

### Developing and transferring technologies

Promoting the effective development and transfer of environmentally sound technologies is critical in enabling developing countries to pursue their objectives for sustainable development in a climate-friendly way. The Convention therefore stipulates that all Parties are to promote and cooperate in developing, applying and diffusing, including transferring, technologies, practices and processes that control, reduce or prevent certain anthropogenic emissions of GHGs in all relevant sectors (Article 4.1(c)). According to Article 4.3, Annex II Parties are to provide financial resources for the transfer of technology. Article 4.5 urges developed country Parties and Annex II Parties to take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly to developing countries, to enable them to implement the provisions of the Convention. These commitments are echoed in similar provisions under the Kyoto Protocol (Article 10 and Article 11).

Annex II Parties are also required to report in their national communications on their activities for transferring technology and for financing the access of developing countries to clean technologies (Article 12.3; see chapter 18).

Each session of the COP has also taken decisions to promote the development and transfer of environmentally sound technologies.

This chapter addresses the framework for technology transfer (14.A), the Expert Group on Technology Transfer (EGTT; 14.B), the activities of Parties (14.C) and the secretariat (14.D), and, finally, TT:CLEAR, the technology information system (14.E).

#### 14.A. Framework for technology transfer

Technology transfer was given new impetus at COP 4 in 1998, when, as part of the Buenos Aires Plan of Action, Parties decided to launch a consultative process on the subject, led by the Chairman of the SBSTA. Decision 4/CP.4 stated that this process should consider the issues and questions set out in an annex to the decision, plus any others subsequently identified by Parties. This process aimed to produce recommendations for achieving agreement on a “**framework for meaningful and effective actions**” to enhance the implementation of Article 4.5 of the Convention. It did successfully narrow differences and generate understanding. It also produced much useful information and many ideas on developing a framework from technical papers and country papers presented at regional workshops, and from the IPCC report on Methodological and technological issues in technology transfer<sup>154</sup>. The framework was agreed at COP 7 in 2001, as part of the Marrakesh Accords and is contained in the annex to decision 4/CP.7.

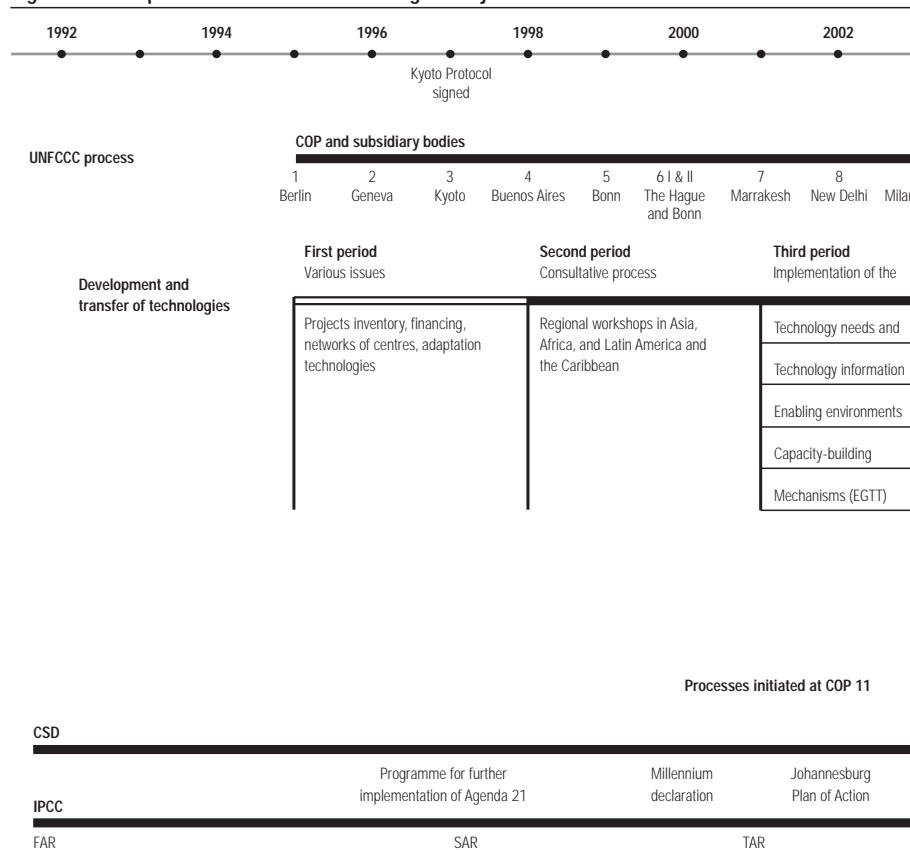
The framework aims to develop actions to implement Article 4.5 by increasing and improving the transfer of environmentally sound technologies and know-how. Parties agreed this required a country-driven, integrated

<sup>154</sup> <<http://www.grida.no/climate/ipcc/tectran/index.htm>>.

approach, at the national and sectoral levels. They also agreed that cooperation between various stakeholders was needed, namely the private sector, governments, the donor community, bilateral and multilateral institutions, NGOs and academic and research institutions. The framework covers five key themes, namely:

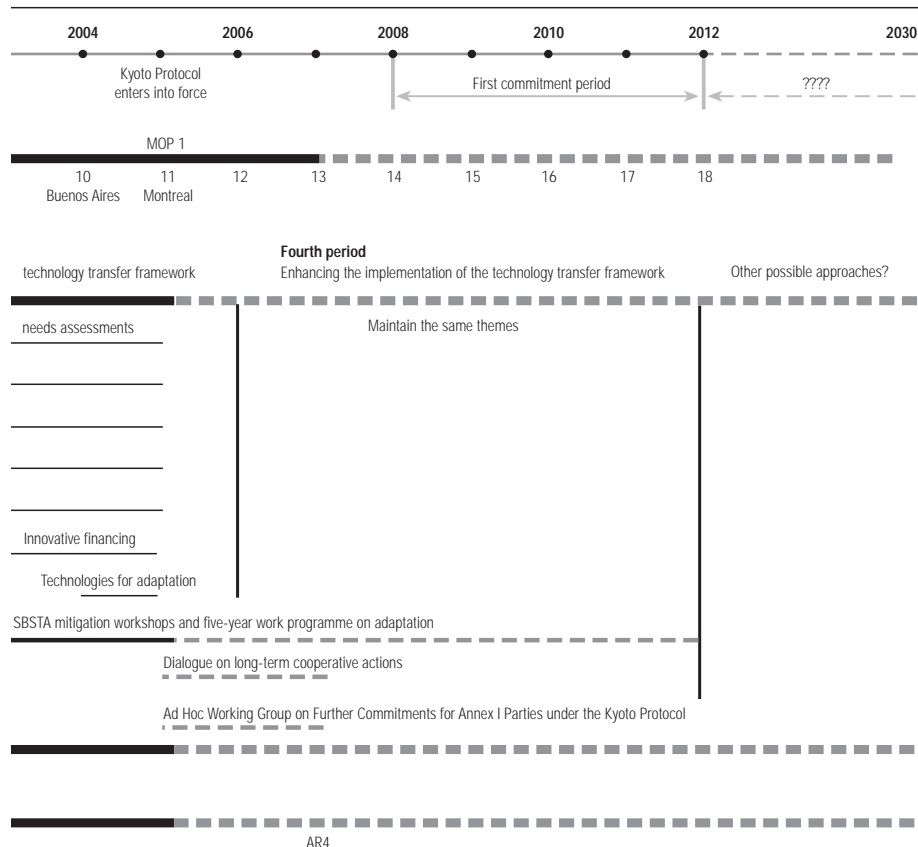
1. **Technology needs and needs assessments.** These are defined as a set of country-driven activities to identify the priority areas for developing country Parties and Parties with economies in transition where technology needs to be transferred to be used for mitigating climate change and adapting to its adverse effects. These activities involve different stakeholders in consultations to identify the barriers to technology transfer and measures to address them through sectoral analyses. Targeted activities include hard and

**Figure 1: Development and transfer of technologies: major milestones**



soft technologies and should result in a portfolio of environmentally sound technology projects and programmes.

2. **Technology information.** This includes assisting the flow of information between the different stakeholders. The means to do this include hardware, software and networking. The result should be an efficient information system providing access to technical, economic, environmental and regulatory information and supporting the transfer of environmentally sound technologies.
3. **Enabling environments.** This focuses on government actions, such as trade policies, removing technical, legal and administrative barriers to technology transfer, sound economic and market policies, regulatory frameworks and transparency. It aims to improve the effectiveness of the environments in which technology is transferred in both Annex I and non-Annex I Parties



4. **Capacity-building.** This is a process that develops and strengthens existing scientific and technical skills, capabilities and institutions, particularly in developing country Parties. The process aims to enable these Parties to assess, adapt, develop and manage environmentally sound technologies. Capacity-building must be country-driven, address specific needs and conditions and reflect national sustainable development strategies, priorities and initiatives. It is to be undertaken in accordance with the provisions of the Convention. Areas targeted include training in the use of environmentally sound technologies and in developing technology needs assessments and raising awareness of technologies. In addition capacity-building can cover developing endogenous technologies in developing countries, through training and institutional development, improving adaptation to the adverse effects of climate change and strengthening systematic observation relevant to climate change.
5. **Mechanisms for technology transfer.** These help to support financial, institutional and methodological activities: (a) to improve the coordination of all the stakeholders in different countries and regions; (b) to engage them in efforts to accelerate the development and diffusion, including transfer, of environmentally sound technologies, know-how and practices to and between Parties other than developed country Parties, particularly developing country Parties, through cooperation and partnerships (public/public, private/public and private/private); and (c) to support the development of projects and programmes to support such ends.

The framework also covers actions that echo the themes, including:

- assessing country-specific technology needs;
- developing methodologies for technology needs assessments, including publishing a simplified and user-friendly handbook;
- developing a clearing house of information on technology transfer, including a network of technology information centres, that ensure easy access to inventories of environmentally sound and economically viable technologies and know-how;
- creating enabling environments to improve the effectiveness of transfer, including identifying and removing barriers, exploiting opportunities for positive incentives and integrating technology transfer into national policies;
- listing capacity-building activities needed to improve technology transfer under the Convention, paying attention to the coordination, sustainability and effectiveness of such activities; and
- organizing meetings and expert workshops.

Decision 4/CP.7 stipulated that funding to implement the framework was to be provided through the GEF climate change focal area (see chapter 13) and the SCCF (see chapter 13). The developed country Parties were to provide support for organizing the workshops and expert meetings required under the framework and subsequently mandated by the SBSTA, as well as for the work programme of the EGTT. Intergovernmental organizations, such as UNDP and UNEP, other bodies, such as the Climate Technology Initiative, and the private

sector are also active partners in implementing the activities recommended under the framework, including the work of the EGTT.

Future work on implementing the framework will be considered at SBSTA 25 (November 2006) drawing on recommendations by the EGTT, existing technology-based international activities, partnerships and initiatives, and submissions by Parties (see section 14.B).

#### **14.B. Expert Group on Technology Transfer (EGTT)**

The EGTT (see chapter 2) was established by COP 7 in accordance with decision 4/CP.7. It comprises 20 experts, including three members from each of the regions of Africa, Asia and the Pacific, and Latin America and the Caribbean, one from the SIDS, seven from Annex I Parties and three from relevant international organizations. Its objectives are to facilitate the implementation of Article 4.5 of the Convention, to support and advance technology transfer activities and to make recommendations to this end to the SBSTA. The EGTT reports annually to the SBSTA and proposes a programme of work for the following year; it meets twice a year in conjunction with SBSTA sessions. COP 12 (November 2006) will review its progress and its terms of reference.

COP 8 (decision 10/CP.8) and COP 10 welcomed the progress the EGTT had made. By decision 6/CP.10, COP 10 asked the EGTT to put forward recommendations for improving the implementation of Article 4.5, with a view to providing input to its review at COP 12. The terms of reference for preparing the recommendations were set out in May 2005 by SBSTA 22. They ask the EGTT to provide recommendations on, for example, innovative public and/or private partnerships and cooperation with the private sector; ways to improve cooperation with relevant conventions and intergovernmental processes, medium- and long-term strategies for improving the implementation of the framework laid down in decision 4/CP.7<sup>155</sup>, and ways to promote joint development of technologies for mitigation and adaptation by Annex II Parties and non-Annex I Parties. The recommendations should also extend to a possible revision of the key themes in the framework. Decision 6/CP.11 at COP 11 further invited Parties to submit their views on the status and continuation of the EGTT. These will be collated by the secretariat and also constitute input to the review. SBSTA 23 endorsed the proposed work programme of the EGTT for 2006 as set out in its annual report for 2005<sup>156</sup>. It asked the EGTT to report to SBSTA 25 on next steps for the transfer of publicly owned technologies.

#### **14.C. Activities of Parties**

While many of the activities of Parties are channelled through multilateral organizations, a great number of bilateral projects are under way to promote the effective development and transfer of technologies. Parties have launched information networks, which encourage development and transfer on concessional or commercial terms and facilitate access to the sources of environmental technologies and services. Parties have also initiated numerous

<sup>155</sup> FCCC/SBSTA/2006/INF.4 <<http://unfccc.int/resource/docs/2006/sbsta/eng/inf04.pdf>>.

<sup>156</sup> Annex to FCCC/SBSTA/2005/INF.10 <<http://unfccc.int/resource/docs/2005/sbsta/eng/inf10.pdf>>.

projects to support the transfer and diffusion of renewable energies and other technologies. They have also established funds specifically allocated to climate change and development. Parties report on their activities in their national communications (Article 12.3; see chapter 18B).

Technology needs assessments studies were completed by 23 non-Annex I Parties, highlighting priority technology needs identified in various sectors to reduce greenhouse gas emissions and facilitate adaptation to the adverse impacts of climate change. These studies draw attention to specific barriers to technology transfer and suggests measures to address them, including through capacity-building.

By decision 6/CP.10, COP 10 urged Annex II Parties to continue to provide and, where possible, to increase support to building endogenous capacities and technologies in developing countries. It also encouraged Parties to explore opportunities for further joint research and development programmes and projects by Annex II Parties and non-Annex I Parties. SBSTA 23 acknowledged the number of activities and initiatives under way and urged Parties to be cognizant of areas of mutual interest.

#### 14.D. Activities of the secretariat

The secretariat has carried out a number of activities to support Parties in their efforts to promote the transfer of technology under the Convention. These activities include:

- collating and synthesizing information on financial resources and technology transfer activities of Annex II Parties, including both mitigation and adaptation technologies, as reported in their national communications;
- collating and synthesizing information on technology needs identified by Parties not included in Annex I to the Convention, as reported in their TNA studies;
- supporting Parties' efforts in assessing their technology needs and broadening access of Parties to information on technologies;
- supporting the EGTT, including assisting in organizing annual meetings and implementing its work programme;
- preparing a series of technical papers and synthesis reports on specific topics, such as technologies for adaptation to climate change<sup>157</sup>, terms of transfer of technology and know-how<sup>158</sup>, technology information<sup>159</sup>, technology needs and technology needs assessments<sup>160</sup>, capacity-building<sup>161</sup>, enabling environments for technology transfer<sup>162</sup>, innovative options for financing the development and transfer of technologies<sup>163</sup>; and

<sup>157</sup> FCCC/TP/1999/1 <<http://unfccc.int/resource/docs/tp/tp0199.pdf>> and FCCC/TP/2006/2 <<http://unfccc.int/resource/docs/tp/tp0602.pdf>>.

<sup>158</sup> FCCC/TP/1998/1 <<http://unfccc.int/resource/docs/tp/tp0198.pdf>>.

<sup>159</sup> FCCC/TP/2001/2 <<http://unfccc.int/resource/docs/tp/tp0102.pdf>>.

<sup>160</sup> FCCC/SBSTA/2006/INF.1 <<http://unfccc.int/resource/docs/2006/sbsta/eng/inf01.pdf>>.

<sup>161</sup> FCCC/TP/2003/1 <<http://unfccc.int/resource/docs/tp/tp0301.pdf>>.

<sup>162</sup> FCCC/TP/2003/2 <<http://unfccc.int/resource/docs/tp/tp0302.pdf>>.

<sup>163</sup> FCCC/TP/2006/1 <<http://unfccc.int/resource/docs/tp/tp0601.pdf>>.

- organizing a series of workshops, seminars and side-events on related key themes, such as technology needs assessments<sup>164</sup>, technology information<sup>165</sup>, technologies<sup>166</sup> for adaptation to climate change, enabling environments<sup>167</sup> and innovative financing options<sup>168</sup>.

Building on this work, COP 11, in its decision 6/CP.11, asked the secretariat to organize “a senior-level round-table discussion between Parties, international financing organizations, the private sector and other stakeholders to discuss experience and lessons learned, as well as strategies for short-, medium- and long-term international technology cooperation and partnerships in the development, deployment, diffusion and transfer of environmentally sound technologies and know-how, to enable more informed decisions in the future”.

SBSTA 23 too asked the secretariat to enhance outreach efforts to promote Parties’ understanding of the application and use of networking activities.

SBSTA 24 is to decide on the recommendations of the EGTT for enhancing the implementation of the technology framework.

#### 14.E. TT:CLEAR

A key project is the technology information system TT:CLEAR. It is a web-based clearing house developed by the secretariat, with support from Parties and the EGTT. The web site aims to improve the flow and quality of the information on the development and transfer of technologies under the Convention, and to facilitate access to that information. It also has the goal of contributing to a more efficient use of the available resources by promoting synergy with other efforts. It contains an inventory of environmentally sound technologies and projects. The system, located at <<http://ttclear.unfccc.int>>, enables users to find information on, inter alia:

- technology transfer projects and programmes;
- case studies of successful technology transfer;
- environmentally sound technologies and know-how;
- organizations and experts;
- methods, models and tools to assess mitigation and adaptation options and strategies;
- relevant Internet web sites for technology transfer;
- ongoing work of the Parties and the EGTT such as issues under negotiation, documents and meetings, and the implementation of the technology framework.

<sup>164</sup> FCCC/SBSTA/2002/INF.7 <<http://unfccc.int/resource/docs/2002/sbsta/inf07.pdf>>

<sup>165</sup> FCCC/SBSTA/2002/INF.6 <<http://unfccc.int/resource/docs/2002/sbsta/inf06.pdf>>

<sup>166</sup> FCCC/SBSTA/2005/8 <<http://unfccc.int/resource/docs/2005/sbsta/eng/08.pdf>>.

<sup>167</sup> See <[http://unfccc.int/meetings/workshops/other\\_meetings/items/1060.php](http://unfccc.int/meetings/workshops/other_meetings/items/1060.php)>.

<sup>168</sup> FCCC/SBSTA/2006/3 <<http://unfccc.int/resource/docs/2006/sbsta/eng/03.pdf>> and see also <[http://unfccc.int/meetings/workshops/other\\_meetings/items/3141.php](http://unfccc.int/meetings/workshops/other_meetings/items/3141.php)>.

TT:CLEAR started up, as a prototype, in September 2001. A survey to assess its effectiveness was completed in May 2004. A large majority of the survey respondents found the web site useful and relevant to their work. On the basis of this, consultations are continuing to improve the site. By decision 6/CP.10, COP 10 encouraged the secretariat to continue its pilot project on networking between TT:CLEAR and national and regional technology information centres. SBSTA 23 too took note of the initial report by the secretariat on the pilot project<sup>169</sup>. It acknowledged its useful contribution towards enabling Parties to gain access to relevant information, and encouraged broader partnerships with developed and developing countries and international organizations.

**Relevant COP decisions:**

- Decision 13/CP.1: Transfer of technology
- Decision 7/CP.2: Development and transfer of technologies
- Decision 9/CP.3: Development and transfer of technologies
- Decision 4/CP.4: Development and transfer of technologies, and Annex
- Decision 9/CP.5: Development and transfer of technologies: status of the consultative process
- Decision 4/CP.7: Development and transfer of technologies (decisions 4/CP.4 and 9/CP.5) Annex: Framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention Appendix: Terms of reference for the Expert Group on Technology Transfer
- Decision 10/CP.8: Development and transfer of technologies
- Decision 6/CP.10: Development and transfer of technologies
- Decision 6/CP.11: Development and transfer of technologies

**Relevant technical papers:**

- FCCC/TP/1997/1: Trends of financial flows and terms and conditions employed by multilateral lending institutions
- FCCC/TP/1997/3: Adaptation technologies
- FCCC/TP/1998/1: Terms of transfer technology and know-how. Barriers and opportunities related to the transfer of technology
- FCCC/TP/1999/1: Coastal adaptation technologies
- FCCC/TP/2001/2: Technology transfer clearing house and international information network
- FCCC/TP/2003/1: Capacity-building in the development and transfer of technologies
- FCCC/TP/2003/2: Enabling environments for technology transfer
- FCCC/TP/2006/1: Innovative options for financing the development and transfer of technologies
- FCCC/TP/2006/2: Application of environmentally sound technologies for adaptation to climate change

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<sup>169</sup> See FCCC/SBSTA/2005/INF.9 <<http://unfccc.int/resource/docs/2005/sbsta/eng/inf09.pdf>>.