



UNITED  
NATIONS



**Framework Convention  
on Climate Change**

Distr.  
GENERAL

FCCC/SB/2008/INF.8  
13 November 2008

ENGLISH ONLY

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**SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE**

Twenty-ninth session

Poznan, 1–10 December 2008

Item 4 of the provisional agenda

Development and transfer of technologies

**SUBSIDIARY BODY FOR IMPLEMENTATION**

Twenty-ninth session

Poznan, 1–10 December 2008

Item 7 of the provisional agenda

Development and transfer of technologies

**Developing a strategy paper for the long-term perspective beyond 2012,  
including sectoral approaches, to facilitate the development, deployment,  
diffusion and transfer of technologies under the Convention**

**Interim report by the Chair of the Expert Group on Technology Transfer**

*Summary*

In response to a request by Conference of the Parties at its thirteenth session (decision 3/CP.13), the Expert Group on Technology Transfer (EGTT) is developing a strategy paper for the long term perspective beyond 2012, including sectoral approaches, to facilitate the development, deployment, diffusion and transfer of technologies under the Convention.

This interim report outlines the objectives and scope of the strategy paper, describes the results of the work completed by the EGTT as at 31 October 2008 and gives details of the work which is still to be completed in relation to the paper.

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## **I. Introduction**

### **A. Mandate**

1. The Conference of the Parties, by its decision 3/CP.13, requested the Expert Group on Technology Transfer (EGTT) to propose a two-year rolling programme of work, for endorsement by the subsidiary bodies at their twenty-eighth sessions, following consideration by a joint contact group of the subsidiary bodies, to facilitate the development, deployment, diffusion and transfer of technologies under the Convention.<sup>1</sup> The setting of this programme of work should address the medium term perspective (2008-2012) and the long-term perspective beyond 2012. One of the activities included in the programme is to develop the terms of reference for elaborating a strategy paper, including sectoral approaches, that could draw on the work undertaken by Parties in processes under the Convention and outside the Convention, as well as the results of work undertaken by other international organizations and forums. This strategy paper should then be considered by the subsidiary bodies at their thirtieth sessions.
2. In May 2008, at the first regular meeting of the EGTT since it was reconstituted under decision 3/CP.13, the group developed and agreed on terms of reference<sup>2</sup> for elaborating the strategy paper referred to above (hereinafter referred to as the terms of reference). Under the terms of reference, it was proposed that the EGTT prepare an interim report on its work in elaborating the strategy paper. This interim report will be considered by the subsidiary bodies at their twenty-ninth sessions.

### **B. Scope of the note**

3. This interim report outlines the objectives and scope of the strategy paper, describes the results of the work completed by the EGTT as at 31 October 2008 and gives details of the work which is still to be completed in relation to the paper.

### **C. Possible action by the subsidiary bodies**

4. The subsidiary bodies may wish to take note of the progress described in this report and, if necessary, provide further guidance to the EGTT regarding the completion of the strategy paper.

## **II. Objectives and scope of the strategy paper**

### **A. Objectives**

5. The overall objective of the work detailed in this interim report is to develop, for a long-term perspective beyond 2012, a strategy paper, including sectoral approaches, to facilitate the development, deployment, diffusion and transfer of technologies under the Convention.
6. The outcome of the work of the EGTT could provide inputs to:
  - (a) The work of the Subsidiary Body for Implementation (SBI) to assess and review the effectiveness of the implementation of Article 4, paragraph 5, and Article 4, paragraph 1 (c), of the Convention, in accordance with decision 13/CP.3;
  - (b) The work of the Subsidiary Body for Scientific and Technological Advice and the SBI to consider the role of new financing mechanisms and tools in scaling up the development and transfer of technology;

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<sup>1</sup> The programme of work, as contained in annex II to document FCCC/SB/2008/INF.1, was endorsed by the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation at their twenty-eighth sessions (FCCC/SBSTA/2008/6, para. 81, and FCCC/SBI/2008/8, para. 60).

<sup>2</sup> <[http://unfccc.int/ttclear/jsp/EGTTDoc/TOR\\_strategy\\_paper.pdf](http://unfccc.int/ttclear/jsp/EGTTDoc/TOR_strategy_paper.pdf)>.

- (c) The work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, particularly on the activities mentioned in paragraph 1 (d) of the Bali Action Plan (decision 1/CP.13).

## B. Scope

7. The terms of reference describe in detail the scope of the work on elaborating the strategy paper. In its follow-up discussion at the EGTT meeting held in Accra the group identified the following key requirements in terms of the development of its long-term strategy for the development and transfer of technologies:

- (a) To advance the **development, diffusion and transfer of both mitigation and adaptation technologies**, taking into consideration the specific needs and strategies for adaptation technologies;
- (b) To address **all stages of development and transfer**, from technology innovation to diffusion, and consider integrated approaches to facilitate effective international cooperation at all stages;
- (c) To consider implementation **at global, regional and national levels**, and integration with sectoral and programme-based strategies and mechanisms;
- (d) To **strengthen partnerships** with existing international technology cooperation programmes and establish incentives for private-sector participation and investment in technology cooperation;
- (e) To address **specific sectoral, technological and regional aspects**, taking into account the level of economic development of the countries;
- (f) To ensure that technology cooperation and transfer actions are **measurable, reportable and verifiable**.

8. The terms of reference stated that work on the strategy paper should be guided by, but not limited to, the provisions of the Bali Action Plan on technology (decision 1/CP.13, para. 1 (d)).

9. As part of this effort, a strategy paper will be developed presenting aspects of a long-term strategy designed to enhance action on technology development and transfer in order to scale up mitigation and adaptation. This paper will present a portfolio of **technology development and transfer options**, which are defined as ways and means of achieving this scale-up. Such options should contribute, but not be limited:

- (a) To removing obstacles to, and providing financial and other incentives for, scaling up the development and transfer of technologies;
- (b) To accelerating the deployment, diffusion and transfer of affordable technologies;
- (c) To strengthening cooperation on the research and development of current, new and innovative technologies;
- (d) To identifying holistic ways to broaden the participation, in the near term, of private businesses and financial communities, which is essential for a sustainable long-term strategy;
- (e) To fostering effective technology cooperation in specific sectors.

### C. Work completed as at 31 October 2008

10. After the EGTT had adopted the terms of reference in May 2008, the technical analysis of options was initiated at the end of August 2008. By 31 October 2008 the EGTT had:

- (a) Established, with support from the secretariat, an international team, drawn from both developing and developed countries, with expertise in adaptation and mitigation technology issues as well as the different stages of technology transfer;
- (b) Developed a methodological approach for the tasks outlined in paragraph 12 (a–c) below;
- (c) Conducted the preliminary assessment of the technology development and transfer options and prepared draft background papers.

11. Owing to the ongoing nature of this work, the identification and analysis of the technology options is still to be completed and is not included in this report.

## III. Structure of the work on the strategy paper

### A. Tasks and activities

12. The terms of reference divide the work on this strategy for the development and transfer of technologies into the following four tasks:

- (a) **Technology research and development:** Identify and assess effective ways and means of enhancing investment in the research, development and demonstration of innovative technologies;
- (b) **Technology demonstration and deployment:** Identify and assess effective ways and means of accelerating the demonstration and deployment of mitigation and adaptation technologies;
- (c) **Technology diffusion:** Identify and assess effective ways and means of scaling up the diffusion and transfer of existing technologies for mitigation and adaptation;
- (d) **Integration:** Prepare a final report containing a consolidated strategy for the development and transfer of technologies and make recommendations for its implementation.

13. This work is being conducted in the following sequence:

- (a) **Establishment of criteria** for the selection and evaluation of the technology development and transfer options. The proposed criteria are presented in the table below. It should be noted that these criteria were chosen to evaluate the options in the context of their application to the transfer of both mitigation and adaptation technologies. While it is recognized that adaptation technologies often face unique market challenges in comparison with mitigation technologies, these criteria seek to address the common features that any option will require in order to be effective;
- (b) **Review of options** for enhanced international technology cooperation, which have been proposed by Parties and by experts and stakeholders outside of the UNFCCC process. In this review the roles of different market actors in facilitating technology development, deployment and diffusion, with the aim of optimizing public and private financing flows,

will also be evaluated. In addition, this review will consider opportunities for integration with sectoral and programme-based strategies;

- (c) **Selection of technology options** for further development and evaluation, and organization of these options into common categories. This includes defining the structure and function of each option, as well as its impact and resource requirements;
- (d) **Evaluation of technology options** according to the criteria. This analysis is conducted through expert qualitative assessment;
- (e) **Development of an integrated strategy** for enhanced long-term technology cooperation under the Convention. This strategy will define goals and guiding principles and also include a portfolio of coordinated actions which are recommended for further consideration. The strategy will identify options for integrated implementation across various stages of the technology development cycle, taking into account work to be completed in parallel on existing and potential financing resources and vehicles, and performance indicators.

**Proposed criteria for the selection and assessment of the technology development and transfer options**

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | <b>Potential for large-scale mitigation and adaptation impact across the world.</b> This reflects the degree to which the option will significantly reduce greenhouse gas emissions or vulnerability to climate change impacts in all regions of the world. Options may need to be tailored to address special needs for advanced adaptation technologies, especially in least developed countries. In all cases, but especially with regard to adaptation, emphasis will be given to facilitating the use of both technologies and associated management practices and to changes in consumer behaviour. |
| 2. | <b>Relevance to, and flexibility to meet the needs of, countries at different stages of development.</b> Options are evaluated on the basis of how effectively they can be tailored to meet the needs and opportunities for climate change mitigation and adaptation in least developed countries, developing countries with more advanced economies and developed countries. In particular for small island developing States (SIDS), their needs and opportunities for adaptation technologies would receive the higher priority.                                                                       |
| 3. | <b>Effectiveness across sectors and with sectoral strategies.</b> This criterion is used to determine whether the option will be effective in all the key climate change mitigation and adaptation sectors and will allow approaches to be tailored for consistency with sectoral strategies.                                                                                                                                                                                                                                                                                                             |
| 4. | <b>Ability to mobilize and leverage private investment.</b> Options will be assessed on the basis of their potential to attract the high level of private investment needed to achieve large and broad-scale deployment in markets around the world.                                                                                                                                                                                                                                                                                                                                                      |
| 5. | <b>Potential to be self-sustaining and replicated.</b> This criterion reflects the extent to which the option will lead to self-sustaining investment and the use of the technology and its replication in markets around the world (without continuing governmental or donor funding).                                                                                                                                                                                                                                                                                                                   |
| 6. | <b>Cost-effectiveness.</b> This is designed to measure whether there is a high benefit–cost ratio for the use of public funds (e.g. from national governments or international donors) for this mechanism. It can help to determine the relative value and return of public investment in alternative options.                                                                                                                                                                                                                                                                                            |
| 7. | <b>Compatibility with other programmes.</b> This criterion assesses the likelihood that the option can build on and be linked effectively to other programmes under the Convention, as well as other international programmes outside of the Convention. This includes the degree to which the option optimizes the use of financial and technical resources from the public and private sectors.                                                                                                                                                                                                         |
| 8. | <b>Ease of implementation.</b> This criterion accounts for the relative complexity of, and transaction costs associated with, managing and implementing the option.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 9. | <b>A governance structure that inspires trust and cooperation.</b> The governance structure of options is evaluated to determine the extent to which they will meet the critical goal of inspiring trust, confidence and cooperation among Parties.                                                                                                                                                                                                                                                                                                                                                       |

**Table (continued)**

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10. | <b>Potential to advance the use of endogenous technologies.</b> Endogenous or traditional technologies for climate change mitigation and adaptation could play an important role in least developed and developing countries, such as in the SIDS, where external and internal investment is lacking because of economies of scale. It is necessary to systematically develop, promote and transfer endogenous technologies that may be applicable in countries with similar national circumstances. |
| 11. | <b>Sustainability.</b> This criterion assesses the anticipated impact of the option on the environmental and societal sustainability goals of the host country.                                                                                                                                                                                                                                                                                                                                      |
| 12. | <b>Ability to be monitored, reported on and verified.</b> This evaluates the ease with which progress in achieving goals can be transparently tracked, assessed, reported on and verified over time.                                                                                                                                                                                                                                                                                                 |

### **B. Expected outputs**

14. A background paper will be produced on each of the three tasks outlined in paragraph 12 (a–c) above, thus presenting an evaluation of the options for enhanced technology research and development (R&D), demonstration and deployment, and diffusion. In its work, the EGTT will build upon these papers to develop an integrated strategy and the final report mentioned in paragraph 12 (d) above for consideration by the subsidiary bodies at their thirtieth sessions.

## **IV. Research and development categories and current programmes**

15. This chapter provides relevant definitions and identifies the primary areas in which specific technology R&D cooperation options are under development and evaluation. It also includes a brief review of current climate technology R&D programmes within and outside of the Convention.

### **A. Definitions**

16. Technology R&D cooperation is designed to accelerate the development of innovative technologies and support the continuous improvement in performance of existing technologies.<sup>3</sup> For this report, **innovative technologies** are defined as mitigation and adaptation technologies that offer important advances in comparison with the currently available technologies. Those advances might enable new functions, improve performance, lower cost or increase the attractiveness of the technologies to potential users.

### **B. Forms of technology cooperation covered**

17. For the purpose of this discussion, technology cooperation is divided into three areas:

- (a) Global pooling of funds to support a coordinated R&D agenda;
- (b) Coordination of existing R&D programmes and enhanced R&D capacity-building;
- (c) Increasing national public-sector investment and incentives for greater private investment in R&D.

18. Programmes in these areas would advance foundational or basic research on adaptation and mitigation technologies, as well as advance the development of these technologies to the pre-commercial<sup>4</sup> stage. Development activities include incremental process improvements, prototype design and testing, and iterative redesign and improvement of the technology up to the pre-commercial stage.

<sup>3</sup> See FCCC/SB/2008/INF.7, figure 3, for an illustration of the stages of technology development, deployment and diffusion as a function of marginal cost and cumulative experience.

<sup>4</sup> Note that, for adaptation technologies, the goal is to reduce costs to the point at which the technologies are cost-effective for reducing vulnerability to the adverse effects of climate change.

19. The line between the research and development phases is not always clearly defined and technologies sometimes move back and forth between the two phases in the course of their maturation. However, the distinction is useful for this discussion because the private sector must be more closely integrated into development activities than into foundational research, although its input in the latter is also essential. Therefore, the UNFCCC options within and outside of the UNFCCC process which are selected to support technology transfer may be different in the two areas.

20. Some of the technology options which advance to the pre-commercial stage will be taken up by the private sector to be commercialized. The majority are likely to require further public-sector support through the kinds of deployment activity presented in chapter V below.

21. It is important to note that it is necessary to link demonstration and deployment activities back to the development, and even research, activities. Field tests across a variety of operating environments will inevitably uncover product failures that require re-engineering or redesign. This “debugging” process can be lengthy and expensive, forming part of the ‘valley of death’ that can stand between pre-commercial technologies and commercially successful products. As such, it is important that R&D options are informed by ongoing user experience as markets are broadened into new locales and applications. Such integration is difficult in practice, which provides further rationale for having a coordinated framework at the global level.

### **C. Related current programmers**

22. Current programmes under the Convention do not provide direct support for R&D on climate technologies. However, the private and public sectors in many countries are engaged in a high level of R&D activity on innovative technologies. As noted in the EGTT interim report on existing and new financing mechanisms,<sup>5</sup> a total of around USD 20 billion per year is currently being spent by public and private agencies on climate technology R&D.

23. Governments in developed and developing countries fund innovative technologies in a number of areas. Investment is often focused on three areas: basic, pre-commercial research; high-risk, high-payoff projects which are too risky for the private sector; and R&D partnerships with the private sector which are designed to lead directly to technology commercialization.

24. There are a number of existing multilateral forums for promoting R&D cooperation. A small sample of these forums includes R&D coordination through International Energy Agency (IEA) technology implementing agreements, the Consultative Group on International Agricultural Research, the Center for International Forestry Research and other related efforts.

## **V. Demonstration and deployment options**

25. This chapter provides relevant definitions and identifies the primary areas in which specific technology demonstration and deployment options are being developed and evaluated. It also includes a brief review of current climate technology deployment programmes within and outside of the Convention.

26. For demonstration and deployment, the terms of reference noted that scaling up the deployment of near-commercial technologies would accelerate the progress of technology maturity and cost reduction, and would therefore be crucial to further reduce greenhouse gas (GHG) emissions and vulnerability in the mid term. The terms of reference also noted that, although most of the technologies that are transferred are in the diffusion stage, technology transfer could also take place in the deployment stage of the technology development cycle.

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<sup>5</sup> FCCC/SB/2008/INF.7, table 2.

## A. Definitions

27. **Near-commercial technologies** for adaptation and mitigation are defined as follows: technologies that are projected to be cost-effective within five to seven years in the specific target markets relative to current conventional technologies and with consideration of the economic and social values associated with climate change adaptation and mitigation.

28. It is important to note that the definition of near-commercial technologies is dependent upon the market in which they are being applied. For example, concentrating solar power technologies are fully commercial in southern Spain and the south-west of the United States of America, but are not commercially competitive in many other markets around the world. Factors that influence commercial status include access to local/regional resource (e.g. solar energy resource potential), the cost of conventional energy, public policies, climate change mitigation and adaptation incentives and priorities, and other market and social factors. Thus, analyses must be conducted for each market (sector and region) to identify the near-commercial technologies that are appropriate for broader application in order to meet the climate change mitigation and adaptation goals.

## B. Forms of technology cooperation covered

29. This chapter focuses on three primary forms of technology cooperation needed to achieve effective deployment of near-commercial climate change technologies in markets around the world:

- (a) **Demonstration and scale-up.** This includes: technology demonstration projects; performance testing, verification, and certification programmes; and the development of applications tailored to market needs. These actions will attract the sustained support of the private sector and consumers, which is needed to achieve large-scale technology deployment throughout the world;
- (b) **Commercialization and investment.** Commercialization includes developing incentives and programmes to foster private-sector investment, so that technology products and services are available at reasonable cost in key markets around the world;
- (c) **Intellectual property (IP) access and protection.** Cooperation in this area will ensure that businesses and investors in developing and developed countries have the opportunity to license IP, taking into account the need to reward innovation and foster private investment and deployment of technologies around the world.

## C. Related current programmes

30. The Global Environment Facility (GEF) has supported a variety of technology demonstration and scale-up projects for near-commercial climate change mitigation and adaptation technologies, particularly through its Operational Program Number 7. This programme, which was designed to reduce the cost of low GHG-emitting technologies, focused on technologies that were not commercially available in the target markets.<sup>6</sup> Operational Program Number 7 supported demonstration and deployment projects for concentrating solar power plants, fuel cell buses and stationary fuel cells, combined-cycle biomass plants and other near-commercial technologies. In addition, under Operational Program Number 11, there are projects for the demonstration of fuel cell bus commercialization being funded in Brazil and China, although similar projects in Egypt, India and Mexico have been cancelled.<sup>7</sup> However, the number of projects funded under Operational Program Number 7 is still small and the GEF has decided not to continue supporting such near-commercial technology projects, having determined

<sup>6</sup> FCCC/SBI/2008/16.

<sup>7</sup> <<http://www.gefonline.org/projectList.cfm>>.

that a much higher level of resources than those available is needed to attract sustained investment in these technologies.

31. The experiences of the GEF can be used to inform any future efforts to advance the use of technologies that are not fully commercial or mature:

- (a) Decisions to invest in projects for the advancement of near-commercial technologies must be taken on the basis of objective and realistic estimates of current costs and future cost reductions. In several cases the GEF discovered that actual costs were higher than originally estimated. This led to limited replication and diminished the likelihood of market acceptance in the near term;
- (b) Such projects have the greatest chance of success if experts from countries that have already led technology development and commercialization projects are actively engaged and applying their experiences in this area. This includes selecting promising markets for further technology introduction and providing technical advice on project design;
- (c) Industry participation and the validation of the interest of industrial organizations in providing sustained investment in the selected technologies in the target markets is essential in order to ensure that replication occurs.

32. With regard to adaptation, even if the levels of global adaptation funding were raised substantially, the governance system currently in place for the three operational global funds for adaptation is limiting their effective use. Recent studies have shown that the current funding arrangements are technically inadequate with respect to their efficiency and fairness.<sup>8</sup> Based on an analysis of all 42 adaptation projects currently supported by or approved under the three funds,<sup>9</sup> research has shown that the financial instruments are also technically inadequate when it comes to responding to developing countries' needs. This inadequacy is due to the complex governance system for adaptation funding, which leads to imperfect design and inconsistent implementation of guidance on the operation of the financial instruments.

33. In addition to the activities of the GEF, the clean development mechanism (CDM), joint implementation and the Adaptation Fund contribute (or will contribute) to the deployment of near-commercial technologies. Many of the current UNFCCC technology transfer programmes also provide a foundation for advancing the deployment of near-commercial technologies. The technology needs assessments identify priority needs for deployment of technologies, including near-commercial technologies. The various technology information activities under the Convention provide an effective platform for sharing information on technology status and commercialization opportunities, as well as for sharing lessons learned from, and best practices associated with, demonstration and deployment programmes. The work on enabling environments, including capacity-building in the identification, verification and development of appropriate or environmentally sound technologies, is critical for the creation of effective conditions to mobilize sustained investment in and public acceptance of emerging technologies.

34. Outside of the Convention, there are many national and international programmes to advance the demonstration and deployment of near-commercial technologies. Currently there are several international efforts to facilitate cooperation between developed and developing countries in order to advance the use of near-commercial technologies (e.g. the Global Bioenergy Partnership, the Asia-Pacific Partnership on Clean Development and Climate, the International Partnership for the Hydrogen

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<sup>8</sup> Klein, J.T. and Möhner, A., *Governance Limits to Effective Global Financial Support for Adaptation to Climate Change*, presented to the Royal Geographical Society, London, February 7–8, 2008.

<sup>9</sup> The Adaptation Fund, the Least Developed Countries Fund and the GEF Trust Fund.

Economy, the Methane to Markets Partnership, the Climate Technology Initiative and the Carbon Sequestration Leadership Forum). These programmes seek to facilitate collaboration among countries. There are also various bilateral technology programmes between specific developed and developing countries and among the developing countries.

35. In addition, through the IEA implementing agreements, there is considerable cooperation among developed countries (along with the increasing participation of developing countries) to share technology roadmaps, assessment tools, research results, and testing, verification and certification methods. Developed and developing countries are also engaging in cooperative work with the International Electrotechnical Commission, and other similar organizations, on technology codes and standards. National programmes are also advancing learning, while reducing the cost and enhancing the performance of emerging technologies.

36. While programmes to support technology demonstration and deployment have grown in recent years, more needs to be done to expand the spread of these programmes across all developing and developed countries.

## VI. Diffusion and transfer of existing technologies

37. This chapter provides relevant definitions and identifies the primary areas in which specific options to accelerate the diffusion of existing technologies are being developed and evaluated. This includes capacity-building and developing information programmes, creating effective enabling environments, operating financial mechanisms and establishing enhanced technology access. It also includes a brief review of current climate technology diffusion programmes within and outside of the Convention.

### A. Definitions

38. **Existing technologies** are defined as those climate change mitigation and adaptation technologies that are fully commercial and cost-effective for application in markets around the world. It is important to note that certain barriers to technology adoption and investment, including cost-competitiveness, are preventing many fully commercial technologies from being widely used in all countries and regions. This chapter details options which could be used to overcome such barriers.

### B. Forms of technology cooperation covered

39. This chapter focuses on four primary forms of technology cooperation needed to achieve the effective diffusion of existing climate change technologies in markets around the world:

- (a) **Capacity-building and disseminating information.** This includes training programmes for technicians, businesses and government officials, as well as technology assessment programmes to build a common understanding of the technologies and their market potential, costs and benefits;
- (b) **Creating enabling environments.** Government policies and regulations, economic instruments, technology codes and standards, infrastructure investments, procurement programmes, sectoral programmes and strategies, and other similar measures can all help to create and enhance enabling environments in order to foster technology diffusion;<sup>10</sup>

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<sup>10</sup> The forms of technology cooperation described in paragraph 39 (a) and (b) are relevant across the technology development continuum.

- (c) **Facilitating investment.** Various instruments can be used to increase investment in existing technologies, including risk mitigation mechanisms, investment funds, matching investors with project developers, technical assistance, and support to entrepreneurs;
- (d) **Improving access to technologies.** Efforts to share information on available technologies in the public and private domain and on IP licensing procedures, along with efforts to improve access to specific technologies, may be needed.

### C. Related current programmers

40. Two special funds, managed by the GEF, have been established by the UNFCCC – the Special Climate Change Fund and the Least Developed Countries Fund – with voluntary contributions. An Adaptation Fund was established under the Kyoto Protocol in 2007, with a contribution of 2 per cent of certified emission reductions for most CDM projects. The Adaptation Fund is expected to become operational early in 2009. The GEF provides new and additional grant and concessional funding to meet the agreed incremental costs. Since the creation of the GEF in 1991, around USD 2.4 billion has been allocated to the area of climate change, which has leveraged an estimated additional USD 14 billion in financing. So far the GEF has supported more than 30 technologies in over 50 developing countries.<sup>11</sup>

41. Many United Nations organizations, the World Bank Group and regional development banks advance the use of climate change technologies. The International Finance Corporation, the private-sector arm of the World Bank, assists the private sector with commercial loans. The World Bank's Clean Energy and Development Investment Framework, the Carbon Market Continuity Fund for purchasing post-2012 credits, and the Clean Technology Fund are all important mechanisms to help reduce GHG emissions through long-term investment and technology expansion.

42. In addition, many other institutions, including bilateral aid agencies and multilateral partnerships, such as the Asia-Pacific Partnership, the Climate Technology Initiative (CTI) and its CTI Private Financing Advisory Network, have established a strong climate agenda. Furthermore, many industry associations promote awareness and the use of climate response technologies. The CDM is starting to play a significant role in financing climate mitigation projects in developing countries. A total of USD 95 billion in capital has been or will be invested in CDM projects that entered the pipeline by June 2008.<sup>12</sup>

43. It is important to note that least developed countries and small island developing States need special attention in terms of capacity-building and adaptation. Such countries will also benefit from sustainable development policies and measures, and will need assistance to introduce these in their countries.

44. A vast portfolio of capacity-building and market-enabling programmes have been implemented at multilateral and bilateral levels.

## VII. Remaining work

45. The remaining work consists of:

- (a) Completing the identification and analysis of the various technology options detailed in the first three tasks in paragraph 12 (a–c) above and finalize the corresponding background papers as detailed in paragraph 14 above;

<sup>11</sup> <[http://www.thegef.org/uploadedFiles/Publications/GEF\\_TTbrochure\\_final-lores.pdf](http://www.thegef.org/uploadedFiles/Publications/GEF_TTbrochure_final-lores.pdf)>.

<sup>12</sup> FCCC/SB/2008/INF.7 para. 57.

- (b) Performing the fourth task listed in paragraph 12 (d) above, which is to prepare the final report. This report will integrate and provide an analysis of the technology options identified in paragraph 12 (a–c) above and present a comprehensive long-term strategy for the development and transfer of technologies.

46. The time line for the remainder of the work is as follows: the three background papers will be completed by the end of December 2008, and the final report completed in January 2009. These papers will then be discussed at the EGTT meeting in February 2009 and the final report published as an official UNFCCC document in March 2009.

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