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Item 5 (a) of the provisional agenda
Financial mechanism of the Convention
Fourth review of the financial mechanism

An assessment of the funding necessary to assist developing countries in meeting their commitments relating to the Global Environment Facility replenishment cycle

Note by the secretariat*

Summary

This document presents an overview of the evolution of the Global Environment Facility Trust Fund from its pilot phase to its most recent replenishment period (GEF 4) and of the special climate change funds since their recent inception. It also presents a brief assessment of the current and necessary funding to assist developing countries by Convention priorities, namely: adaptation; mitigation; development and transfer of technologies; capacity-building; enabling activities; public awareness and outreach; and activities referred to in Article 4, paragraph 8(h), of the Convention.

This paper should be considered in conjunction with the report prepared by the secretariat, "Background paper on analysis on existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change".

* This document was submitted after the due date because consultations with stakeholders took longer than expected.

CONTENTS

I. Introduction

A. Mandate

1. The Global Environment Facility (GEF) was initially designated as an entity entrusted with the operation of the financial mechanism referred to in Article 11 of the Convention, on an interim basis (decision 9/CP.1). A memorandum of understanding (MOU) was concluded in 1996 between the Conference of the Parties (COP) and the Council of the GEF (decision 12/CP.2).[1] By its decision 3/CP.4, the COP, having completed a first review of the financial mechanism, decided to grant the GEF its status as an entity entrusted with the operation of the financial mechanism on an ongoing basis, subject to review every four years (guidelines for the review of the financial mechanism are contained in the annex to decision 3/CP.4), in accordance with Article 11, paragraph 4, of the Convention.

2. To ensure timely input from the fourth review of the financial mechanism into the fifth replenishment of the GEF, the COP, by its decision 2/CP.12, requested the secretariat to prepare for consideration and appropriate action by the Subsidiary Body for Implementation at its twenty-seventh session a report, in collaboration with the GEF secretariat, on the assessment of the funding necessary to assist developing countries, in accordance with the guidance provided by the COP, in meeting their commitments under the Convention over the next GEF replenishment cycle.

3. This document has been prepared in response to this request, taking into account paragraph 1 (a)–(d) of the annex to the MOU referred to in paragraph 1 above. Specifically, the annex to the MOU outlines that it is expected, in anticipation of a replenishment of the GEF, that the COP will make an assessment of the amount of funds that are necessary to assist developing countries, in accordance with the guidance provided by the COP, in fulfilling their commitments under the Convention over the next GEF replenishment cycle, taking into account:

(a) The amount of funds necessary to meet the agreed full costs to be incurred by developing country Parties in order to prepare their national communications under Article 12, paragraph 1, of the Convention on the basis of the guidelines for national communications of Parties not included in Annex I to the Convention (non-Annex I Parties) adopted by the COP at its second session, and the information communicated to the COP under Article 12 of the Convention;

(b) Financial resources needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by Article 4, paragraph 1, of the Convention and that are agreed between a developing country Party and the international entity or entities referred to in Article 11 of the Convention;

(c) Information communicated to the COP from the GEF on the number of eligible programmes and projects that were submitted to the GEF, the number that were approved for funding, and the number that were turned down owing to lack of resources;

(d) Other sources of funding available for the implementation of the Convention.

4. The annex to the MOU also stipulates that the GEF replenishment negotiations will take into account the assessment by the COP.

[1] See FCCC/SBI/1996/14, annex I, and FCCC/SBI/2004/6.

B. Scope of the note

5. In addition to the annex to the MOU referred to in paragraphs 1–4 above, this document takes into account all guidance from the COP to the financial mechanism of the Convention, submissions from Parties and other relevant documentation such as national communications from non-Annex I Parties, national adaptation programmes of action (NAPAs), technology needs assessments (TNAs) and documentation relating to capacity-building.[2] The document also draws on information provided by the GEF secretariat and other agencies, as relevant.

6. According to the GEF document "Arrangements for the establishment of the new climate change funds", in reference to the operation of the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF),[3] the "arrangements agreed between the Conference of the Parties to the UNFCCC and the GEF Council to give effect to the respective roles and responsibilities of the COP and the GEF and provided for in the Memorandum of Understanding between the COP and the Council will be applied, mutatis mutandis, for purposes of the new funds". Based on this, this document also considers the level of funds that are available and the level of funds that might be necessary under those two funds.

7. This document should be considered in conjunction with a report prepared by the secretariat analysing existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change (hereinafter referred to as the background paper on investment and financial flows or the background paper).[4]

II. Allocation of Global Environment Facility resources

A. Overall allocation of Global Environment Facility Trust Fund resources from the pilot phase to the fourth replenishment

8. The largest share of GEF resources allocated to climate change has been assigned to long-term mitigation projects. When developing its operational strategy under the first replenishment[5] of the GEF (GEF 1) (1995–1998), these were envisaged by the GEF to have much greater impact because the projects would drive down costs, build capacity, and start to put in place the technologies that can ultimately avoid greenhouse gas (GHG) emissions.[6] Climate change mitigation projects fall within four operational programmes approved by the GEF Council:

(a) Removal of barriers to energy conservation and efficiency (OP5);

(b) Promotion of the adoption of renewable energy by removing barriers and reducing implementation costs (OP6);

(c) Reduction of the long-term costs of low GHG emitting energy technologies (OP7);

(d) Promotion of environmentally sustainable transport (OP11).

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[2] FCCC/SBI/2006/5.
[3] GEF. 2002. "Arrangements for the establishment of the new climate change funds". p.2. Available at: <http://www.gefweb.org/Documents/Council_Documents/GEF_C19/C.19.6_Climate_Change_Funds.doc>.
[4] UNFCCC. 2007. "Background paper on analysis on existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change". Available at: <http://unfccc.int/cooperation_and_support/financial_mechanism/items/4053.php>.
[5] The four replenishment periods of the GEF, GEF 1–GEF 4, are noted in table 1.
[6] FCCC/CP/1995/4, paragraph 9 (b).

9. A further operational programme, “Integrated ecosystem management” (OP12), also encompasses climate change objectives such as carbon sequestration.[7] In addition, financial assistance to the climate change focal area has also been provided through short-term response measures and enabling activities.

10. As at September 2007, the GEF had raised more than USD 3.3 billion for the climate change focal area from the GEF Trust Fund.[8] The total GEF climate change funding allocations (including enabling activities) and associated co-financing for the different replenishment periods are shown in table 1.

Table 1. Allocation of Global Environment Facility resources to climate change activities for the period 1991–2007
(millions of United States dollars)

Global Environment Facility activity	Pilot phase 1991–1994	GEF 1 1995–1998	GEF 2 1999–2002	GEF 3 2003–2006	GEF 4 2006–2010 (2006–June 2007)[a]	Total 1991–2010 (1991–June 2007)[a]
OP5: Energy efficiency	70.6	128.6	200.1	286.7	(33.8)	(719.8)
OP6: Renewable energy	108.8	191.3	251.8	299.2	(10.0)	(861.1)
OP7: Low GHG emitting energy technologies	10.1	98.4	98.6	111.1	(0.0)	(318.2)
OP11: Sustainable transport			46.4	82.2	(32.0)	(160.6)
Enabling activities	20.2	46.5	45.3	73.9	(0.0)	(185.9)
Short-term response measures	70.8	42.2	25.1	3.7	(0.0)	(141.8)
Strategic pilot approach to adaptation				27.5	22.5 (0.0)	50.0 (27.5)
Total	**280.5**	**507.0**	**667.3**	**884.3**	**990.0** **(75.8)**	**3 326.6** **(2 412.4)**
Co-financing	2 402.9	2 322.1	3 403.4	4 609.7	[b] (1 651.8)	[b] (14 389.9)

Source: Adapted from FCCC/CP/2006/3 and informal communication with GEF secretariat.
Abbreviations: GEF = Global Environment Facility, GHG = greenhouse gas, OP5 = Removal of barriers to energy efficiency and energy conservation, OP6 = Promoting the adoption of renewable energy by removing barriers and reducing implementation costs, OP7 = Reducing the long-term cost of low greenhouse gas emitting energy technologies, OP11 = Sustainable transport.
[a] As at July 2007, six project proposals had been approved under GEF 4. The amount allocated to each operational programme between 2006 and 2010 remains unknown.
[b] Total co-financing leveraged under GEF 4 is unknown as only a fraction of the resources have been allocated so far.

[7] FCCC/SBI/2006/7.
[8] Not all of these funds have been fully disbursed or allocated.

11. Projects financed with GEF grants are typically co-financed by other sources. Co-financing in excess of USD 14 billion (USD 4.2 per dollar of GEF grant) has been leveraged for these GEF projects.[9] The overall level of project co-financing reported has been steadily increasing since the GEF was set up.

12. Over the years, the majority of GEF resources allocated to climate change **mitigation** has been spent on **OP5 and OP6** (see table 1). A significantly smaller proportion of GEF resources has been allocated to **OP7 and OP11**.

13. **Short-term response measures (STRMs)** were expected to provide short-term benefits at a relatively low cost. In its response to the Climate Change Programme Study conducted by the GEF in 2004, the GEF secretariat noted that "carbon finance and flexible mechanisms have dramatically reduced the demand for Short Term Response Measures", hence the sharp decline in the STRM portfolio during GEF 3 and its absence during GEF 4, which the GEF management found to be a positive trend because it leaves the GEF relatively free to focus on its longer-term catalytic role.[10]

14. Total funding for **enabling activities** relating to climate change amounts to approximately USD 200 million.[11] The GEF has provided financing to support 139 non-Annex I Parties in the preparation of their initial national communications (INCs). As at July 2007, about 110 countries had received assistance to undertake stocktaking in preparation for their second national communications (NC2). The National Communication Support Programme (NCSP) of the GEF, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP), phase II, is currently assisting 106 countries in preparing their NC2.

15. The GEF started to finance **adaptation activities** through the GEF Trust Fund during GEF 3 after the Strategic Priority on Adaptation (SPA) was approved.[12] As at August 2007, 11 projects had been approved for financing from the SPA totalling USD 29.6 million. The remaining funds (about USD 20.4 million) of the SPA are to be allocated during the remainder of GEF 4.

16. According to information provided by the GEF secretariat in July 2007, cumulative funding allocated under the **Small Grants Programme** (SGP) by the GEF since 1992 amounts to USD 365.8 million with a comparable amount allocated by partners in cash and in kind. The proportion of projects targeting climate change has increased from 15 per cent in the 1990s to more than 20 per cent currently.[13] The SGP, which operates across the different GEF focal areas, has been well received by recipient countries and has raised the profile of the GEF. This finding was confirmed in the third independent review of the GEF SPG in 2003. Many stakeholders in recipient countries, including government representatives and non-governmental organizations (NGOs) as well as implementing agencies, noted how effectively the SGP was responding to country priorities at the local level. The Third Overall Performance Study of the GEF (OPS3) found that the flexibility of the SGP has allowed for innovative thinking and design of activities to meet the needs of small island developing States (SIDS) and least developed countries (LDCs).[14]

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[9] Figures based on informal communication with the GEF secretariat.

[10] GEF. 2004. "GEF management responses to the M&E focal area program studies". p.9. Available at: <http://www.gefweb.org/Documents/Council_Documents/GEF_C24/ME.C.24.7_GEF_Management_Responses_to_the_M_E_Program_Studies_FINAL.doc>.

[11] See GEF project database <http://gefonline.org/home.cfm>.

[12] GEF. 2004. "GEF assistance to address adaptation". Available at: <http://www.gefweb.org/Documents/Council_Documents/GEF_C23/C.23.Inf.8.Rev.1_Adaptation_Council_paper_FINAL.doc>.

[13] See the SPG website <http://sgp.undp.org/index.cfm?module=ActiveWeb&page=WebPage&s=AboutSGP>.

[14] GEF Evaluation Office. 2005. *OPS3: Progressing Toward Environmental Results, Third Overall Performance Study of the Global Environmental Facility*. Available at:

B. Overview of planned resource allocation emphasis under the fourth replenishment

17. Replenishments of the GEF depend on voluntary contributions from donors. Donors to the GEF Trust Fund contributions follow a predefined basic burden sharing framework.[15] The proposed programming[16] for GEF 4 (2006–2010) climate change activities targets USD 990 million in allocations.

18. A revised climate change strategy was prepared by the GEF secretariat and approved in October 2007.[17] The mission of the GEF in climate change **mitigation** is defined in this strategy as being to "transform the market development paths of eligible countries into trajectories with lower greenhouse gas (GHG) emissions in the energy, industry, transport and land-use sectors. The long term impact of this work will be a slowing of the accumulation of GHG concentrations in the atmosphere." The strategic programmes for mitigation will be the following:

(a) Promoting energy efficiency in residential and commercial buildings;

(b) Promoting energy efficiency in the industrial sector;

(c) Promoting market approaches for renewable energy;

(d) Promoting sustainable energy production from biomass;

(e) Promoting sustainable innovative systems for urban transport;

(f) Management of land use, land-use change and forestry (LULUCF) as a means to protect carbon stocks and reduce GHG emissions.

19. In the revised climate change strategy, the **adaptation** mission is defined as being to "assist developing countries in piloting how to address the adverse impacts of climate change, including variability, by supporting projects that identify and implement suitable adaptation measures; build adaptive capacity; and reduce vulnerability and increase ecosystem resilience to the adverse impacts of climate change, including variability".[18] Based on the revised climate change strategy, during GEF 4, the GEF "will develop screening tools so that all future projects supported by the GEF will mitigate the risks associated with future climate change. In this regard, it is intended that all GEF-supported projects be made climate-resilient."[19] Throughout GEF 4, all projects presented for endorsement by the Chief Executive Officer of the GEF "will be required to consider the impacts of climate change on their results and to modify their design to be more resilient to climate change".

20. During GEF 4, the resources initially available for the SPA will be the remainder of the USD 50 million initially allocated by the GEF Council in May 2004. Once these remaining funds (approximately USD 20 million) are allocated, the experience with the SPA will be evaluated with the intention of drawing initial lessons from: adaptation funding; mainstreaming adaptation into the GEF focal areas; and maintaining adaptation as a strategic priority for maximizing global benefits from the focal areas of GEF relating to the management of natural resources.

<http://www.gefweb.org/MonitoringandEvaluation/MEPublications/MEPOPS/documents/Publications_OPS3_E-book.pdf>.

[15] GEF. 2005. "Overview of burden-sharing for GEF replenishments". Available at: <http://www.gefweb.org/replenishment/Reple_Documents/documents/R.4.17%20Burden%20Sharing.pdf>.

[16] Planning of strategic programmes of activities for funding under the GEF.

[17] GEF. 2007. "Focal area strategies and strategic programming for GEF-4. GEF policy paper". p.29. Available at: <http://www.gefweb.org/uploadedFiles/Focal%20Area%20Strategies_10.04.07.pdf>.

[18] See document cited in footnote 17, pp.29–30.

[19] See document cited in footnote 17, p.40.

21. The revised climate change strategy mentions that with respect to **enabling activities**, arrangements were made to support the NC2 of most eligible countries during the period of GEF 3. As noted by the GEF secretariat, "as a follow-up, the GEF plans to evaluate the effectiveness of the current modality for funding second national communications using the expedited procedures whereby project approval authority was delegated to UNDP and UNEP. Based on this evaluation, which will include consultation with a selected group of non-Annex I Parties and the CGE [Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention], the new modality will be decided for funding third and subsequent national communications using the expedited process. In the meantime, the current modalities used for funding second national communications will continue for funding subsequent national communications using the RAF [Resource Allocation Framework] resources available to the requesting country".

22. Under GEF 4 the total allocation to the **SGP** is USD 110 million. The countries that have developed significant capacity will be required to shift their source of funding from the SGP core budget to their indicative allocations under the RAF, in order to allocate funding from the SGP to new countries that have been waiting to join the programme.[20] During GEF 4, the maximum amount any country can have access to will be USD 2.4 million, an average of USD 600,000 per year.

23. The amount of funding under the GEF after 2010 will depend on negotiations on the fifth replenishment of the GEF (GEF 5). The GEF trustee will probably need to start making arrangements for GEF 5 in 2008. Negotiations and conclusion on GEF 5 should occur in 2009. The COP is expected, in accordance with the annex to the MOU referred to in paragraphs 1–4 above and under the fourth review of the financial mechanism, to make an assessment of the amount of funds that are necessary to assist developing countries and provide an input to GEF 5.

C. Resource Allocation Framework

24. **COP guidance on the RAF** is contained in the report of the COP at its tenth session[21] and decisions 5/CP.11 and 3/CP.12.

25. A major element of the GEF 3 replenishment reform agenda was the establishment of a framework for allocation of resources to countries based on global environmental priorities and performance. The RAF was adopted by the GEF Council in September 2005.

26. The resources that each eligible country can expect from the GEF have been specified for the four years of the replenishment period and initial allocations will be updated in the middle of the replenishment period. The RAF began implementation on 1 July 2006. Each eligible country can expect to receive a minimum allocation of USD 1 million. The total amount that a country receives from the GEF climate change focal area cannot exceed 15 per cent of the resources available. Two indices made public in September 2006, the GEF Benefits Index and the GEF Performance Index, are used in combination to determine the share of resources that each country is allocated. The GEF Benefits Index measures the potential of a country to generate global environmental benefits, and the GEF Performance Index measures a country's capacity, policies and practices relevant to successful implementation of GEF programmes and projects. The GEF Performance Index relies on World Bank Country Policy and Institutional Assessment data.[22]

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[20] GEF. 2007. "Information note on the management of the small grants program". Available at: <http://www.gefweb.org/uploadedFiles/Documents/Council_Documents__(PDF_DOC)/GEF_31/C.31.Inf.4%20SGP%20Information%20Note.pdf>.

[21] FCCC/CP/2004/10, annex III, paragraph 11.

[22] Detailed information on the RAF and allocations can be found at: <http://www.gefweb.org/interior_right.aspx?id=82&menu_id=120>.

27. In the GEF 4 climate change focal area, 46 countries have an individual allocation ranging from USD 3.1 million to USD 150 million. The remaining 115 countries may seek project financing from a total group allocation of USD 148.6 million.[23] China, India and the Russian Federation received the largest allocations under the RAF formula, followed by Brazil, Mexico and South Africa and a group of countries that includes Argentina, Egypt, Indonesia, the Islamic Republic of Iran, Kazakhstan, Malaysia, Pakistan, Romania, Thailand, Turkey, Ukraine and the Bolivarian Republic of Venezuela.

28. An independent midterm review of the RAF will be considered by the GEF Council in November or December 2008. Findings from this review will inform OPS4. GEF focal points as well as UNFCCC focal points have been invited to comment on an approach paper and the terms of reference for the midterm evaluation drafted by the GEF evaluation unit. The result of the review will be presented to the GEF Council in October 2008.

D. Overview of the Special Climate Change Fund and the Least Developed Countries Fund

29. Decision 7/CP.7 established two special funds under the Convention: the SCCF and the LDCF. Both funds are managed by the GEF as an entity responsible for the operations of the financial mechanism of the Convention.

30. The LDCF and the SCCF are voluntary funds relying on donor contributions. In accordance with COP guidance, they are operated separately from the GEF Trust Fund and therefore do not follow the same requirements for allocation and replenishment. These funds are replenished on a rolling basis. While replenishment on a rolling basis offers flexibility for donors to contribute to it at any time, it does not provide for a predefined replenishment period, and therefore does not ensure predictability in planning for resource allocation over time.

31. During 2006, two pledging meetings were held to mobilize resources for the LDCF and SCCF.

32. At its meeting in August 2006, the GEF Council agreed that, with respect to decision-making for the LDCF and the SCCF, the Council will meet as the Council for the LDCF and the SCCF. Any decisions or actions directly affecting only the LDCF or the SCCF are to be delegated to this Council.

1. The Special Climate Change Fund

33. **COP guidance on the SCCF** is contained in decisions 7/CP.7, 7/CP.8, 5/CP.9 and 1/CP.12.

34. In November 2004, the GEF Council endorsed the GEF programming document for the SCCF[24] and approved it as a basis for funding activities under the SCCF. In accordance with decision 7/CP.7, the document addresses adaptation and development and transfer of technologies.

35. In October 2007, in response to decision 1/CP.12, the GEF Council adopted a revised document entitled "Programming to implement the guidance for the Special Climate Change Fund adopted by the Conference of the Parties to the United Nations Framework Convention on Climate Change at its twelfth

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[23] GEF. 2006. "Progress report on implementing the RAF". Available at: <http://www.gefweb.org/documents/council_documents/GEF_30/documents/C.30.11ProgressReportonImplementingtheRAF_001.pdf>.

[24] GEF. 2004. "Programming to implement the guidance for the Special Climate Change Fund adopted by the Conference of the Parties to the United Nations Framework Convention on Climate Change at its ninth session". Available at: <http://www.thegef.org/Documents/Council_Documents/GEF_C24/C.24.12_SCCF_programming_paper_FINAL.doc>.

session"[25], which provided further details regarding funding for the development and transfer of technologies as well as for energy, transport, industry, agriculture, forestry and waste management and economic diversification.

36. As at July 2007, USD 67 million had been pledged to the SCCF.[26] Of this sum, about USD 57 million was pledged for the SCCF Programme for Adaptation and USD 10 million for the SCCF Programme for Transfer of Technology.

37. More detail on support allocated under the SCCF on specific sectors is provided in chapters III A–C and G below.

2. The Least Developed Countries Fund

38. **COP guidance on the LDCF** is contained in decisions 7/CP.7, 8/CP.8, 6/CP.9 and 3/CP.11.

39. In response to decisions **8/CP.8 and 6/CP.9, the GEF supported the preparation of NAPAs through the LDCF**. In May 2006, the GEF Council approved a document entitled "Programming paper for funding the implementation of NAPAs under the LDC Trust Fund".[27] The programming provides for operational procedures to finance the implementation of priority activities identified in NAPAs. According to this programming, the priority sectors that are expected to receive the most attention under NAPAs are water resources, food security and agriculture, health, disaster preparedness and risk management, infrastructure and natural resources management. Community-level adaptation may also be a cross-cutting area of concern.

40. As at July 2007, USD 163 million had been pledged to the LDCF.[28] More details on support allocated under the LDCF on specific sectors are provided in chapter III.A below.

III. Assessment of the funding available and necessary to assist developing countries

A. Adaptation

41. **COP guidance on support for adaptation** is contained in decisions 11/CP.1, 2/CP.4, 5/CP.7, 6/CP.7, 1/CP.10, 8/CP.10 and 3/CP.12.

1. Global Environment Facility funding for adaptation

42. With respect to resource mobilization, GEF-managed funds available or pledged for adaptation projects amount to USD 270 million (see table 2).

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[25] Available at: <http://thegef.org/uploadedFiles/Documents/LDCFSCCF_Council_Documents/LDCFSCCF2June_2007/LDCF.SCCF.2.4%20SCCF%20Programming%20Paper.pdf>.

[26] Thirteen Parties (Canada, Denmark, Finland, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom of Great Britain and Northern Ireland) have pledged contributions to the SCCF.

[27] GEF. 2007. "Programming paper for funding the implementation of NAPAs under the LDC Trust Fund". Available at: <http://thegef.org/Documents/Council_Documents/GEF_C28/documents/C.28.18LDCTrustFund_000.pdf>.

[28] Eighteen Parties (Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom) have pledged contributions to the LDCF.

Table 2. Global Environment Facility funds for adaptation
(millions of United States dollars)

Fund	Resources mobilized	Resources committed	Fund remaining	Pipeline
GEF Trust Fund: Strategic Priority on Adaptation	50.0	29.6	20.4	14.4
Special Climate Change Fund	57.0	33.5	23.5	42.0
Least Developed Countries Fund	163.0	16.0	147.0	16.7
Total	**270.0**	**79.1**	**190.9**	**73.1**

Note: Table is based on information provided by the GEF secretariat.

43. As at September 2007, 11 projects had been approved under the **SPA**, totalling USD 29.6 million. The remaining funds (about USD 20.5 million) of the pilot programme have been carried over to GEF 4. According to information provided by the GEF secretariat, there are now six projects in the pipeline with expected GEF support amounting to USD 10.6 million.[29] The SPA is a pilot phase; the inclusion of adaptation as a priority under the GEF Trust Fund will be reviewed following the evaluation of the SPA, which is scheduled to take place next year once the funds under the pilot programme have been exhausted. The revised GEF climate change strategy explicitly raises the question of whether the GEF should continue to provide support to adaptation projects from the GEF Trust Fund under a specific focal area or whether adaptation funding should be 'mainstreamed' under all GEF focal areas.[30] In the light of the challenges of the SPA, it was proposed in the OPS3 to integrate the funds available under the SPA into the SGP in order to respond to the specific needs of LDCs and SIDS. A number of developing country Parties[31] have stressed the need for adaptation activities to continue to play a key role in the GEF Trust Fund, in particular for long-term activities. The review would be a necessary step towards reaching a clearer understanding of the results achieved through projects implemented and of the measurement and definition of adaptation.[32]

44. As at September 2007, nine projects (four medium-sized projects and five full-size projects) had been approved under the **SCCF** adaptation programme, receiving a total of USD 33.5 million. Thus about USD 23.5 million remains available for other adaptation projects. However, the demand for projects in the adaptation programme under the SCCF is high; in September 2007, there were eight projects in the SCCF pipeline amounting to USD 42.0 million, which is more than the available funding.[33] Because the entire SCCF funding for adaptation is likely to be allocated in the near future, the GEF secretariat has communicated to donor countries the urgency of contributing to the SCCF adaptation programme and has been organizing pledging meetings.

45. Of the USD 163 million available or pledged to the **LDCF**, USD 12 million was allocated for the preparation of NAPAs.[34] As at September 2007, seven NAPA implementation projects with GEF

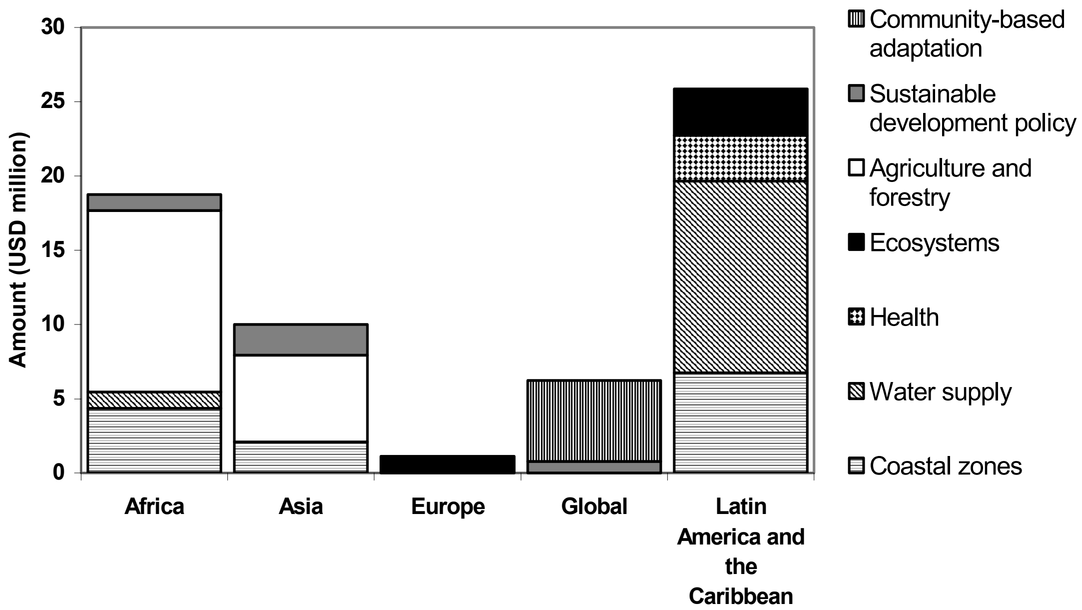
[29] Information provided by the GEF secretariat.
[30] See document cited in footnote 17 above.
[31] See the recent submissions on views and recommendations from Parties on the funding available to them in the climate change focal area in documents FCCC/SBI/2007/MISC.11 and FCCC/SBI/2007/Add.1.
[32] FCCC/SBI/2007/14.
[33] Information provided by the GEF secretariat.
[34] Information provided by the GEF secretariat.

contributions of USD 20.68 million have been PIF approved, which means that all these projects have been identified as consistent with the LDCF eligibility criteria and have been entered into the LDCF pipeline. If all these projects are endorsed, USD 32.68 million will have been allocated under the LDCF.

46. With respect to accessing resources from the LDCF, participants at the twelfth meeting of the Least Developed Countries Expert Group, held in Bangkok, Thailand from 6 to 8 September 2007,[35] noted the recent improvements in the GEF project cycle and requested that awareness on these procedures be raised through guidelines and training workshops.

47. Overall, since 2005, about USD 79.1 million has been allocated to adaptation projects by the GEF, including USD 12 million for NAPA preparation. As shown in figure 1, most of the funding for adaptation has been allocated to the agriculture and forestry, water supply and coastal zones sectors in Africa, Asia and the Latin America and the Caribbean region.

Figure 1. Distribution of approved adaptation projects, by region and by sector (2005–2007)



Note: Based on information provided by the GEF secretariat.

48. Non-Annex I Parties welcomed the new opportunities offered under the LDCF and the SCCF for accessing funding for adaptation and the regional workshops held by the GEF on the various adaptation funding windows of the GEF to facilitate access.[36] However, participants at all the regional workshops and the expert meetings organized in response to decision 1/CP.10 highlighted a number of issues in accessing existing funding for adaptation.[37]

49. It is currently difficult to predict how much funding would be available for adaptation under the GEF in the near future, given that the LDCF and SCCF are replenished on a voluntary and rolling basis and that funding for adaptation in the GEF Trust Fund will depend on the conclusions from the review of the SPA. According to the GEF secretariat, additional voluntary funding for adaptation, in particular for the SCCF, also depends on the results of negotiations on the Adaptation Fund; there are some overlaps in

[35] FCCC/SBI/2007/31.
[36] FCCC/SBI/2007/14.
[37] Document FCCC/SBI/2007/14 contains a list of issues raised by developing countries in these workshops.

the type of adaptation activity that the SCCF and the Adaptation Fund would be expected to cover (i.e. those listed in decision 5/CP.7, para. 8).

50. However, according to the GEF secretariat, the piloting of GEF concrete adaptation measures and projects on the ground is providing information on the costs of adaptation. According to the GEF secretariat, this learning-by-doing exercise should improve financial support for adaptation, as should the proposed initiative of mainstreaming adaptation into the GEF portfolio.

2. Resources necessary to assist developing countries in meeting their adaptation needs

Overview of needs

51. According to the background paper on investment and financial flows and as shown in table 3, the additional global investment and financial flows from all sources (private and public, domestic and international) needed to adapt to climate change by 2030 could amount to tens of billions of United States dollars by 2030.[38] The change in investment and financial flows for adaptation that will need to occur in developed and developing countries varies by sector. A **significant share of the additional investment and financial flows will be needed in non-Annex I Parties** (USD 28–67 billion).

Table 3. Estimated additional investment and financial flows needed by non-Annex I Parties from all sources (private and public, domestic and international) for adaptation in 2030
(billions of United States dollars)

Sector	Amount
Agriculture, forestry and fisheries	7
Water supply	9
Human health	5
Coastal zones	5
Infrastructure	2–41

Source: Adapted from: UNFCCC. 2007. “Background paper on analysis of existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change”.

52. According to the background paper, private sources of funding can be expected to cover a portion of the adaptation costs in sectors (such as agriculture, forestry and fisheries, and infrastructure) with privately owned physical assets, in particular in developed countries. Public resources will be needed to implement policies or regulations to encourage the private investment of private resources in adaptation measures, especially in developing countries. Public domestic resources will be needed to cover adaptation costs related to climate change impacts on public infrastructure in all countries.

53. The background paper concludes that additional external public funding is likely to be needed for adaptation measures. Such additional funding will be needed in particular for sectors and countries that are already highly dependent on external support, for example in the health sector in LDCs, or for coastal infrastructure in developing countries that are highly vulnerable to sea level rise. **Current mechanisms and sources of financing are limited and it is likely that new sources of funding will be required**.

54. In its Clean Energy for Development Investment Framework (CEIF) action plan, **the World Bank highlights that scaling up and mainstreaming adaptation work will be a challenge and will require significant financial support from grants and official development assistance (ODA), over**

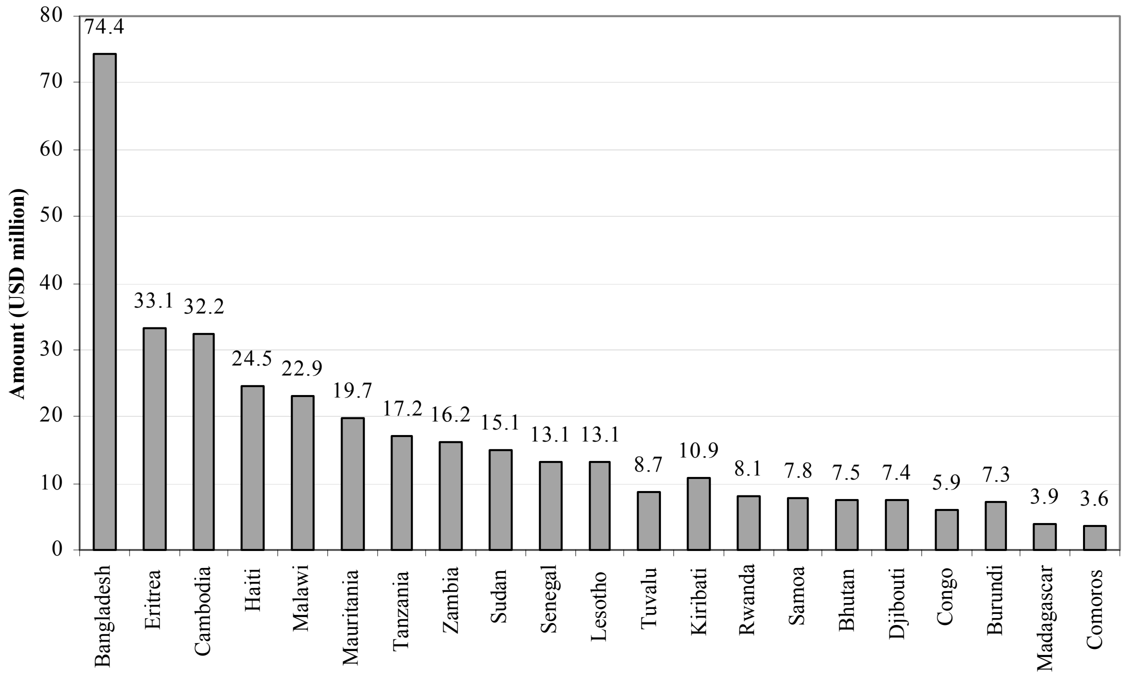
[38] See document cited in footnote 4 above, chapter 4.

and above current levels.[39] Although no clear estimate of financial needs is volunteered, the World Bank points out that there is a need for additional, sufficient, predictable and sustainable financial resources, and for diversifying the sources of these resources, in order to increase adaptation components in ODA and to mainstream adaptation measures in investment flows.

55. The CEIF action plan indicates that to respond to the needs of developing countries in adaptation and leverage mainstreaming and 'climate proofing' of national and international investment portfolios in the years to come, GEF resources will be critically important in the short term.[40] It is vital to ensure continuity and a strategic direction to help leverage further financial support from multilateral and bilateral organizations in this area. There is also a need to engage the private sector in adaptation planning and implementation on a sectoral basis.

56. Regarding the specific needs of **LDCs**, 21 of the 22 NAPAs submitted by September 2007 contain cost estimates of the NAPA projects that are needed to address the urgent and immediate adaptation needs of LDCs amounting to USD 352 million (see figure 2).[41] It should be noted that this figure will increase as new NAPAs are submitted and as further adaptation needs are identified during GEF 4. Extrapolating the USD 352 million figure from 21 to 46 NAPAs, about USD 771 million might be needed. If the GEF is able to leverage about USD 4 for each USD 1, as it has done in the past, the GEF funding needed to support the urgent and immediate adaptation needs identified in the 21 submitted NAPAs would be about USD 90 million and about USD 200 million for the extrapolated total.

Figure 2. Cost of priority activities identified in national adaptation programmes of action, by country



[39] World Bank. 2007. "Clean energy for development investment framework: the World Bank group action plan". pp.19–24. Available at: <http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21289621/DC2007-0002(E)-CleanEnergy.pdf>.

[40] See document cited in footnote 39 above.

[41] This does not include Niger, which did not provide estimations of project costs.

Specific priorities identified by non-Annex I Parties

57. With regard to **technology needs for adaptation**, agriculture, fisheries and coastal zones were identified as priority sectors by most Parties, according to the INCs and TNAs. In their TNA, 62.5 per cent of reporting Parties identified needs for adaptation relevant technologies in the agriculture and fishery sector, while 41.7 per cent identified such needs in coastal zone management, 37.5 per cent identified needs in the water sector and 25 per cent identified needs in the health sector. The need for support in the areas of capacity-building, tourism, natural disasters, and systematic observation and monitoring was also identified by Parties.

58. In their national communications, many Parties identified adaptation needs and **capacity-building needs for adaptation** pertaining to human resources development, institutions, methodologies, technology and equipment, and information and networking. Parties also reported insufficient human and institutional capabilities and financial resources to formulate and prepare adaptation project proposals for funding.

59. Other specific needs relating to adaptation identified in the context of the workshops and expert meeting on adaptation under decision 1/CP.10 are concerned with **insurance**[42] – especially for the Caribbean region, which is highly dependent on its tourism infrastructure. According to the Convention, insurance-related actions constitute one of the three main means of response to the adverse effects of climate change, along with funding and technology transfer. Participants suggested that the Convention process could provide support for the consideration of cost-effective insurance initiatives, including some that could be tailored to the unique circumstances of vulnerable communities and groups of countries such as SIDS. There is a need for the development of a well-coordinated dialogue between the private sector and representatives from the Parties on these issues.

60. Overall, there is a knowledge gap relating to the level of adaptation needed and varying capacity of each country to measure necessary funding and technology needs for addressing climate change; as this gap narrows, it may be possible to estimate with greater precision the level of resources needed to address adaptation needs.

61. In the light of these estimates and needs expressed by Parties, there is an evident gap between the available financial support for adaptation and the funds required for facilitating adaptation in developing countries.

62. While **the Adaptation Fund under the Kyoto Protocol**, for which institutional arrangements and operationalization are being currently negotiated, may have the potential to cover part of the needs for financial flows, it alone would not be sufficient. The Adaptation Fund will receive a share of proceeds equal to 2 per cent of the certified emission reductions (CERs) issued for clean development mechanism (CDM) project activities to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation.[43] With annual sales of CERs of 300–450 million and a market price of USD 23.60 per tonne of carbon dioxide (tCO_2) eq (range USD 13.50–33.75) it is estimated that the Adaptation Fund would receive 2006 USD 80–300 million per year for the period 2008–2012.[44]

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[42] FCCC/SBI/2007/14.

[43] Decisions 3/CMP.1 and 28/CMP.1. CDM projects in least developed countries and small-scale afforestation and reforestation projects in all countries are exempt from the share of proceeds levy.

[44] The amount of CERs issued for projects exempt from the share of proceeds is assumed to be negligible relative to the uncertainty of the estimates. See chapter 7 of the document cited in footnote 4.

B. Mitigation

63. **COP guidance on support for mitigation** is contained in decisions 11/CP.1, 12/CP.2, 2/CP.4, 6/CP.7, 7/CP.7, 5/CP.9, 5/CP.11 1/CP.12 and 2/CP.12.

1. Global Environment Facility funding for mitigation

64. Table 1 shows the level of funding that has been allocated by the GEF to mitigation by operational programmes between 1991 and 2007. Most of the GEF climate change funds have been spent on OP5 and OP6. The largest number of mitigation projects and the largest overall amount funded by the GEF have been in the area of promoting the **adoption of renewable energy** by removing barriers and reducing implementation costs under OP6 (a total of USD 861.1 million has been allocated so far). Although there are fewer projects relating to the removal of barriers to **energy conservation and efficiency** approved under OP5, these projects have on average received larger grants; hence the overall amount allocated to energy conservation and efficiency projects is only slightly less than that allocated to renewable energy projects (USD 719.8 million) .

65. In response to COP decision 5/CP.11, the GEF is now considering whether **carbon capture and storage** (CCS) technologies can be supported; in particular, whether related capacity-building activities would be consistent with its strategies and objectives, and, if so, how they could be incorporated within its operational programmes. A proposal for how to address CCS in GEF 4, and the possible implications for GEF 5, is being prepared by the Scientific and Technical Advisory Panel (STAP) of the GEF and should be available by the end of 2007.[45]

66. As shown in table 4, **GEF funding represented 1.6 per cent of funds from bilateral and multilateral sources for energy projects** during the period 1997–2005.

Table 4. Multilateral and bilateral funding for energy during the period 1997–2005
(millions of United States dollars)

Type of funding	Total 1997–2005	Percentage of total multilateral and bilateral funding
Bilateral Development Assistance	20 104	31.0
World Bank Group	24 898	38.4
EBRD	5 158	8.0
Global Environment Facility	1 054	1.6
Asian Development Bank	6 593	10.2
Inter-American Development Bank	6 987	10.8
Total	**64 794**	**100.0**

Source: Tirpak D and Adams H. 2007. Trends in official bilateral and multilateral development assistance in the energy sector: has the ODA community responded to the United Nations Climate Change Convention? *In*: Special issue of *Climate Policy* on development and climate.
Abbreviation: EBRD = European Bank for Reconstruction and Development.

67. Issues raised with regard to access to GEF funding for mitigation include: effectiveness and efficiency, transparency, predictability in project selection and the overall length of the GEF project

[45] GEF. 2007. “Scientific and technical advisory panel work program for FY07 and FY08”. Available at: <http://www.gefweb.org/uploadedFiles/Documents/Council_Documents__(PDF_DOC)/GEF_31/C.31.Inf.11%20STAP%20Work%20Program(1).pdf>.

cycle.[46] OPS3 also highlighted that activities such as national communications and national capacity self-assessments (NCSAs) help countries identify national priorities, but these priorities, GEF priorities and the projects actually developed are not always aligned. OPS3 recommended that the GEF consider preparing national strategies to identify sectoral and project priorities. In particular, OPS3 suggested that the process of assisting non-Annex I Parties in preparing their NC2 be considered a useful input in developing such strategies.

68. In response to these concerns **the GEF has been undergoing a reform** to expedite its project cycle and introduce a new results-based management framework. It has also started a process of consultations with recipient countries regarding their national priorities and has developed its climate change strategy for GEF 4 taking these consultations into account. A Conflict Resolution Commissioner to address possible concerns of countries has also been appointed.

69. According to the feedback received by the GEF secretariat from its consultations with recipient countries, energy efficiency will continue to play an important role. During GEF 4 more support will be given to the phasing out of incandescent lighting and to the introduction and improvement of standards and labelling for appliances. However, increasingly attention is being given to the need to provide more support to energy efficiency of buildings and industrial energy efficiency, for which sector-specific initiatives will be important. Financing for low-carbon technologies, including clean coal technologies, will also need more attention in the form of plant rehabilitation and through demonstration projects. This type of support would, however, require more resources than what is currently available.

70. With regard to transportation, GEF 4 will continue funding projects to improve transport management and systems such as Bus Rapid Transit systems. According to the GEF secretariat, with more resources the GEF could also play a more important role in supporting newer, cleaner technologies, such as hybrid vehicles and next generation electric buses as well as second generation biofuels.

71. LULUCF is also an area where recipient countries have stressed the need for financial support. The GEF is currently focusing on measurement and monitoring issues in this sector to lay the foundation for more support in the future.

72. According to the GEF secretariat, the future support of mitigation activities under the SCCF will depend on the activities under the GEF Trust Fund, given the need for the two funds to be complementary.

2. Resources necessary to assist developing countries in meeting their mitigation needs

Overview of needs

73. The background paper on investment and financial flows concludes that **globally USD 200–210 billion in investment and financial flows from all sources (private and public, domestic and international) will be needed in 2030** to bring GHG emissions back to current levels. About USD 65 billion will be needed in developing countries alone. As shown in table 5, the investment involves the energy, industry, building, waste, and agriculture and forestry sectors.

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[46] GEF Evaluation Office. 2007. *Joint Evaluation of the GEF Activity Cycle and Modalities*. Available at: <http://www.gefweb.org/MonitoringandEvaluation/METhemesTopics/documents/Publications-Joint_Eval-ed.pdf>.

Table 5. Estimated additional investment and financial flows needed by non-Annex I Parties from all sources (private and public, domestic and international) for key mitigation sectors in 2030
(billions of United States dollars)

Sector	Amount
Energy supply by low GHG emission options[a]	77
Energy efficiency improvement	52
Agriculture and forestry	34
CCS for industry	11
Non-CO_2 gases	2

Source: Adapted from: UNFCCC. 2007. "Background paper on analysis of existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change".
Abbreviations: CCS = carbon capture and storage, GHG = greenhouse gas.
[a] The USD 77 billion reported in this table is the additional investment that would be needed for renewables, CCS, nuclear power and hydropower. Investment for coal-, oil- and gas-fired generation and transmission and distribution would be reduced by USD 80 billion. For more detailed information refer to the background paper, tables 11 and 39.

74. According to the background paper, the entities that make investment decisions are different in each sector, and the policy and/or financial incentives needed will vary accordingly. While currently most of the investment in mitigation measures is domestic, ODA plays an important role in developing countries, in particular in Africa and the LDCs. With appropriate policies or incentives, a substantial part of the additional investment and financial flows needed could be covered by the current sources. However, **there will be a need for new and additional external sources of funds dedicated to mitigation**.

75. **The World Bank estimates** that a transition to a low-carbon economy will require mobilization of tens of billions of United States dollars a year in grants, concessional financing and/or carbon financing for developing countries. In that context, scaling up GEF intervention on the removal of barriers for clean energy technologies would require **increasing the level of GEF funding by a factor of three**. Furthermore, should the role of the GEF be expanded to support capital investment needs of new, low GHG emitting technologies in addition to barrier removal, its resources would have to be scaled up considerably more.[47] The feedback provided by recipient countries to the GEF secretariat mentioned in paragraphs 69–72 above seem to confirm the estimations of the World Bank.

76. In the CEIF action plan, the World Bank notes that "GEF financing has had the greatest potential for market transformation of these technologies in cases where technical assistance and limited provision of financing for incentives has been applied to reform policies, transfer specific technologies to well-organized recipient industry, or to create clean energy incentive programs". However, according to the World Bank, scaling up work on low-carbon initiatives to better meet developing country needs would necessitate the removal of institutional barriers, the reduction of transaction costs and processing times and improvement in the predictability of funding in the GEF.

[47] See report cited in footnote 39 above, pp.12–52.

Specific priorities identified by non-Annex I Parties

77. With regard to specific priorities identified by non-Annex I Parties under the Convention process, in the context of their INCs,[48] two thirds of the Parties reported the need for mitigation measures in the energy sector; roughly half identified measures to limit emissions and enhance removals by sinks in the LULUCF sector; and a third reported on measures to abate GHG emissions in the agriculture and waste sectors.

78. In the **energy supply sector**, nearly half of Parties reported that they are implementing or considering implementing small hydropower applications to increase their energy supply in order to meet their pressing needs and considering alternative fuels in the transportation sector. Many Parties reported that they have measures in place to encourage the use of cleaner alternative fuels.[49]

79. Priority areas identified in INCs and TNAs in the **industrial sector** were in the cement and steel production industries. Mitigation options considered by Parties include the modernization of industrial processes and equipment, and the promotion of energy-efficient technologies. Examples of specific measures proposed are the introduction of efficient fuel for boilers and the introduction of efficient coal-fired boilers, electrical motors and lighting in industrial buildings.

80. In their INCs, Parties identified the following mitigation measures in the **residential and commercial sector**: improving the efficiency of cooking stoves; promoting more efficient household appliances; enhancing efficiency of lighting; increasing efficiency in the building sector; promoting solar energy for water heating in the residential sector; and implementing demand-side management programmes. Half of the mitigation projects in this category were proposed by African countries, mostly targeting improved cooking stoves and more efficient lighting.

81. Nearly two thirds of the Parties identified mitigation measures in the **transportation sector** that focus on technologies, such as the introduction of electric or compressed natural gas vehicles and hybrid vehicles, the implementation of vehicle emission standards, and measures focused on changing people's behaviour such as switching the mode of transportation. Almost half of the Parties reported that they are considering alternative fuels in the transportation sector, with the greatest interest coming from Latin America.

82. Most mitigation measures identified in the **waste sector** involve solid waste. The measures focus on the reduction of waste generation at source and on the promotion of integrated waste management, waste recycling and composting. Mitigation measures dealing with wastewater focus on the recycling and treatment of municipal wastewater, and on the recovery of methane from wastewater treatment as biogas. Fourteen out of 32 mitigation project proposals in the waste sector involve methane recovery from solid waste disposal and methane reduction from wastewater.

83. Frequently identified mitigation measures in the **agriculture sector** in INCs relate to changes in cattle management practices, rice cultivation and the use of fertilizers. Fourteen out of 33 mitigation projects proposals in the agriculture sector involve improvement in the management of ruminant livestock and six involve improvement in rice production practices.

84. Mitigation measures mentioned in the INCs for the **LULUCF** sector include the promotion of forest conservation and restoration, afforestation and reforestation activities; improvement in forest

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[48] This information is based on the sixth compilation and synthesis of INCs from Parties not included in Annex I to the Convention (FCCC/SBI/2005/18). An additional 12 INCs submitted since then are still to be examined by the CGE.

[49] FCCC/SBI/2005/18/Add.3.

management practices and the promotion of sustainable forest development; the promotion of conservation and substitution of fuelwood; and the promotion and development of agroforestry. The technology needs relating to this sector identified in TNAs included better land processing techniques, forest fire monitoring and prevention, mechanization of timber processing and logging, valuation of forest waste (for biomass energy) and tree planting. With regard to avoided deforestation, Parties highlighted needs for capacity-building and technology transfer to implement their policies and measures to reduce emissions from deforestation.[50]

C. Development and transfer of technologies

85. **Guidance on support for development and transfer of technologies** is contained in decisions 2/CP.4, 4/CP.7, 6/CP.8, 1/CP.12 and 3/CP.12.

1. Global Environment Facility funding for development and transfer of technology

86. The **GEF Trust Fund** focuses primarily on mitigation activities and the reduction of GHG emissions by supporting projects in renewable energy and energy efficiency. According to the GEF report to the COP at its twelfth session, almost all climate change projects funded from the GEF Trust Fund are concerned with either the initial introduction of modern technologies in developing countries or dissemination and broadening of their application.[51] The GEF has supported projects in over 130 countries, seeking to develop and transform markets for more than two dozen technologies.[52] As shown in table 1, the GEF indicated that it had provided USD 884.3 million to support climate change projects during GEF 3 (2003–2006), which was the period of active implementation of the technology transfer framework (decision 4/CP.7). In 2006 the GEF provided support to 66 technology-related projects in various countries and regions. The percentage of funding for technology transfer within each project is not available, as the GEF currently does not systematically carry out assessment and quantitative analysis of how it supports and transfers through the cycle of technology introduction, adoption and absorption. However, overall, the GEF estimates that 80–100 per cent of GEF climate change mitigation funding fits the technology transfer definitions used by the Convention.[53]

87. In response to decision 2/CP.4, the GEF provided top-up funding to some non-Annex I Parties to conduct TNAs.[54] As at May 2007, 29 countries, including five EITs, had submitted their TNA reports.

88. In the GEF 4 climate change focal area strategy, the focus of technology transfer activities is placed on the stimulation of an increased market penetration of energy-efficient technologies, practices, products and materials. Specifically, the strategic programme “Promoting energy efficiency in the industrial sector” is intended to support sector-specific technology transfer activities, and “Promoting energy efficiency in residential and commercial buildings” and “Promoting market approaches for renewable energy” are intended to support renewable technologies projects. These programmes will be pursued as one of the priority platforms for the GEF private sector engagement to transform markets for energy and mobility.[55]

89. A specific programme for the **transfer of technologies was set up under the SCCF**, which follows a technology- or sector-specific approach.[56] In 2007, it was revised to respond more flexibly to

[50] FCCC/SBSTA/2007/MISC.2 and Add.1.
[51] FCCC/CP/2006/3, paragraph 52.
[52] GEF. 2006. “Catalyzing technology transfer”. Available at: <http://www.gefweb.org/projects/focal_areas/climate/documents/Insrt_4_Catalyzng.pdf>.
[53] Information provided by the GEF secretariat.
[54] FCCC/SBI/2006/7.
[55] See document cited in footnote 17 above.
[56] See document cited in footnote 24 above.

the needs of different countries by taking a programmatic approach that builds upon existing initiatives of the GEF and its implementing and executing agencies, and in cooperation with various initiatives of the UNFCCC.[57]

90. Transfer of technology relating to adaptation is expected to be funded under the programme of adaptation. Methodologies to assess technology needs for adaptation will be consistent with the approach adopted for conducting TNAs under the national communications.[58] As at April 2007, USD 10.7 million were available from the SCCF for the programme for transfer of technology.[59]

2. Resources necessary to assist developing countries in meeting their development and transfer of technology needs

Overview of needs

91. The process of development and transfer of technology could be divided into three stages: research and development (R&D); demonstration; and deployment.[60] The public sector has a bigger role in the R&D stage of technology development, while the private sector is becoming more important in the demonstration and deployment stages. In this context, a broad process that includes the private sector would be required for successful technology transfer, as discussed in the round-table discussion on international technology cooperation and partnerships in the development, deployment, diffusion and transfer of environmentally sound technologies and know-how convened by the UNFCCC secretariat in Nairobi, Kenya, in November 2006.[61] It was noted that private-sector participation should be encouraged in technology cooperation activities, including through public–private partnerships and through instruments such as subsidies, tax measures and feed-in tariffs for market stimulation, which could attract private funds and thus create a financial multiplier for the limited public funds available for these activities.

92. Technology was identified as one of the key building blocks of a future regime to address climate change under the discussions of the dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention. The background paper on investment and financial flows shows that, to bring GHG emissions back to current levels by 2030, a portfolio of existing or well-advanced low-carbon technologies should be deployed in both developed and developing countries.[62] The key technologies are end-use efficiency, CCS, renewables, nuclear energy, clean fossil fuel generation and biofuel. However, many barriers still exist in the R&D and deployment stages of these technologies.

93. *Energy Technology Perspectives*, a publication of the International Energy Agency (IEA),[63] assumes that USD 720 billion of investment for supporting technology deployment will be needed over the next two to three decades (an average of USD 24–36 billion per year) in order to have a set of technologies in place that would bring emissions down to current levels in 2030. This estimate is for

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[57] See document cited in footnote 25 above.
[58] See document cited in footnote 24 above.
[59] GEF. 2007. "Status report on the climate change funds as of April 30, 2007". Available at: <http://thegef.org/uploadedFiles/Documents/LDCFSCCF_Council_Documents/LDCFSCCF2June_2007/LDCF.SCCF.2.Inf.2%20Status%20report%20on%20the%20Climate%20Change%20Funds.pdf>.
[60] Garibaldi, JA. 2007. "Scaling up responses to climate change: technology and R&D investment and an environment for a low carbon technology deployment". Available at: <http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/garibaldi.pdf>.
[61] FCCC/SBSTA/2007/2.
[62] See document cited in footnote 4 above.
[63] International Energy Agency. 2006. *Energy Technology Perspectives: Scenarios and Strategies to 2050*. Paris: IEA.

financing technology deployment on the top of the deployment that would occur with an assumed carbon price (whether through tax, trading or implicitly in regulation) of USD 25 per tCO_2.

94. The Stern Review[64] estimates existing deployment support for renewables, biofuels and nuclear energy at USD 33 billion each year. If the IEA figure is assumed to be additional to the existing support, it suggests an increase in deployment incentives of between 73 and 109 per cent, depending on whether this increase is spread over two or three decades. The Stern Review also suggested that global public energy R&D funding should double, to around USD 20 billion.

95. The background paper shows that the sources and trends of investment and financial flows, and therefore the use of international funds, differ according to whether they involve support of R&D, implementation of near-commercial technologies, such as renewables, or access to commercial technologies (technology transfer). Depending on the priorities of countries, international resources may be used in different ways – incremental funding for research institutions, incremental funding for specified technologies or funding for capacity-building or to change policies that inhibit technology transfer.

Specific priorities identified by non-Annex I Parties

96. The discussion on and analysis of development and transfer of technology has been ongoing since the beginning of the Convention process. At the twenty-fourth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA), the UNFCCC secretariat distributed a document which presents priority technological options for climate change mitigation and adaptation contained in 23 TNAs and 25 INCs submitted by non-Annex I Parties.[65] In addition, the SBSTA, at its twenty-sixth session, conducted a round table to discuss experiences, lessons learned and strategies for short-, medium- and long-term international technology cooperation and partnerships in development.

97. The key **mitigation sectors** commonly identified in the TNAs and INCs were energy, industry and transport. Renewable energy generation and energy-efficient appliances were identified as key technology needs for mitigation. The most commonly identified technologies in these groups related to solar photovoltaic (grid-connected and off-grid), biomass (biodigesters, use of forest waste, rice husks and bagasse), mini- and micro-hydropower plants, efficient lighting and water heating (solar and biomass), water pumping (solar and wind), solar drying of agricultural products, and efficient stoves and ovens (solar, charcoal, biomass and liquified petroleum gas (LPG)).

98. In industry, technology needs identified by several Parties included those to increase efficiency in energy use, including through use of modern production processes, upgrading of old technology and switching to low-carbon fuels, particularly in the steel industry, cement production, bread baking, mining and the aluminium industry.

99. In the transport sector, many of the technology needs identified related to cleaner and more efficient private passenger vehicles, trucks and urban public transportation vehicles (biofuels, clean natural gas or LPG, high efficiency motors and hybrid vehicles).

100. **For adaptation**, Parties identified technology needs primarily in the agriculture, fisheries and coastal zones sectors. In agriculture, the most common technology needs identified were for crop management with the emphasis on developing and using tolerant/resistant crop varieties, and on efficient water utilization and improving irrigation systems (micro-irrigation, creating networks of reservoirs and water resource management). Forestry technology needs included early warning systems for forest fires and technologies for afforestation and reforestation. In coastal zones, technologies (including indigenous

[64] Stern. N. 2007. *The Economics of Climate Change: The Stern Review.* Cambridge: Cambridge University Press.
[65] FCCC/SBSTA/2006/INF.1.

technologies) identified included hard and soft technologies to protect against and accommodate sea level rise.[66]

101. There is now a better understanding of the need to broaden technology transfer into **economic development opportunities**, and to make it part of a developing country's process to achieve the United Nations Millennium Development Goals. This has been stated in some Parties' TNAs, which looked for synergies between addressing climate change and meeting their social and economic goals and development needs. Many Parties attempted to select technological options on the basis of their contribution to the country's sustainable development and other goals identified in national development strategies, such as poverty reduction, national economic growth and improvement in the standard of living.

102. The biggest barrier to technology transfer identified was the lack of financial resources. High investment costs, prohibitive prices acting as a deterrent to widespread use, subsidies and tariffs were also considered important economic/market barriers. Other important barriers included a lack of information and awareness regarding environmentally sound technologies (ESTs) (for example a lack of information on the technical performance of ESTs and on means to acquire them). The measures identified by Parties to address barriers were most commonly: regulatory and policy measures; measures to increase access to information and build awareness; or economic and market measures.

103. Most Parties indicated that existing in-country capacity was insufficient to address the transfer of ESTs, and many identified in-country capacity-building needs in their TNA reports. Commonly identified capacity-building needs included those relating to economic/market capacity; information and awareness-raising; implementation of policies and programmes; implementation and enforcement of appropriate regulations; institutional and organizational capacity; and human, technological and infrastructure capacity. It was not clear in most TNA reports whether any specific action had been initiated to address these capacity-building needs. However, some of the Parties also identified next steps in meeting technology transfer needs concerning: economics; information sharing and awareness-raising; policies and programmes; institutional, organizational and human capacity-building; and technologies.

D. National communications

104. **COP guidance on support to national communications** is contained in decisions 11/CP.1, 10/CP.2, 11/CP.2, 2/CP.4, 2/CP.7, 6/CP.7, 6/CP.8, 4/CP.9, 8/CP.11 and 3/CP.12.

1. Global Environmental Facility funding for national communications

105. National communications are funded through enabling activities. The funding of most of the INCs was disbursed according to operational guidelines for expedited financing of INCs from non-Annex I Parties.[67]

106. The total funding for enabling activities related to climate change amounts to approximately USD 200 million (the funding for each period of the GEF has risen from USD 20.2 million during the pilot phase to USD 73.9 million during GEF 3).[68] The GEF has provided financing to support 139 non-Annex I Parties in the preparation of their INCs.

107. In April 2004, an umbrella project implemented jointly by UNDP and UNEP was approved by the GEF Council for USD 58.4 million to fund the second national communications for 130 non-Annex I

[66] FCCC/CP/2006/3 and FCCC/SBI/2007/14.
[67] Following decisions 6/CP.8 and 17/CP.8, these guidelines are no longer valid for obtaining GEF funding.
[68] See GEF project database available at: <http://gefonline.org/home.cfm>.

Parties using an expedited process. An amount of USD 1.68 million is being added to the umbrella project to provide funding to four additional non-Annex I Parties that requested such funding. As at July 2007, about 110 countries had received assistance to undertake stocktaking in preparation for their NC2. In addition to providing direct funding to Parties for preparing their national communications, the GEF also provides technical support through the NCSP. The NCSP, phase II, is currently assisting 106 countries in preparing their NC2.

108. According to the revised GEF climate change strategy, enabling activities will continue to be financed by the GEF, as national communications represent an obligation of non-Annex I Parties under the Convention. As national communications from non-Annex I Parties are presented on a five-year cycle, the UNDP/UNEP umbrella project will cover the needs of most countries during GEF 4. However, the strategy document points out that action will be required to ensure that adequate and timely support for third and subsequent national communications is made available to countries requiring it. The GEF stated that it will ensure that it keeps Parties well informed of available funding support, and of any changes to funding procedures with respect to the preparation of national communications.[69]

2. <u>Resources necessary to assist developing countries in meeting their needs for enabling activities</u>

109. It is difficult to assess the amount of resources required to assist developing countries in meeting their needs for enabling activities as these activities, in addition to national communications, have typically included some preliminary capacity-building steps to address a new agreed area of work for the GEF. The cost of funding third and subsequent national communications will depend largely on the guidelines for preparing national communications that Parties have yet to discuss.

110. The CGE underlined the need to link support for the preparation of national communications with broader issues at the country level in its recent reports and surveys, specifically, in its report on the examination of 41 INCs[70] and its survey on financial and technical support for the preparation of national communications and individual country evaluations of the national communications preparation process. These assessments indicate that there is a strong argument for refocusing and/or expanding the training agenda, in particular to ensure consistency between the outcomes of the national communications and national sustainable development plans or strategies.[71]

111. The report of the CGE on the examination of 41 INCs also concluded that, in the context of mitigation, it was necessary to establish and maintain institutional arrangements to ensure that GHG abatement measures identified are consistent with national sustainable development goals and that, in the context of vulnerability and adaptation, it was necessary to facilitate and promote the adoption of reliable measures within development programmes to cope with climate change. In the same document, the CGE noted that in producing national communications, activities were constrained by the lack of effective coordination among the different ministries involved and limited awareness among policymakers, a problem that would be mitigated by greater awareness of the relevance of climate measures.

112. OPS3 concluded that whereas assistance for INCs has tended to focus on helping countries meet their reporting obligations under the Convention and has generally not resulted in projects that can be taken forward through the GEF, the NC2 represents an important opportunity for countries to develop a national strategy that includes consideration of mitigation and adaptation elements. This should be taken into account in the context of efforts to identify sectoral and project priorities relating to climate change.

[69] See document cited in footnote 17 above.
[70] FCCC/SBI/2006/4.
[71] FCCC/SBI/2007/6.

E. Capacity-building

113. **COP guidance on support to capacity-building** is contained in decisions 11/CP.1, 11/CP.2, 2/CP.4, 10/CP.5, 11/CP.5, 2/CP.7, 3/CP.7, 6/CP.8, 4/CP.9, 2/CP.10, 3/CP.10, 5/CP.10 and 4/CP.12.

1. Global Environment Facility funding for capacity-building

114. In its report to COP 12**,** the GEF reported that capacity-building has always been a critical element of GEF climate change projects, and, more generally, in almost all GEF activities.[72] A review undertaken by the GEF implementing agencies to assess the role of capacity-building in GEF projects found that GEF support for capacity-building activities in all its focal areas exceeded USD 1.46 billion as at June 2002.[73]

115. In addition, stand-alone capacity-building relating to climate change has been supported through **top-up capacity-building activities** for national communications developed in response to decision 2/CP.4.[74]

116. In October 2003, the GEF Council approved the **Strategic Approach to Enhance Capacity Building**, which includes four components: NCSAs; enhanced attention to capacity-building in regular GEF projects; targeted capacity-building within focal areas; and cross-cutting capacity-building, including country programmes for LDCs and SIDS.[75] According to the GEF, the NCSA action plan (the final stage of the NCSA process) is also expected to outline priority strategies and actions to, among other things, respond to decisions 2/CP.7 and 2/CP.10.[76] The GEF has provided more than USD 28 million to 127 countries to prepare NCSAs.[77] A programme in **follow-up to the NCSAs** has been initiated by the GEF to consider financing capacity-building projects that address national priority capacity needs identified in the NCSAs.[78]

117. Capacity-building within civil society has also, according to the GEF in its report to COP 12, remained an important element of GEF support through the GEF **SGP** and the World Bank competitive grant programme Development Marketplace, to which the GEF has provided financial support.

118. Support is being provided to GEF national focal points to enable them to involve stakeholders in efforts to address climate change and other global environmental challenges. The **GEF Country Support Programme** is a capacity-building project that is being implemented to provide support to GEF focal points for activities relating to: training, outreach and information sharing; strengthening country level coordination to promote genuine national ownership of GEF-financed activities; and facilitating active involvement of recipient countries and interested government and civil society stakeholders.

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[72] FCCC/CP/2006/3, paragraph 39.
[73] FCCC/CP/2006/3, paragraph 39.
[74] GEF. 1999. "Operational guidelines for expedited financing for (interim) measures for capacity-building in priority areas". Available at: <http://www.gefweb.org/Documents/Enabling_Activity_Projects/documents/opeguide.pdf>.
[75] GEF. 2005. "Progress on the implementation of the GEF strategic approach to capacity development". Available at: <http://www.gefweb.org/Documents/Council_Documents/GEF_C27/documents/C.27.Inf.12ProgrerssontheimplementationonCapacityDevelopment.pdf>.
[76] FCCC/CP/2005/3, paragraph 53.
[77] See GEF project database available at: <http://gefonline.org/home.cfm>.
[78] FCCC/CP/2005/3, paragraphs 54–56.

119. The GEF secretariat is also developing **indicators for measuring impacts of capacity-building activities** in collaboration with its Evaluation Office and implementing agencies and the UNFCCC secretariat.[79] Overall, beyond the NCSA process, according to the GEF, support for capacity-building is integrated in all the projects it sponsors as a key sustainability strategy.[80] The ongoing thematic evaluation by the GEF Evaluation Office on this issue is likely to shed more light on the most effective approaches taken by the GEF in that respect.

2. Resources necessary to assist developing countries in meeting their capacity-building needs

120. Capacity-building needs cut across all sectors in climate change mitigation and adaptation.

121. The reports from the subregional consultations conducted in the context of the GEF National Dialogue Initiative[81] have also highlighted that capacity-building continues to be a significant priority for non-Annex I Parties, although no clear estimates are provided with respect to financial resources required to address these capacity needs.

122. **With regard to mitigation**, many Parties reported in their TNAs and INCs insufficient human and institutional capabilities and financial resources to prepare mitigation project proposals for funding, including the identification and development of CDM projects. Many Parties mentioned the need for better institutional arrangements to facilitate data collection and analysis. All indicated the need for further capacity-building and human resource development to prepare national communications. Parties also indicated the need to improve the capabilities of national climate change coordinators and national institutions to manage climate change programmes. Some Parties expressed the need to improve research and systematic observation through capacity-building in scientific research.

123. **In adaptation**, many Parties identified in their TNAs and INCs the need for capacity-building in human resources development, institutions, methodologies, technology and equipment, and information and networking. Participants of the regional adaptation workshops and expert meeting recognized the need for strengthening environmental and sectoral institutions (in particular, existing regional centres and hydrometeorological networks), establishing regional centres of excellence and developing training for stakeholders to aid the development of specialized tools for planning and implementing adaptation activities. Parties also reported insufficient human and institutional capabilities and financial resources to formulate and prepare adaptation project proposals for funding. Some Parties expressed the need to improve research and systematic observation through capacity-building in scientific research, particularly in modelling. Overall, participants of the regional adaptation workshops and expert meeting called for a long-term programmatic and comprehensive approach in activities that provide external support to capacity-building.

124. **The LDCs** submitted several NAPA priority activity proposals in capacity-building to address immediate adaptation needs. These activities included upgrading meteorological services, exploring options for insurance to cope with more frequent or more severe climatic disasters, research on drought-, flood- and saline-tolerant varieties of crops, and raising awareness and disseminating information on emergency preparedness to vulnerable communities.

F. Public awareness and outreach (activities under Article 6 of the Convention)

125. COP guidance on support for public awareness and outreach (Article 6 activities) is contained in decisions 11/CP.1, 2/CP.4, 6/CP.7, 6/CP.8, 11/CP.8, 4/CP.9 and 3/CP.12.

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[79] More details are provided in document FCCC/SBI/2006/22.
[80] FCCC/CP/2006/3.
[81] See “Draft notes on subregional consultations”. Available at: <http://cfapp2.undp.org/gef_dialogue/recommend/index.htm> .

1. Global Environment Facility funding for public awareness and outreach

126. The GEF, in its report to the COP at its twelfth session, noted that "all GEF projects – from enabling activities to full-size investment projects – typically include elements of public awareness and outreach."[82] However, it is not possible to quantify the amount that might have been dedicated to such activities under the GEF.

127. By its decision 3/CP.12, the COP urged the GEF, taking into account previous relevant decisions, to continue its work in improving access to opportunities for funding Article 6 activities.

128. The five-year mandate for the execution of the New Delhi work programme on Article 6 of the Convention (decision 11/CP.8) comes to an end in December 2007. The secretariat has prepared a comprehensive review[83] of the extent of implementation of the New Delhi work programme, outlining key developments since its inception, gaps and needs as well as opportunities identified by Parties in planning for and implementing related activities, and assessing its effectiveness in supporting the implementation of Article 6. The lack of financial and technical resources has been identified as the major impediment for non-Annex I Parties in their attempts to adequately implement climate education and outreach activities.

129. In the context of the New Delhi work programme, five regional workshops were organized by the UNFCCC secretariat with a view to sharing experiences and further developing and implementing climate change education and outreach activities. During discussions at these workshops, it was recognized by representatives from Latin America and the Caribbean and from Asia and the Pacific that greater clarity and a more coherent approach is needed in the process of the GEF and its implementing agencies relating to funding Article 6 activities, including for the preparation of national communications.[84] Participants at the workshops also recognized that there is no special arrangement for funding specific activities under Article 6 of the Convention, and requested the GEF and other potential donors to consider enhancing financial resources for climate outreach.

2. Resources necessary to assist developing countries in meeting their needs relating to public awareness and outreach

130. The review of the implementation of the New Delhi work programme referred to in paragraph 128 above provided information on what Parties see as needs and priority areas relating to public awareness and outreach.[85]

131. During the regional workshops it was agreed that while, in some instances, a national climate change committee could contribute to developing and supporting Article 6 activities, the creation of a dedicated outreach unit would better ensure that Article 6 activities are coordinated and occur in a timely manner. At a minimum, the appointment of an Article 6 national focal point is recommended. Owing to lack of institutional capacity, many environment ministries are stretched by the need to service several international processes. Most non-Annex I Parties therefore carry out efforts to address climate change and activities relating to Article 6 within the framework of other national environmental and sustainable development projects.

132. Parties emphasized the importance of building partnerships (between ministries, the media, business and industry, and civil society organizations) and networks to implement education and outreach activities. In particular, the key role of local authorities and NGOs for promoting access to

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[82] FCCC/CP/2006/3, paragraph 50.
[83] FCCC/SBI/2007/22.
[84] FCCC/SBI/2006/17.
[85] FCCC/SBI/2007/22.

information and public participation was stressed; it was suggested that adequate resources should be made available to NGOs to support their activities and networks, as well as to national authorities in charge of providing information.

133. Education and training (formal and non-formal) was acknowledged during the regional workshops as the main instrument to ensure sustainable development for the future. Support is needed to develop professional training packages on GHGs, vulnerability and adaptation, mitigation assessments and TNAs. Educational and training needs would include: the development of curricula; the development and publishing of educational and study materials on climate change; and the establishment of information networks and education centres.

G. Addressing the impact of the implementation of response measures (Article 4, paragraph 8(h), of the Convention)

134. **COP guidance on support for activities addressing the impact of the implementation of response measures** is contained in decisions 5/CP.7, 6/CP.7, 7/CP.7, 1/CP.10 and 1/CP.12.

1. Global Environment Facility funding for activities addressing the impact of the implementation of response measures

135. The GEF, in its report to the COP at its twelfth session, mentioned that much of the assistance provided by the GEF for renewable energy projects has supported R&D and the use of, renewable energy, highlighting opportunities for **diversification of supply in the energy sector**. During the 15-year history of the GEF, funding for renewable energy has been growing steadily. Some of these projects were based in countries with economies that are highly dependent on income generated from the production, processing and export of fossil fuels.[86]

136. The GEF also reported to the COP at its twelfth session that it has followed the upsurge of activities financed by Parties included in Annex II to the Convention (Annex II Parties) to explore the technological option of CCS, applied to large stationary sources of CO_2 emissions. The GEF stated that the STAP will prepare a report on this topic in 2007.[87]

137. In accordance with COP guidance, **the SCCF** will finance activities, programmes and measures relating to climate change that are complementary to those funded by (1) the resources allocated to the climate change focal area of the GEF and (2) bilateral and multilateral funding to assist developing countries whose economies are highly dependent on income generated from the production, processing and export, and/or on the consumption of, fossil fuels and associated energy-intensive products in diversifying their economies. In accordance with the COP guidance, the programme for economic diversification will initially target two groups of countries: (1) those whose economies are highly vulnerable due to their heavy reliance on the importation of fossil fuels; and (2) those whose economies are highly dependent on income from the export of fossil fuels.[88]

138. According to the GEF secretariat, the key funding for response measures under the GEF in the near future is likely to be under the SCCF funding window related to this issue, which proposes a phased approach, with capacity-building and technical assistance as a first step. The experience from this first phase is to be assessed by the COP at its fifteenth session, with a view to considering further guidance on how the fund is to support concrete implementation projects in a second phase.

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[86] FCCC/CP/2006/3, paragraph 35.
[87] FCCC/CP/2006/3, paragraph 36.
[88] See document cited in footnote 25 above.

139. However, pledges, and therefore funding from Annex II Parties for the new response measures funding window under the SCCF, have yet to materialize.

140. Based on the GEF document on programming to implement the guidance for the SCCF,[89] programmes and activities funded by the SCCF for economic diversification should be additional to those funded by the GEF Trust Fund, the LDCF and other multilateral and bilateral sources. Since achieving economic diversification may not result in global environmental benefits, demonstration of these benefits is not required. As such, additional costs for this programme can be defined as costs associated with the programmes and activities that are additional to the existing course of action and activities funded by other sources. The reasoning behind the additional cost in this programme thus relates to the catalytic and complementary role of the SCCF funding in relation to existing development funding.

2. <u>Resources necessary to assist developing countries in meeting their needs for activities to address the impact of the implementation of response measures</u>

141. Non-Annex I Parties with economies that are highly dependent on income generated from the production, processing and export of fossil fuels have been actively expressing their needs for activities to address the impact of the implementation of response measures, albeit without a costed assessment of those needs. Sources of information on this include outcomes of the expert meetings on response measures and economic diversification[90] in response to decision 1/CP.10, paragraph 16, and submissions by Parties of their views on the mitigation potentials and ranges of emission reduction objectives of Parties included in Annex I of the Convention (Annex I Parties).[91] Four INCs (from Islamic Republic of Iran, Saudi Arabia, Singapore and South Africa) also contain some information on this issue.[92]

142. Two main strategies in this regard have been identified under the Convention: **insurance and risk management, and economic diversification**. The first is believed to serve short-term goals whereas the second is considered as a long-term solution. Parties recognized a knowledge gap for both options.

143. Participants at the expert meeting on response measures also acknowledged the role of technology transfer. Proposed technological measures include developing low-cost CCS technologies, promoting renewable energy, developing low-GHG-emitting energy technologies and implementing energy efficiency measures. During the meeting, the following financial risk management approaches were identified: commodity price hedging; economic shock funds; commodity price insurance; alternative risk transfer; hedge funds; alternative risk financing; structured risk financing mechanisms; effective use of developed captive insurance, credit and political risk coverage; hybrid insurance products; and catastrophe bonds.

144. With regard to economic diversification, areas in need of technical and financial support include development of the key infrastructure necessary for economic activity; promotion of foreign direct investment; labour-intensive exports (manufacturing and services); access to markets in developed countries; price and ownership reforms in the energy-related industries; capacity-building; and activities and projects that promote synergy between poverty reduction, adaptation and economic diversification. Saudi Arabia reported that it would require assistance from Annex I Parties in the areas of power generation, desalinization of seawater, expansion of the petrochemical industry and education in order to diversify its economy.

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[89] See document cited in footnote 25 above.

[90] Reports on the pre-sessional expert meeting on response measures and the pre-sessional expert meeting on economic diversification are available as documents FCCC/SBI/2006/13 and FCCC/SBI/2006/18.

[91] FCCC/KP/AWG/2007/MISC.1.

[92] The four INCs are available at: <http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php>.

IV. Conclusions – issues for consideration regarding the review of the financial mechanism

145. The replenishment of funds in the GEF depends on voluntary contributions from donors. The GEF Trust Fund contributions follow a pre-defined basic burden share. The amount of funding under the GEF after 2010 will depend on negotiations on the fifth replenishment of the GEF (GEF 5). The trustee will probably need to start making arrangements for GEF 5 in 2008. Negotiations and conclusion on GEF 5 should occur in 2009.

146. The LDCF and the SCCF are also voluntary funds but are managed separately and follow different arrangements for replenishment from those of the GEF Trust Fund.

147. The COP should start the fourth review of the financial mechanism at its thirteenth session. As part of this review, the COP is expected to make an assessment of the amount of funds necessary to assist developing countries and provide an input into decisions on GEF 5.

148. As highlighted in the background paper on investment and financial flows, ODA resources at their current level represent a small fraction of the resources needed by non-Annex I Parties to meet their mitigation and adaptation needs. The role of the financial mechanism as a source of funding has been mainly as a catalyst for leveraging finance and investments to adaptation and mitigation activities.

149. Under its current reform, the GEF has been focusing on the creation of enabling environment, testing new and innovative approaches, and facilitating private investments, including those with carbon financing components. The GEF is now experimenting with the concept of thematic bundling of projects from different countries. This programmatic approach has been receiving positive feedback from recipient countries.

150. This document has highlighted the level of resources that might be necessary in the medium term to assist developing countries in meeting their commitments under the Convention over the next GEF replenishment cycle and the potential areas to focus on based on reports by Parties on their challenges and priorities in accessing resources for: adaptation; mitigation; development and transfer of technologies; preparation of national communications; capacity-building; public awareness; and activities addressing the impacts of response measures.

151. **On mitigation**, the background paper concludes that globally USD 200–210 billion in investment and financial flows from all sources (private and public, domestic and international) will be needed in 2030 to bring GHG emissions back to current levels. About USD 65 billion will be needed in developing countries alone. While currently most of the investment in mitigation measures is domestic and private, ODA plays an important role in developing countries, in particular in Africa and the LDCs. With appropriate policies or incentives, a substantial part of the additional investment and financial flows needed could be covered by the current sources. Additional external funding for climate change mitigation will, however, be needed, particularly for sectors in developing countries that depend on government investment and financial flows. If the funding available under the financial mechanism of the Convention remains at its current level and continues to rely mainly on voluntary contributions, it will not be sufficient to address the future financial flows estimated to be needed for mitigation.

152. The World Bank, in its CEIF action plan, also concludes that there will be a need to scale up GEF resources to support mitigation in order to address climate change. The World Bank and the GEF secretariat estimate that the current level of GEF funding of mitigation should be increased by a factor of three.

153. **On adaptation**, according to the background paper, the additional global investment and financial flows from all sources (private and public, domestic and international) needed to adapt to climate change by 2030 could be amount to tens of billions of United States dollars by 2030. A significant share of the additional investment and financial flows will be needed in non-Annex I Parties (USD 28–67 billion). While private sources of funding can be expected to cover a portion of the adaptation costs in some sectors, additional external public funding will be needed for adaptation measures. Such additional funding will be needed in particular for sectors and countries that are already highly dependent on external support, for example in the health sector in LDCs, or for coastal infrastructure in developing countries that are highly vulnerable to sea level rise. Current mechanisms and sources of financing are limited and it is likely that new sources of funding will be required. While the Adaptation Fund under the Kyoto Protocol, for which institutional arrangements and operationalization are being currently negotiated, may have the potential to cover part of the needs for financial flows, it alone would not be sufficient.

154. The World Bank also indicates that scaling up and mainstreaming adaptation work will be a challenge that will require significant financial support from grants and ODA, over and above current levels.

155. At the thirteenth session of the COP, when considering the issue of the level of funding that the financial mechanism should provide as support to developing countries under the fourth review of the financial mechanism, Parties may wish to consider:

(a) Priority areas for funding under GEF 5, the SCCF and the LDCF and what additional guidance is needed, if any;

(b) Practical ways for scaling up the level of resources and making the most efficient use of available resources under the financial mechanism;

(c) The complementarities and potential overlap between the following types of support:

(i) The various funds for adaptation in view of the three adaptation funding windows that are currently operational under the GEF and of the forthcoming operationalization of the Adaptation Fund;

(ii) Support for mitigation activities under the GEF Trust Fund and the SCCF;

(iii) Support for development and transfer of technologies under the GEF Trust Fund and the SCCF;

(iv) Support for activities addressing impacts of response measures under the GEF Trust Fund and the SCCF;

(d) Ways to improve the complementarity of the financial mechanism with other sources of investment and financial flows for mitigation and adaptation to climate change.

156. Given the concerns raised by Parties regarding the financing of the third and subsequent national communications and the RAF, Parties may wish to recommend that these issues be considered both in the Fourth Overall Performance Study of the GEF and in the negotiations leading to GEF 5;

157. Other issues that may be highlighted as part of the review of the financial mechanism and for possible appraisal by the GEF could include:

(a) Progress made in strengthening the GEF adaptation portfolio in view of growing needs for adaptation support expressed by Parties, and progress made in fully adhering to the GEF guidance on this issue;

(b) The impact of the new focal area strategies on leveraging private sector investment to address adaptation and mitigation needs of non-Annex I Parties;

(c) The effectiveness and sustainability of different approaches and efforts to support technology development and transfer, capacity-building and public awareness and outreach;

(d) Efforts towards programmatic and sectoral approaches at the GEF, in particular the relationship in practice of programmatic and sectoral approaches to country needs and priorities and the effects that these approaches could have on the effectiveness and efficiency in the operation of the financial mechanism;

(e) Impacts of the RAF on the prioritization of and synergies between actions at the national and regional levels (including synergies with the national communication processes);

(f) Progress made in the implementation of reforms of operational matters and how the financial mechanism has responded to gaps and to criticisms voiced in the OPS3 and by Parties.

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