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Financing climate change adaptation in developing countries: Current picture and future possibilities

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List of Abbreviations

AF	Adaptation Fund
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CMP	Conference of the Parties serving as the Meeting of the Parties to the Protocol
ETS	Emission Trading Scheme
FDI	Foreign Direct Investment
GEF	Global Environment Facility
GHG	Greenhouse gas
IATAL	International Air Travel Adaptation Levy
IET	International Emissions Trading
IMERS	International Maritime Emission Reduction Scheme
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
LDC	Least Developed Country
LDCF	Least Developed Country Fund
NAPAs	National Adaptation Programmes of Action
ODA	Official Development Aid
OECD	Organisation for Economic Co-operation and Development
SBI	(UNFCCC's) Subsidiary Body on Implementation
SCCF	Special Climate Change Fund
SIDS	Small Island Developing States
SPA	(the GEF Trust Fund's) Special Priority on Adaptation
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change

1. Introduction

From its inception, the international climate policy effort has predominantly been focused on mitigation, i.e. on reducing greenhouse gas emissions to prevent climate change. The concept of *adapting* to climate change has, on the other hand, received less attention. This is partly due to the 'local' nature of adaptation, as opposed to the global scope of mitigation efforts (Anantram and Noronha 2005: 2). Moreover, the benefits of adaptation are not as easily measured – they can't be counted as CO₂-equivalents, as in the case of mitigation (ibid.). There has also been some reluctance towards giving attention to the adaptation issue, for fear that it would be seen as a signal of 'giving up' on combating climate change.

At this stage, however, there is little doubt that climate change is happening and that it will pose significant challenges in many countries – irrespective of mitigation efforts. According to the most recent report of the Intergovernmental Panel on Climate Change (IPCC), there is "high agreement and much evidence that with the current climate change mitigation policies (...) global GHG emissions will continue to grow over the next few decades" (IPCC 2007a: 6). According to the United Nations Human Development Report (UNDP 2007), mitigation will only start to make a difference from around 2030 onwards, and even under a best-case scenario, temperatures will continue to increase until around 2050 (ibid.: 166). This means that at least until 2050, "adaptation is a 'no-choice' option" (ibid.).

This choice is, however, easier for some than for others. The harm associated with climate change – and hence the need to adapt – falls unevenly between countries. The poorest countries will be hit the hardest (Hasselknippe 2004; UNDP 2007). Africa, with a large majority of the Least Developed Countries (LDCs), is one of the most vulnerable continents to climate change (IPCC 2007a: 11, 2007b: 13). Also Small Island Developing States (SIDS) and countries in Asia and Latin America are at special risk (ibid.). These are countries with few resources to adapt and with little historic responsibility for the climate change problem. As such, they have a strong case when calling for adaptation aid from more developed countries. This is also explicitly recognized in the United Nations Framework Convention on Climate Change (UNFCCC), which requires developed countries to assist developing countries "that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse affects" (UNFCCC 1992: article 4).

The funding of adaptation measures in developing countries is the key focus of this report. The report has been commissioned by Norwegian Church Aid (Kirkens Nødhjelp), with the aim of (i) mapping the estimated needs for adaptation funding in developing countries, (ii) presenting the status and 'delivery' of the current financing efforts at the multilateral level, and (iii) pointing to some of the possible alternative mechanisms that can be implemented in order to generate additional adaptation funding.

Of course, it should be acknowledged that mere financing represents only a part of what is needed in order to adapt to climate change. Effective adaptation measures also depend on a series of other factors such as information, institutional capacity, technology, transparency and political stability. In this report, however, we cannot go into all these issues. We will not discuss what constitutes 'good' and 'bad' adaptation measures, nor will we discuss the traditional issues of aid effectiveness. Instead, we will limit and concentrate our study to the mere issue of *generating funding for adaptation*, presupposing that the funding in any case represents an important prerequisite for successful adaptation in the world's most climate-vulnerable regions. Though much of the funding is still disbursed as official development aid (ODA) at the bilateral level, our focus in this report will be on the *effort made at the international level* – i.e. on the multilateral funds established under the UNFCCC and the Kyoto Protocol.

The report is organised as follows: first we describe the nature and scale of the adaptation challenge in developing countries, presenting the range of numbers that have been put on the table to estimate the developing countries' actual need for adaptation

funding. Subsequently, we present the current status of adaptation funding – how much money is currently being channelled through the multilateral adaptation funds. We give particular attention to the Kyoto Protocol’s Adaptation Fund, due to the potential size of this fund, and due to the political difficulties that have been hampering its functioning thus far. Thereafter, the report points to some of the possibilities that lie ahead in terms of generating additional adaptation funding. We present the main proposals that have been forwarded thus far: increasing the current CDM adaptation levy, or expanding it so that it also covers the other flexibility mechanisms such as the Joint Implementation mechanism (JI) and Emissions Trading (ET); applying adaptation levies on bunker fuelled transports; funding adaptation through carbon taxes; and using revenues from auctioning of emission permits. All of these alternatives are presented in brief, the purpose being primarily to give the reader a quick overview of some of the possible options that exist. The specifics or the feasibility of each proposal are left largely unexamined, as such assessments go beyond the scope of this report. Finally, in the last chapter we conclude and summarize the report’s key findings.

A brief note on the report’s empirical basis: we draw on a wide range of existing work and analyses – the Fourth Assessment Report of the IPCC (2007a; 2007b), the UNFCCC’s report on investment and financial flows (UNFCCC 2007a), the UNDP Human Development Report (UNDP 2007), various World Bank reports (World Bank 2006a; 2006b), and other relevant studies. To supplement this background of information with first-hand data on the subject, a series of interviews have been conducted with actors holding in-depth and issue-specific knowledge on the various aspects of international adaptation funding (for an overview of the interviewees and their formal positions, see the appendix).

The reader should keep in mind that the subject studied in this report is developing rapidly. Multilateral financing of adaptation measures is continuously being discussed – both at academic and political levels – and new ideas and new proposals are surely emerging ‘as we speak’. Thus, it stands to reason that this report can only give a ‘snap shot’ of the field – a presentation of its current status and its possible developments in the near future.

2. Adapting to climate change

2.1 The concept of adaptation

What is adaptation? The IPCC defines it as an “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC 2007c: 6).¹ Whereas the principle aim of greenhouse gas mitigation activities is to *reduce the amount of climate change* that is likely to be encountered, adaptation activities are intended to *reduce the adverse impacts* that a given amount of warming will cause (Fankhauser 1998: 1). Adaptive responses can range from the purely technological ones (such as sea defences and monitoring- and early warning systems), through behavioural responses (such as altered food and recreational choices), to managerial (e.g. altered farm practises) and to policy responses (e.g. planning and building regulations) (IPCC 2007b: 19). In sum, the adaptation term covers a wide range of human activities. Their common ‘denominator’ is protection of society from nature, while mitigation efforts aim to protect nature from society (Stehr and von Storch 2005).

Some of the key concepts in the adaptation vocabulary are explained in table 1.

¹ The reader should know, however, that there are a large number of other definitions of adaptation as well. For an overview and discussion of some of these definitions, see for instance Schipper (2007: 4-6).

Table 1. Adaptation: the key concepts.

Climate Change

Climate change in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This is different from the usage in the UNFCCC, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability.

Adaptation

IPCC defines adaptation as an “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”

Adaptive capacity

Adaptive capacity is essentially the ability of societies to adjust to climate change *on their own*. In other words, it refers to the ability to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Vulnerability

Vulnerability refers, broadly speaking, to the ability to cope with climate change: the higher the ability to cope, the less vulnerable. Poor countries, particularly in Africa, Asia and small island states are among the most vulnerable to climate change. This relates both to the risk relating to the natural conditions in these countries, and also to their general low adaptive capacity.

Sources: (IPCC 2007b: 21; UNDP 2007; McGray, Hammil, and Bradley 2007: 7).

2.2 The scale of the adaptation challenge

The international community has made slow progress in identifying and articulating concrete financial adaptation needs in developing countries. This is perhaps not surprising, considering that the actual need for adaptation is highly dependent on global mitigation efforts. The less we are able to mitigate, the larger the challenge of adaptation. However, the scale of the challenge is also difficult to assess *irrespective of mitigation*, because it is so closely connected to other developments such as economic growth, population growth and other human developments (UNFCCC 2007a). It will depend on non-climate related stresses such as poverty, conflict and spread of diseases as well as on institutional and political factors such as transparency and stability (IPCC 2007b: 19).

In spite of these complex and uncertain factors, some initial estimates of the potential adaptation costs have been put on the table:

- The World Bank’s (2006a) estimate concludes that the costs of adapting to climate change in developing countries are likely to be between US\$ 10-40 billion a year (ibid.: 9). This figure is based on the estimated proportion of ODA, foreign direct investment (FDI) and domestic investment that is sensitive to climate change.
- Oxfam International (2007), taking into account a broader range of costs, estimates the figure to be over US\$ 50 billion a year (ibid.:22).
- Christian Aid goes further and predicts that the annual adaptation costs could be double this figure, reaching US\$ 100 billion (ibid.: 23).
- The UNDP’s Human Development Report (2007) indicates that a total of US\$ 86 billion will be required for adaptation by 2015 (ibid.: 15).

- The UNFCCC (2007a) has confined itself to the wide-ranging estimate of US\$ 28-67 billion which will be needed for adaptation in developing countries in 2030 (ibid.: 8).

The estimates of the cost of adaptation in developing countries are summarized in table 2.

Table 2. Estimated costs of adaptation in developing countries.

World Bank	US\$ 10-40 billion (annually)
UNFCCC	US\$ 28-67 billion (in 2030)
UNDP	US\$ 86 billion (by 2015)
Oxfam International	US\$ 50 billion (annually)
Christian Aid	US\$ 100 billion (annually)
Sources: The World Bank (2006a: 9), the UNFCCC (2007a: 8), the UNDP (2007: 15), and Oxfam International (2007: 22-23).	

As the table clearly shows, the gap between the worst and best case scenario is huge. The discrepancy is partly due to varying methods of calculation and varying cost bases (UNFCCC 2007a: 97-99). In addition, the variation in estimates also reflects the complexity and uncertainty related to the assessment of the exact costs of adaptation.

No matter which figure one chooses to rely on, however, the message is clear: there is a vast need for adaptation funding in developing countries. Developed countries have, as mentioned above, made legal commitments under the UNFCCC to help provide such funding; developed countries are required to assist developing countries “that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse affects” (UNFCCC 1992: article 4). How is the international community currently coping with this obligation? What is the status and the ‘delivery’ of the financial mechanisms established under the UNFCCC?

3. Financing adaptation – the current picture

The funding available for adaptation in developing countries flows mainly through two channels: bilateral, official development assistance (ODA) and multilateral adaptation funds. Acknowledging that most of the funding for adaptation still comes from ODA, this report will nevertheless concentrate on the *multilateral* adaptation effort made under the UN regime.

Four adaptation-related funds have been established at the international level. Three of them are established under the UNFCCC – the Global Environment Facility (GEF) Trust Fund’s Strategic Priority on Adaptation (SPA),² the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). The fourth, the Adaptation Fund (AF), has been established under the Kyoto Protocol, meaning that only the countries that are party to the Protocol have access to the fund and potential influence on its governance. We will present all of the funds in detail in the following sections.

² To be precise, the SPA is not a ‘UNFCCC fund’ in that it is not subject to direct UN guidance. For reasons of simplicity, we will in this report still speak of the SPA as a ‘Convention fund’ similar to the LDCF and the SCCF, since it was established as a response to an UNFCCC request.

3.1 The multilateral adaptation funds

The Strategic Priority on Adaptation (SPA): The SPA, which became operational in July 2004, was created as a response to the UNFCCC request to the GEF to finance pilot adaptation projects (Global Environment Facility 2005). Its objective is to “increase the resilience and adaptive capacity of those ecosystems and communities vulnerable to the adverse effects of climate change. Projects must focus on reducing vulnerability to climate change impacts as their primary objective” (UNDP 2008a). The fund is financed through a GEF Trust Fund, which has earmarked US\$ 50 million over a 3-year period for a wide range of pilot projects. The SPA bases its eligibility criteria on the principles of the GEF Trust Fund, including the criteria concerning global environmental benefits (Global Environment Facility 2005: 1). This means that projects will be eligible under the SPA only if their benefits are considered to be global in nature – a characteristic which is differs from the other funds under the UNFCCC. To date, US\$ 28 million of the earmarked funds have been allocated to the SPA. About half of these have been disbursed to concrete projects (Global Environment Facility 2007a). Examples of the projects that have been approved under the SPA are the ‘Implementation of Pilot Adaptation Measures in Caribbean Coastal Areas’, and ‘Integrating Vulnerability and Adaptation to Climate Change into Sustainable Development Policy Planning and Implementation in Southern and Eastern Africa’ (for a more detailed project list, see annex 1 of Klein and Möhner 2008).

The Least Developed Country Fund (LDCF): The LDCF has been in operation under the GEF since 2001. Its purpose is to “support the (a) preparation of National Adaptation Programmes of Action (NAPAs) for identifying urgent and immediate adaptation needs in Least Developed Countries; and (b) implementation of NAPAs” (UNDP 2008b). The NAPAs are essentially national priority lists, describing the projects that are most urgently in need of funding. The LDCF relies on voluntary contributions; at the time of this writing, eighteen countries³ have pledged contributions to the LDCF (Global Environment Facility 2007b). The total amount pledged is US\$ 163,3 million (ibid.). However, only about 12 million has actually been allocated and disbursed to implementing agencies (ibid). Thus far, the most concrete output from the fund has been the 31 completed NAPAs (UNFCCC 2008a; see also the UNDP 2007: 188).⁴

The Special Climate Change Fund (SCCF): The SCCF, also administered by the GEF, has been operational since 2005. Its purpose is to “implement long-term adaptation measures that increase the resilience of national development sectors to the impacts of climate change. Projects must focus on long-term planned response strategies, policies, and measures, rather than short-term (reactive) activities” (UNDP 2008c). Like the LDCF, it relies on contributions from developed countries for funding. So far, thirteen countries⁵ have pledged money to the SCCF, totalling US\$ 70 million (Global Environment Facility 2007b). Of this, about US\$ 57 million is specifically earmarked for adaptation (UNDP 2007: 188). About US\$ 6 million has thus far been disbursed to implementing agencies

³ Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom have, when writing pledged contributions to the LDCF (Global Environment Facility 2007b).

⁴ The countries that, when writing, have completed their NAPAs are: Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cape Verde, Comoros, Djibouti, Eritrea, Guinée, Guinea-Bissau, Haïti, Kiribati, Lesotho, Madagascar, Malawi, Mali, Mauritania, Niger, Congo, Rwanda, Samoa, Sao Tome and Principe, Sénégal, Sudan, Tanzania, Tuvalu, Uganda, Vanuatu, and Zambia (UNFCCC 2008a).

⁵ Canada, Denmark, Finland, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom have, at the time of this writing, pledged contributions to the SCCF (Global Environment Facility 2007c).

(Global Environment Facility 2007b). Among the projects that have been approved under the SCCF are various water governance projects such as the 'Adaptation to Climate Change through effective Water Governance' in Ecuador, and the 'Coping with Drought and Climate Change' projects in Ethiopia, Mozambique and Zimbabwe (for a detailed project list, see annex 2 of Klein and Möhner 2008).

Adaptation Fund (AF): The AF was created under the Kyoto Protocol and not the UNFCCC. The fund's purpose is to "finance concrete adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol" (UNFCCC 2008b). What really separates the AF from the other funds, however, is its income scheme. In essence, the fund is financed through an international private sector tax. More specifically, its funds come from a two percent levy on Clean Development Mechanism (CDM) transactions.⁶ This means that the fund is not contingent upon aid from donors. It also means that the scale of the fund will depend on the volume of the CDM market and on the price of CDM credits. This of course makes it difficult to estimate the fund's potential value. The World Bank (2006b) has estimated that about US\$ 100–500 million will be available from the fund by 2012 (World Bank 2006b: 40). The UNDP (2007) goes further and estimates that the fund could reach US\$ 950 million by the same year (UNDP 2007: 189). After this, much depends on the continued functioning of the CDM and the global carbon market. Both the World Bank and the UNDP, however, expect the fund to grow exponentially after 2012.

Such a scenario is still a few years ahead, however. The adaptation fund has yet to finance any concrete adaptation projects, as its governance structure was not finally agreed upon until the end of 2007, a subject to which we shall return in section 3.2 of this report.

Table 3 summarizes the current status of the multilateral adaptation funds.

⁶ Under the CDM, parties with a greenhouse gas reduction commitment can invest in projects "abroad", i.e. in non-Annex I countries, as an alternative to what is generally considered more costly emission reductions in their own countries. In return for this, the investor is entitled to so-called emission credits, which can then either be used to comply with ones own emission targets, or they can be sold with a profit on the emissions trading market.

Table 3. The multilateral adaptation funds.

Fund	Goal	Pledged (US\$m)	Received (US\$m)	Disbursed (US\$m)
SPA	Funds pilot projects that address local adaptation needs and generate global environmental benefits	50	28	14.8
LDCF	Implementation of most urgent adaptation projects in LDCs, based on NAPAs.	163.3	52.1 ^a	12
SCCF	Funds activities aimed at adaptation as well as three other purposes: technology transfer, economic diversification, and support in key sectors.	70	53.3 ^a	6
AF	Funds concrete adaptation projects in developing countries that are particularly vulnerable to the adverse effects of climate change	--	--	--
		Total: 283.3	Total: 133.4	Total: 32.8

^a These numbers are taken from UNDP Human Development report (2007). All other figures are according to Global Environment Facility (2007a; 2007b).

All in all, the record is as follows: by April 2008, actual multilateral financing delivered by the funds set up under the UNFCCC and the Kyoto Protocol has reached a total of US\$ 133.4 million – less than half of what has been pledged, and further still from the billions that are estimated as needed, even according to the most moderate cost estimates. Of course, one should bear in mind that the figures presented here do not represent the whole picture. Bilateral ODA is, as mentioned, not taken into account. Nevertheless, it has been widely acknowledged that the funding currently delivered for adaptation in developing countries is not adequate (UNFCCC 2007a). The estimated needs for funding are simply not being met by supply.

However, adaptation in developing countries is not only being hampered by a shortage of funding. Concrete action has also been delayed due to institutional difficulties in the relations between the recipient countries and the management of the funds⁷ (Author's interviews. See also Müller 2006b; Tuvalu Government 2007: 8). These 'difficulties' are well illustrated by the case of the Kyoto Protocol's Adaptation Fund, which we will take a closer look at in the following section.

⁷ It should be noted that varying availability of adaptation projects ready to be implemented 'on the ground' also adds to the factors which have hampered concrete adaptation progress in developing countries (see for instance Klein and Möhner 2008).

3.2 The history of the Kyoto Protocol's Adaptation Fund

The history of the Adaptation Fund starts in 2001, when the fund was established as part of the Marrakech accords⁸ (UNFCCC 2001). In these accords, it was decided that the AF should "finance concrete adaptation projects" in developing countries, that these projects were to be financed from a "share of proceeds on the clean development mechanism project activities and other sources of funding", and that "an entity entrusted with the operation of the financial mechanism of the Convention" should manage and operate the fund (ibid.: article 1, 2, 4). Apart from these immediate agreements, however, most of the provisions regarding how the fund actually should function and how it should be operated, were unfinished business – and would remain so for some years.

The fact that the Kyoto Protocol was not yet in force was of course a first obstacle hampering the process. Without a functional Protocol, there was in essence no legal framework regulating the fund. However, the Protocol coming into force in 2005 would not alone get the fund up and running. There would still be governance disagreements that needed to be resolved before the fund could become effective. The main point of contention was the Washington-based Global Environment Facility (GEF) (see table 4), and whether this institution should function as the operator of the fund.

Table 4. The Global Environment Facility (GEF).

- The Global Environment Facility (GEF) is an independent financial institution established at the Rio Summit in 1992. It grants financial support to projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.
- The GEF serves as the financial mechanism for the United Nations Framework Convention on Climate Change (UNFCCC). As such, it operates the SPA, the LDCF and the SCCF.
- The 32 member GEF Council approves all GEF-governed adaptation projects. The Council's voting procedure is 'mixed', meaning that it requires a 60 percent majority of the total number of participating States, as well as a 60 percent majority of the total amount of contributions made to the GEF. In other words, a majority of both member countries and donor countries is required to carry a vote – essentially giving veto power to the largest donor countries. It should be noted that so far there has never been a vote in the GEF Council.

Sources: Global Environment Facility (2008), Müller (2007), and Boisson de Chazournes (2006).

The GEF had already been given the responsibility for operating the UNFCCC's adaptation funds when the debate over the AF started, and thus most developed countries considered it to be only natural that the GEF would be operating the AF as well (Author's interviews). However, at the first Conference of the Parties serving as the Meeting of the Parties to the Protocol (CMP) in Montreal in 2005, developing countries saw it differently. They criticised the GEF, claiming that the procedures for preparing funding requests to the GEF were too complicated, that the GEF was dominated by donor interests and that developing countries had too little representation in the GEF Council (see Müller 2006a:

⁸ The Marrakech Accords is the term of the agreement which settled the rules of the implementation of the Kyoto Protocol.

23ff). With the AF revenues being generated in developing countries (through the CDM), there was also a strong sense that this was 'their money' and that the AF should therefore be governed differently from the other funds. Some pointed to the governance structure of such institutions as the Montreal Protocol Fund or the CDM Executive Board⁹ as possible models for the AF (Author's interviews. See also Müller 2006b).

The debate continued at the UNFCCC's Subsidiary Body on Implementation (SBI) meeting in Bonn in May 2006, though without much progress. Both groups held on to their positions, seemingly without any intention to back down. The EU, for instance, argued that "we are not using our and the institutions' resources efficiently if we request information on how to operationalise the adaptation fund from institutions other than the GEF" (transcript of the EU statement during the May 2006 SBI meeting, as quoted by Müller 2006b: 1). Briefly, there was a large amount of distrust between the parties. In fact, the atmosphere was sarcastically summarized at the end of the Bonn meeting, when Saudi Arabia wished to "highlight to the plenary, and to our partners, and to everyone here, how *very, very* constructive [all] this has been for building trust between non-Annex I and Annex I countries" (ibid.).

The first signs of improvement came during the informal consultations which were held as a prelude to the CMP negotiations in Nairobi in 2006. Among these consultations was a seminar organised in Oxford by the Fellowship Programme of the European Capacity Building Initiative. This seminar brought together a number of leading EU and developing country negotiators and helped the parties "go into listening mode" and to realize that a continuation of the "institution-centred [GEF] debate would not be fruitful" (Müller 2007: 4).

On this background, the Nairobi session in 2006 could finally deliver some positive results. Two key principles for the governing of the AF were settled: for one, the voting procedure was to be different from the procedure in the UNFCCC funds, where the largest donor countries essentially have a veto power (see the third point in table 4). In the governing of the AF, there would be a one-country-one-vote procedure, essentially giving developing countries the majority (UNFCCC 2006: article 3; see also Müller 2007: 5). The second key principle settled in Nairobi was that the AF should function "under the *authority* and guidance" of the CMP (UNFCCC 2006: article 1(e), emphasis added). This also rendered the AF different from the Convention funds, which are merely subject to 'guidance' from the Convention, and not to its binding decisions (Müller 2007: 4). In other words, the AF would remain under stronger political control than the other funds.

The final bits and pieces of the AF puzzle were resolved at the Bali session in 2007. Once again, key progress was made before the actual session, in informal pre-session consultations. During these consultations, the G77 and China signalled a clear willingness to compromise; they still wanted a GEF-independent board with majority representation from developing countries. However, they could be flexible on the other parts of the governance arrangement; more specifically, "developed countries could have their GEF and their World Bank fill the more subordinate functions" – i.e. the secretariat and the trustee functions (Author's interviews). This compromise proposal was by no means easy to swallow – not for developing countries and not for the most eager pro-GEF countries. On one hand you had parties which didn't want the GEF involved at all, not even in a 'subordinate function'; on the other you had parties which were deeply sceptical to the idea of a completely new governing entity. However, knowing that the alternative was yet another unresolved session, and yet another year before the fund could become operational, it was decided that this was the better deal. It was decided that "this time we'll succeed; this time we'll actually deliver" (ibid.).

⁹ The Montreal Protocol Fund is governed by an executive committee which secures equal representation for industrialised and non-industrialised countries (seven members each), with equal voting weight for all members of the committee. The same principle applies for the CDM Executive Board, which consists of one member from each of the five United Nations regional groups, two members from the Annex I-countries, two members from non-Annex I countries, and one representative for the small island developing States. Also here, all members have equal voting weight.

And so they did. A final agreement on the AF was adopted on 14 December in Bali (Earth Negotiations Bulletin 2007). The decision entailed a completely new operating entity, i.e. the Adaptation Fund Board. This was to have a majority of its members from developing countries, and special seats for each of the two main recipient groups, the Group of Least Developed Countries, and the Alliance of Small Island States (UNFCCC 2007b). The voting procedure for the board was somewhat changed from that which had been decided in Nairobi, so that instead of following a one-country-one-vote procedure, the board would follow a 'one member (of the board)-one-vote' procedure (ibid.: article 12). In practice, however, developing countries' retained their majority by the constituency representation on the board. The change was primarily a call for a more efficient solution, where decisions could be made without having to confer with each of the Protocol's member countries (Author's interviews). A consensus was envisaged, and if not reached then a two-thirds majority would be necessary to carry the vote.

The GEF and the World Bank were given the functions as secretariat and trustee, respectively. Both were to serve temporarily, however; their roles were to be reviewed after three years of function. This interim provision was of major importance to many developing countries. It was their 'safeguard clause' without which many never would have accepted a GEF secretariat at all (ibid.).

Finally, it was decided that all Parties should have direct access to the funds (UNFCCC 2007b: article 29). More specifically, any organization or any government could apply for funding directly, without having to go through GEF's traditional implementing agencies such as the World Bank, UNDP, or UNEP. In principle, civil society organizations could be eligible for funding provided that they were recognized by the AF board and that they meet the board's criteria for financial responsibility. Also this was a major victory for developing countries, which for long time had criticised the GEF funds for being difficult to access. According to the South African Minister who led the final stages of the negotiations on behalf of the G77 and China, it had been an aim "to ensure that this Fund will be exempt from the decision-making procedures of the GEF", and to give developing countries "a more direct and equitable" say in how the funds would be prioritised and spent (AllAfrica 2007).

All in all, the final outcome on the AF could be regarded as a good one for developing countries. They succeeded in establishing a GEF-independent board with majority representation of developing countries; they managed to 'reduce' the GEF and the World Bank roles to an interim secretariat and an interim trustee; and finally, they secured more direct access to the funds. Although it took some time to reach an agreement, it seems the political legitimacy of the decision turned out all the better. The final solution was one that most countries on both sides of the 'GEF-divide' could live with. The ones who initially had feared a *completely* new governance structure for the fund were reassured by the familiarity and the experience of a well-known secretariat and trustee. The ones who had feared a blueprint of the governance structure of the Convention funds, got something quite new.

What happens next? When can the AF actually begin to deliver funding for concrete adaptation projects? As it turns out, it might take some time. First of all, the AF board, which had its first official meeting in March 2008 (Adaptation Fund Board 2008), will have to establish their final rules of procedure before any real projects can be approved. Second, the funds generated by the CDM credits purchased so far will have to be monetized. Today these funds remain in the form of so-called certified emission reductions (CERs, or CDM credits), administered by the World Bank, and they will have to be sold on the emissions trading market before any real money can flow into the fund.¹⁰ Thus, the first AF project approvals might not be seen before the end of the year, perhaps not before 2009.

Already at this stage, however, there are interesting rumours 'floating around' as to what the future might hold for the multilateral adaptation funds. Some have suggested – so far only informally – that the various funds somehow should be merged (Author's interviews. See also the Tuvalu Government 2007: 5). More specifically, it has been

¹⁰ Of course, voluntary government contributions can provide additional capital to the fund.

predicted that the Convention funds will become redundant now that the AF is up and running, and that the funds therefore should be merged into the AF, which by all prophecies will become the largest (Author's interviews). Some say that the aim should be to make the AF *the* solution for multilateral adaptation financing (ibid.). After all, this fund has a great advantage in relation to the other funds in that it generates money automatically, without having to rely on politically unstable pledges and contributions. The need for adaptation measures in developing countries renders automatic financing necessary – because, as one of our informants put it, “lets not be blue-eyed – nobody really *wants* to give money to adaptation. We won't meet the needs on a voluntarily basis. Adaption money will have to come from *automatic* mechanisms, like in the Adaptation Fund” (ibid.). Some have also pointed to the somewhat overlapping nature and mandate of the multilateral funds, and that it might be more effective to compile the finances into one streamlined fund (ibid.). However, such ideas have not yet materialised into specific, formal proposals. Moreover, they have been met with reluctance from many developing countries, who feel that their chances of securing funding are better safeguarded by having more than one fund (ibid.).

Whatever happens, it seems clear that there will be quite some time before the multilateral funds start to deliver the billions that have been estimated as the cost for adapting to climate change in developing countries. Even with the AF up and running, there will probably still be a considerable gap to be covered. It is thus necessary to consider additional ways to generate adaptation funding for the countries most vulnerable to climate change. This is the object studied in the following chapter of the report.

4. Financing adaptation – the future picture

A number of proposals on how to generate additional funding have been put on the table. Throughout this chapter, we will present some of these proposals in brief. The purpose is primarily to give the reader a quick overview of some of the options that exist, even if they are in need of further development and exploration. We will not go into the specifics of each proposal, nor will we discuss in depth their potential political feasibility. More work will have to be done on most of the proposals before such assessments can be made.

4.1 Extending the CDM adaptation levy

One of the proposals that has been forwarded for the purpose of increasing the funding for adaptation, is to extend the current CDM adaptation levy. For one, the levy could simply be increased in order to quickly boost the financial flows into the Adaptation Fund. This has recently been proposed by Pakistan, among others, which suggested an increase of the levy from its current two percent level to three to five percent (UNFCCC 2008d: 15). The CDM levy could also be extended so that it covers the other carbon-trading mechanisms such as the Joint Implementation mechanism (JI) and International Emissions Trading (IET). Such a broadening of the adaptation levy has been proposed several times by developing countries, albeit always with some opposition from developed countries. According to estimates by the UNFCCC, this extension could generate about US\$ 10-50 million a year by 2010 (UNFCCC 2007a: 186).

The most apparent quality of these proposals lies perhaps in the fact that they might actually be feasible, considering that the institutional framework for a CDM levy is already in place. Moreover, the proposals expand an automatic instrument for financing adaptation, generating more money without having to rely on voluntary pledges and contributions. The key challenge for the proposals is no doubt the opposition they have spurred from developed countries, which are reluctant to put additional costs on

emissions trading. In more general terms, the proposals could be challenged for creating financial disadvantages for climate change mitigation. In this regard, Müller (2006a) has posed an opportune question: "Would it not seem more rational to put such a levy on *emitting* greenhouse gases rather than on activities to *reduce* them?" (Müller 2006a: 25, emphasis added). This is the line of thinking incorporated in such proposals as putting a levy on bunker fuels, using revenue from carbon taxes, or using revenue from auctioning of emission permits. These proposals are presented below.

4.2 Adaptation levy on bunker fuels

Bunker fuel emissions fall roughly into two categories, namely from marine transport and from air travel. There are good economic reasons for imposing levies on both categories, as shown by the International Air Travel Adaptation Levy (IATAL) proposal (confer Müller and Hepburn 2006), and by the proposal of an International Maritime Emission Reduction Scheme (confer IMERS 2008). Both schemes incorporate a dual aim: to put a levy on bunker-fuelled transport in order to reduce emissions (mitigation), and to raise finances from this levy for developing countries (adaptation). According to Müller and Hepburn (2006), an air travel levy could raise a significant amount of funding; a modest levy of € 5 per flight ticket would manage to raise € 10 billion a year (ibid.: 9). A similar proposal has also been put forward by the Tuvalu government in their 'International blueprint on adaptation' proposal (Tuvalu Government 2007). They suggest a 0,01 percent levy on international airfares and maritime transport operated by Annex II nationals, and a 0,001 percent levy if the transport is operated by Non Annex I nationals (ibid.: 6). At present, no estimates are available on the amount of revenue the Tuvalu proposal could generate.

Besides the obvious advantage of the dual aim of these proposals (mitigation and adaptation), they also have the quality of generating funding *automatically*, like the levy on the flexibility mechanisms. Moreover, the proposals have been raised to high level discussions both at the CMP in Bali and in the International Maritime Organization (IMO) (see IMERS 2008; Tuvalu Government 2007). Nevertheless, much remains in terms of putting in place an international policy framework for the actual implementation of such schemes.

4.3 Funding adaptation through carbon taxes

Carbon taxes of some kind are, unlike the international schemes for a bunker-fuel levy, already in use in many countries including Norway, Sweden, Finland, Germany, the Netherlands, and the UK. They have also been proposed and hotly debated in other countries, including New Zealand, Japan, Australia, Canada, the USA, and as an EU-wide measure. Carbon taxes not only spur mitigation, they also generate funding. Instead of using the revenues gained for solely national purposes, a percentage of the revenue could be used to finance adaptation in developing countries. Such measures may no doubt potentially generate substantial funding. On the downside, however, national carbon taxes will be sensitive to political changes, and they will thus be more likely to run the risk of being terminated in the face of recessions – or elections. The funding generated will remain 'national money', meaning that countries perhaps will be more likely to use them for domestic purposes rather than sending them 'overseas'.

An *internationally* governed carbon tax could perhaps avoid such problems. An international carbon tax scheme has been proposed by, among others, the Swiss Federal Office for the Environment, which during the 2007 Bali negotiations issued a report titled "Global Solidarity in Financing Adaptation" (UVEK 2007). In this report, the Swiss call for a global carbon tax which could generate tens of billions of dollars annually, part of which could then "flow into a global Multilateral Adaptation Fund" to help nations cope with global warming (ibid.: 6). Also NGOs like Oxfam International and Practical Action have spoken out for a global carbon tax in order to generate adaptation funding (Oxfam 2007; Practical Action 2007).

4.4 Revenues from auctioning in Emission Trading Schemes

An alternative approach, though with parallels to the carbon tax idea, is to generate adaptation funding by means of auctioning emission permits. More specifically, the emission permits used and traded in carbon markets can be auctioned and (part of) the money raised can be channelled to adaptation purposes. This has recently been proposed by, among others, the European Commission (2008). In its climate and energy package launched in January this year, the Commission proposed that an increasing part of the emission permits distributed under the EU Emission Trading Scheme (ETS) should be auctioned, and that part of the revenues from this auctioning should "go towards helping developing countries adapt to climate change" (ibid.). The Commission estimates that the revenues from such auctioning could amount to € 50 billion a year by 2020 (ibid.). If international aviation and shipping were to be included under the Kyoto Protocol, auctioning emission permits to these sectors as well could generate an additional US\$ 22 billion a year by 2010, increasing to 35 billion in 2030 according to UNFCCC estimates (UNFCCC 2007a: 204).

A similar proposal has been made by the Norwegian Minister of Finance, Kristin Halvorsen, at the Bali CMP session in 2007. She suggested an approach where a small portion of the national emission quotas could be withheld at the international level, to subsequently be auctioned by an "appropriate international institution" (UNFCCC 2008c: 50-51). The resulting revenues could then be placed into "a fund to be used on adaptation actions or other specified purposes such as technology development" (ibid.). It was predicted that "even a small percentage of auctioning would generate a large source of finance" (ibid. See also Norwegian Government 2007).

These proposals have the same inherent qualities as the carbon tax proposals. Moreover, they are being seriously discussed at high political level, though not yet implemented. Of course, they are dependent on continued functioning of the carbon market and emissions trading post-2012, when the Kyoto Protocol's first trading period expires. However, an international scheme for such redistribution could potentially produce a stable source of financing for adaptation. The same goes for a *national* scheme, though such an approach would carry with it the same risk as the national carbon taxes, i.e. that the funding generated would be likely to be regarded as 'national money' rather than money for adaptation in developing countries.

4.5 Summary of the proposals

The above mentioned proposals are among those most frequently put on the table when discussing the issue of how to generate additional funding for climate change adaptation in developing countries. They are summarized in brief in table 5.

Table 5. Proposals to strengthen the financing of adaptation.

Proposal	Features
<i>Extending the CDM adaptation levy</i>	Increasing the CDM levy, and/or broadening it so that it also covers JI and IET.
<i>Adaptation levy on bunker fuels</i>	Put adaptation levy on the use of bunker fuels, i.e. on maritime and airborne transport.
<i>Funding adaptation by carbon taxes</i>	Using revenues from national carbon taxes for adaptation funding.
<i>Using revenues from auctioning of emission permits</i>	Using revenues from the auctioning of emission permits in emission trading schemes to fund adaptation.

As mentioned, most of these proposals are in need of further development – both in terms of technical, economic and political issues – before any detailed assessments of their potential feasibility can be made. The reader can find some details, however, by consulting Srinivasan (2006), Practical Action (2007), Oxfam (2007), and Müller (2006a), among others.

There are of course other proposals regarding financing of adaptation measures, besides the ones listed in table 5. For instance, proposals regarding the possible redirecting of fossil fuel subsidies are often put forward, not least from various NGOs. These subsidies constitute no small amount: the World Bank has estimated the world fossil fuel subsidies to be more than US\$ 230 billion (Global Subsidies Initiative 2008). If such support was ended, some of the revenue raised could be redirected and channelled towards financing adaptation in developing countries. Not only could such a change entail substantial amounts of money for adaptation purposes, it would also have a positive mitigation effect, in that fossil fuel production would decrease. Among the NGOs that have advocated putting an end to fossil fuel subsidies, is the *new economics foundation* (new economics foundation 2004: 6). Whether such a scenario is plausible in the short time perspective required by the adaptation challenge, we will leave for others to discuss.

5. Summary and conclusions

In this report, we have (i) mapped the estimated needs for adaptation funding in developing countries, (ii) presented the status and 'delivery' of the current financing efforts at the multilateral level, and (iii) pointed to some of the possible alternative mechanisms that can be implemented in order to generate additional funding.

As we have seen, climate change will, irrespective of our mitigation efforts, demand adaptation in most parts of the world. However, the greatest challenge will be for developing countries. These are countries with little historic responsibility for the climate change problem – and with generally fewer resources to adapt. Yet, the resources needed are significant, ranging from US\$ 10-100 billion a year. Of course, such wide-ranging numbers are hampered by numerous uncertainties and complexities, as it is difficult to assess the exact cost of adaptation. No matter which figure one chooses to

rely on, the picture is clear: the need for funding for adaptation measures in developing countries is significant.

Developed countries have made legal commitments under the UNFCCC to help provide such funding; they are required to assist developing countries "that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects" (UNFCCC 1992: article 4). Thus, four multilateral adaptation funds have been established at the international level: (i) the Global Environment Facility (GEF) Trust Fund's Strategic Priority on Adaptation (SPA), which finances pilot adaptation projects if their benefits are considered to be global in nature, and which is not subject to direct guidance from the UNFCCC (unlike the others); (ii) the Least Developed Countries Fund (LDCF), which aims to help identify the urgent and immediate adaptation needs in Least Developed Countries and to implement their National Adaptation Programmes of Action (NAPAs); (iii) the Special Climate Change Fund (SCCF), focuses on implementing long-term adaptation measures and pro-active strategies rather than short-term (reactive) activities; and finally, (iv) the Adaptation Fund (AF), whose purpose it is to finance concrete adaptation projects in developing countries that are Parties to the Kyoto Protocol. The AF is financed through a two percent levy on Clean Development Mechanism (CDM) transactions, whereas the three other funds are all dependent on voluntary pledges.

So far, the output of these funds is as follows: by April 2008, actual multilateral financing delivered by the funds set up under the UNFCCC and the Kyoto Protocol has reached a total of US\$ 133.4 millions – only half the amount that has been pledged (US\$ 283.3), and far short of the estimated needs. Of course, these figures do not cover the whole picture. Bilateral ODA has, as previously pointed out, not been taken into account in this report. Moreover, there is varying availability of adaptation projects ready to be implemented 'on the ground'. Nevertheless, it seems clear that the funding currently delivered is not adequate. Even with the AF up and running, a fund which has been predicted to reach between US\$ 100-500 million in 2012 by the World Bank – US\$ 950 million by the UNDP – much still remains before the multilateral funds can start to deliver the billions that have been estimated as necessary to meet the adaptation costs in developing countries.

Concrete adaptation progress has also been hampered by institutional and political difficulties between recipient countries and the management of the funds. The operationalizing process of the Adaptation Fund described in this report demonstrates a strongly felt mistrust amongst many developing countries against the GEF and its implementing agencies, resulting in years of delay in the operationalization of the AF and, ultimately, in the creation of a completely new governing entity for the fund. The process has been a contentious and time-consuming one, but it may have been necessary in order to secure a more politically legitimate governance structure for the fund. It remains to be seen what the concrete results of the new governance structure will be, as the AF board has just started setting up its rules of procedure and has not yet funded any concrete adaptation projects. Its future performance will surely be interesting, however. Even more so considering the informal suggestions that have been made regarding a possible 'merging' of the other funds into the AF.

Whatever the development of the multilateral adaptation funds, the gap between their projected 'supply' and the estimated needs, has made it necessary to consider new and additional ways to generate adaptation funding. This report has presented some of the most important proposals that have been put on the table so far: increasing and/or extending the CDM adaptation levy so that it also covers the JI and the ET; applying adaptation levies on bunker-fuelled transport; funding adaptation through carbon taxes and using revenues from auctioning of emission permits. The purpose of this report has primarily been to give the reader a quick overview of the various options. Due to the scope of this report, and since the details of the proposals to a large degree still remain unfinished business, a more detailed assessment of the proposals is left for others to pursue. What is clear is that there is no shortage of potential sources of additional adaptation funding. Which of these sources may actually materialize into concrete and well-functioning funding schemes remains to be seen.

6. Appendix: The interviewees

Mr. Benito Müller:

Director (Energy & Environment) at the Oxford Institute for Energy Studies. Expert on multilateral climate change and adaptation negotiations. Interviewed by phone from Oslo, 20 February 2008.

Mr. Hans Olav Ibrekk:

Newly elected member (alternate) of the Adaptation Fund's Board. Also project manager of the Environmental Action Plan at the Norwegian Agency for Development Cooperation (Norad). Interviewed in Oslo, 13 February 2008.

Mr. Erik Bjørnebye:

Ambassador/Special Adviser on Environment, at the Norwegian Ministry of Foreign Affairs. Interviewed in Oslo, 6 February 2008.

Mrs. Martina Klenner:

European Commission, DG Environment. Climate Change Strategy unit. International negotiation and monitoring of EU Action. Interviewed in Brussels, 28 February 2008.

Mrs. Maria Lamin:

European Commission, DG Development. Environment and Rural Development unit. Interviewed in Brussels, 16 October 2007.

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