low priority for the issue. However, recent experiences from Climate Change negotiations and discussions under the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) strongly indicate the need for technology-based options for implementation of MEAs. It is therefore high time that Parties consider this issue seriously within the discussions at WGRI-3 and COP 10 to make appropriate decisions on the issue of a BTI, or any other activities that would enhance implementation of technology transfer and cooperation under the Convention.

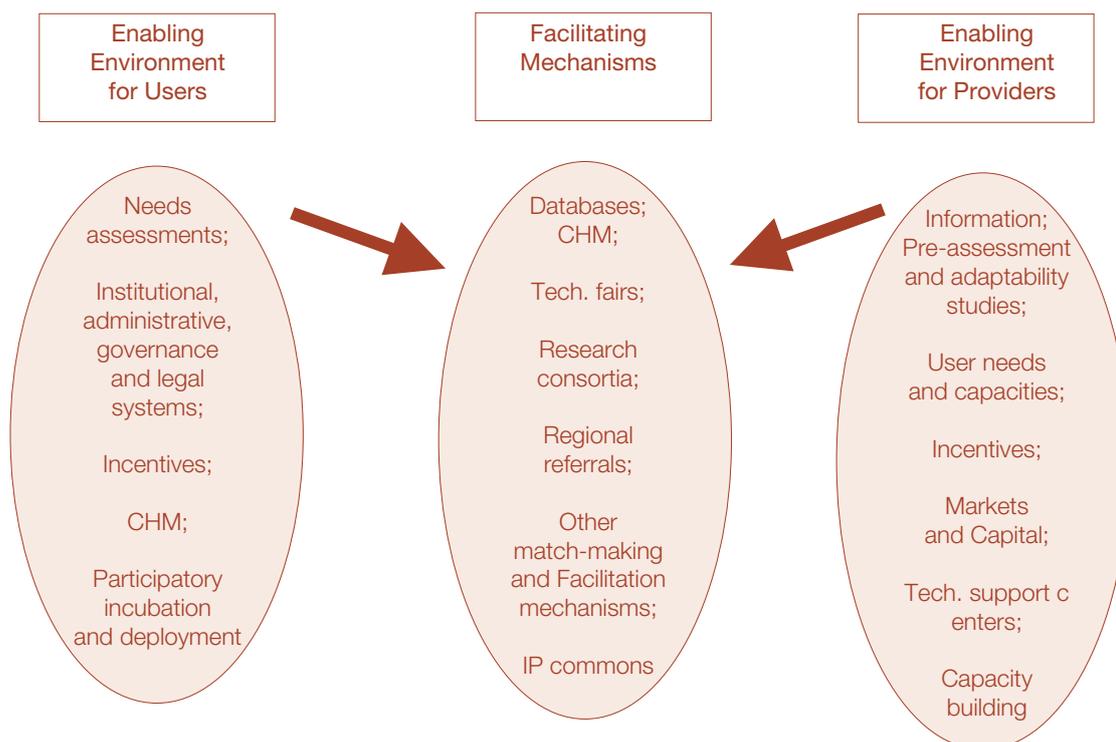
Given that the work on technology transfer and cooperation also addresses technologies that make use of genetic resources, consideration also needs to be given to the relationship between such a supporting mechanism for technology transfer and the international regime on access and benefit sharing to be finalized and adopted at COP-10.

Experiences from the implementation of BSP by UNEP provide the following lessons

for consideration by Parties to CBD:

1. Support to countries and stakeholders on technology transfer, cooperation and capacity building need to be a long term activity and cannot be implemented effectively through a project-based approach alone. Initiatives like BSP are critical for the success of creating enabling environments.
2. Country level assessments and pre-conditions for technology transfer, cooperation need to be based on issue based approaches than using a broad-brush approach. Thus there is a need for specific initiatives to support biodiversity technologies.
3. Providing a broader platform for technology cooperation and transfer by identifying the provider and user perspectives as well as creating a facilitating mechanism form a pre-condition to successful initiatives of technology transfer and cooperation.

Based on the above, the following figure conceptualises the needs for developing a mechanism on technology transfer and cooperation under CBD.



Considering the IYB and UNEP's contribution to IYB and biodiversity issues in general, UNEP could consider enhancing its focus on establishing concrete programmes related to biodiversity technologies during the current and next biennia (2010 – 2013).

Discussions under the CBD to further implementation of technology transfer and cooperation could further strengthen UNEP's role and responsibilities to implement the CBD. However, discussions and decisions during CBD COP 10 will be critical for such actions by UNEP with needed mandates to link the BSP with the technology transfer and cooperation work programme of the Convention, to provide for an institutional mechanism for the issue to receive long term and sustained focus.

In addition, activities under technology transfer and scientific cooperation of the Convention could also contribute to achieving the Millennium Development Goal 8 on developing a global partnership for development. Recommendations to this effect are already available <sup>24</sup>. What is urgently needed is a clear target on this issue within the new CBD strategic plan and commensurate decisions at CBD COP 10 to implement actions on the ground.

## Annexes

### Annex 1: Examples of technology transfer initiatives

Some Partnerships for Technology Transfer and Cooperation

|          |  |
|----------|--|
| GAVI     | - Global alliance On Vaccine and Immunisation                            |
| CGIAR    | - Consultative Group on International Agricultural Research              |
| IAVI     | - International AIDS Vaccine Initiative                                  |
| ICGEB    | - International Centre for Genetic Engineering and Biotechnology         |
| UNDP-GEF | - Technology Transfer Network  |
| WBCSD    | - World Business Council on Sustainable Development                      |
| CTI      | - Climate Technology initiative  |
| ISAAA    | - International Service for the Acquisition of Agri-biotech Applications |
| ABSP     | - Agricultural Biotechnology Support Programme                           |
| TPI      | - UK Technology Partnership Initiative                                   |

## **Annex 2. CBD Programme of Work on Technology Transfer and Technological and Scientific Cooperation**

- |                    |      |  |
|--------------------|------|--|
| Programme element  | 1:   | Technology assessments   |
| Operational target | 1.1: | Technology needs assessments are conducted as appropriate, with the participation of stakeholders, in accordance with the activities foreseen in the thematic and cross-cutting work programmes under the Convention and in line with national priorities as set out, inter alia, in the national biodiversity strategy and action plan.   |
|                    | 1.2: | Impact and risk assessments are conducted, as appropriate, with the participation of stakeholders and, if needed and requested, with international cooperation.  |
|                    | 1.3: | Information on methodologies for the assessment of technology needs are widely available to Parties through the clearinghouse mechanism and other means as appropriate.  |
| Programme element  | 2:   | Information Systems  |
| Operation element  | 2.1: | The clearing-house mechanism is a central mechanism for the exchange of information on and facilitation of technology transfer and technical and scientific cooperation relevant for the Convention on Biological Diversity, providing access to information on national technology needs, available relevant proprietary technologies in the public domain, including access to databases of existing technologies, and information on best-practices to create enabling environments for technology transfer and technology cooperation. |
|                    | 2.2: | Opportunities to establish or strengthen national information systems for technology transfer and technology cooperation are identified, with consultation of and input from indigenous and local communities and all relevant stakeholders.   |
|                    | 2.3: | National information systems for technology transfer and technology cooperation, especially those functioning through national clearing-house mechanisms, are established or strengthened, are effectively linked to international information systems and contribute effectively to technology transfer, diffusion and adaptation and to the exchange of technologies, including south-south technology transfer  |
|                    | 2.4: | Promote the development of regional and international information systems to facilitate technology transfer and technological cooperation.   |
| Programme element  | 3:   | Creating enabling environments   |
| Operational target | 3.1: | Development of guidance and advice for the application of options on measures and mechanisms to facilitate access to and transfer of technologies in the public domain and to proprietary technologies of relevance for the Convention on Biological Diversity, and to foster technology cooperation.  |

3.2: Development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation, as well as access to and adaptation of technologies in the public domain and to proprietary technologies of relevance for the Convention on Biological Diversity, and to foster technical and scientific cooperation, consistent with national priorities and existing international obligations.

- Programme element 4: Capacity-building and enhancement
- 4.1: Technical, scientific, institutional and administrative capacity is adequate for the effective and timely conduct of national technology assessments.
  - 4.2: Technical, scientific, institutional and administrative capacity is adequate for the development or strengthening and effective operation of national, regional and international information systems for technology transfer and technology cooperation of relevance for the Convention on Biological Diversity.
  - 4.3: Technical, scientific, institutional and administrative capacity is adequate for the review of national policies and programmes and the identification of barriers for the transfer of technology of relevance for the Convention on Biological Diversity, capacity-building needs and priority areas for policy action.
  - 4.4: Technical, scientific, institutional and administrative capacity is adequate for the implementation of measures and mechanisms that create an environment conducive to private and public sector technology transfer and cooperation, and to the adaptation of transferred technology.

(Source: SCBD, 2006)

## (Endnotes)

- 1 Article 1 of the Convention.
- 2 Article 16 (1) of the Convention.
- 3 Decision VII/29 and Annex.
- 4 Decision IX/14 and Annex.
- 5 Ibid., Annex, paragraph 32.
- 6 Article 16 (1) of the Convention.
- 7 See for further detail: Collection, analysis and identification of ongoing tools, mechanisms, systems and initiatives to promote the implementation of Articles 16 to 19 of the Convention. Note by the Executive Secretary. UNEP/CBD/COP/8/INF/9.
- 8 Legal and socio-economic aspects of technology transfer and cooperation. Note by the Executive Secretary. UNEP/CBD/MYPOW/5.
- 9 Ibid.
- 10 Decision IX/14 Annex, paragraph 2 4-5.
- 11 UNEP/CBD/MYPOW/5.
- 12 See information provided in UNEP/CBD/COP/8/INF/9.
- 13 See UNEP/CBD/COP/8/INF/9, paragraph 88.
- 14 DEWA – Division of Early Warning and Assessments; DELC – Division of Environmental Law and Conventions; DEPI – Division of Environmental Policy and Implementation; DTIE – Division of Trade, Economics and Industry; DRC – Division of Regional Cooperation; DCPI – Division of Communication and Public Information
- 15 UNEP/CBD/COP/8/INF/9, paragraphs 35-41.
- 16 Ibid., paragraphs 42-47.
- 17 For a detailed analysis see: The Role of Intellectual Property Rights in Technology Transfer in the Context of The Convention on Biological Diversity - Technical study prepared by the secretariats of the Convention on Biological Diversity, the United Nations Conference on Trade and Development, and the World Intellectual Property Organization. UNEP/CBD/COP/9/INF/7.
- 18 OECD (2002): Genetic inventions, IPRs and Licensing Practices. Evidence and Politics. OECD, Paris.
- 19 CBD (2000): Bonn Guidelines on Access to Genetic Resources and Benefit Sharing. Secretariat of the CBD, Montreal.  
  
CBD (2006): Programme of Work on Technology Transfer and Technological and Scientific Cooperation. Secretariat of the CBD, Montreal.
- 20 Suerie Moon 2008 Does TRIPS Article 66.2 encourages technology transfer to LDCs? UNCTAD-ICTSD Brief Number 2, ICTSD, Geneva.
- 21 UNEP-WCMC (2009) Background paper for International Expert Workshop on the 2010 Biodiversity Indicators and post 2010 indicator development/. Reading, July 2009.
- 22 Ibid.

- 23 Report of the meeting of the ad hoc technical expert group on technology transfer and scientific and technological cooperation. UNEP/CBD/COP/9/INF/1.
- 24 Balakrishna Pisupati and Renata Rubian 2008 MDG on reducing Biodiversity Loss and the CBD's 2010 Target. UNU-IAS, Yokohama.



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