Adaptation financing

The history – why is the issue important?

Climate change is one of the all-encompassing global environmental changes likely to have deleterious effects on natural and human systems, economies, and infrastructure. Given that it has emerged as an urgent priority, prompting need for action, there is an urgent need that the concerns are incorporated/ addressed at all levels of decision-making. The risks associated with climate change, therefore, calls for a broad spectrum of policy responses and strategies at the local, regional, national, and global levels.

In the initial years of climate change research and negotiations, attention was focused on the reduction of emissions of GHGs (greenhouse gases) and enhancement of 'sink' options. It is now increasingly evident that irrespective of mitigation measures, climate change impacts will have to be faced, and there is an urgent need to build adaptive capacity to reduce vulnerability to climate variability and change.

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While there are many elements that can be researched on and discussed in the field of adaptation to climate change, one of the primary issues that still remains unresolved is the issue of financing, besides other relevant issues of technologies for adaptation, regulatory and policy incentives, and mechanisms for enhancing adaptive behaviour and capacity building. Even in case of financing, a number of issues are discussed in different platforms. This discussion paper presents a brief overview of the different issues under discussion in (and outside of) the negotiation process, highlights the status of debate over these issues, and presents some possible ways forward for each of the main issues.

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Adaptation and its financing under the Convention

Until recently, the issue of financing adaptation has lagged behind that of mitigation, despite the fact that adaptation issues in the UNFCCC's (United Nations Framework Convention on Climate Change) text have been referred to in the Objectives (Article 2), the Principles (Articles 3, 3.2, and 3.3), and the Commitments (Article 4), which specifically refer to…all parties taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives, and circumstances…shall formulate, implement, and publish national measures to

- facilitate adequate adaptation; and
- cooperate in preparing for adaptation to impacts.

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Article 4.3 allows for agreed full cost (new and additional financial resources) of preparing National Communications (under Article 12.1), to be funded by developed countries. The costs of implementation of adaptation measures and actions (Article 4.1), that is, agreed incremental costs, are to be borne by developed nations.

Article 11 defines a financial mechanism for the provision of financial resources on a grant or concessional basis, including the transfer of technology. The mechanism functions under the guidance of, and is accountable to, CoPs (Conference of the Parties to the UNFCCC). The responsibility has been entrusted with the GEF (Global Environment Facility)—the funding channel for developing countries under the UNFCCC.

More attention has been paid recently to adaptation issues at the various CoPs, and the profile of adaptation has palpably increased within the negotiation process involving the Marrakesh Accords at the CoP-7, the Delhi Declaration at CoP-8, which reaffirmed economic and social development and poverty eradication, and the Buenos Aires Programme of Work on Adaptation and Response Measures at CoP-10. A five-year Work Programme on Adaptation was agreed upon at CoP-11 in Montreal in 2005, which CoP, at its twelfth session, decided to rename as the 'Nairobi Work Programme on Impacts, Vulnerability, and Adaptation to Climate Change'. At CoP-13 in Bali, adaptation was highlighted as one of the most important elements of a long-term climate change agreement. Parties agreed to look at ways to enhance global action on adaptation, including international cooperation to support urgent implementation of adaptation actions, risk management and risk reduction strategies, and disaster reduction strategies. The Adaptation Fund,[1] which had been established under the Kyoto

[1] The Adaptation Fund was established under the Kyoto Protocol to finance concrete adaptation projects in developing country parties that are also parties to the Kyoto Protocol. The Fund is not dependent on voluntary contributions from donors but is filled by means of a 2% levy on projects for the Kyoto Protocol's Clean Development Mechanism.

Protocol, was made operational at the Bali CoP, and the governments agreed that a special Adaptation Fund Board representing developing and developed countries would supervise and manage the Adaptation Fund. Box 1 presents a summary of the major milestones for 'Adaptation Funding' in the negotiations under the UNFCCC.

The following sections provide a brief overview of the issues related to adaptation financing. These issues cover scale of funds, source of funds and the related question on who pays for adaptation, governance issues, and delivery mechanisms.

Scale of adaptation funds required

Available estimates are broad-based calculations and provide a wide range, from $0.6 billion to $86 billion.

The global costs and benefits of adaptation to climate change are difficult to establish, as the measures needed are complex and heterogeneous. Unlike mitigation, the performance of adaptation options cannot be measured and expressed in a single metric, for example, CO_2 equivalents, which makes it difficult to compare alternative adaptation options and consider potential trade-offs (Klein and Persson 2008). However, a number of organizations have recently published aggregate estimates of financial needs for adaptation, and these are presented in Table 1.

Available estimates are broad-based calculations and provide a wide range, from $0.6 billion to $86 billion. All these estimates are based on top-down methodologies. Moreover, these are not comparable, as each of these estimates has taken into account the need to adapt to certain risks, which are not/might not be in

Box 1 CoPs and adaptation funding issues

- *CoP-1 (1995, Berlin)* Guidance to the GEF (Global Environment Facility) on the Adaptation Fund.
- *CoP-4 (1998, Buenos Aires)* Provided a 'Plan of Action' and divided adaptation funding into three stages.
- *CoP-7 (2001, Marrakech)* Recognized the high vulnerability of some developing countries to climate change and the consequent need for adaptation, leading to the establishment of three new funds.
  1. *Special Climate Change Fund* Created under the UNFCCC (United Nations Framework Convention on Climate Change) for both mitigation and adaptation. Funding includes transfer of technologies and measures for climate-sensitive energy and transport, and is based on voluntary contributions from donor countries
  2. *Least Developed Country Fund* Created under the UNFCCC, which requires the preparation of NAPAs (National Adaptation Programmes of Action) and is based on voluntary contributions of donor countries.
  3. *Adaptation Fund* Created under the Kyoto Protocol, under which concrete adaptation projects are to be supported, but the financing will be primarily through a share of CDM (Clean Development Mechanism) projects. A Special Pilot Adaptation Fund of the GEF was created in July 2004, amounting to $50 million, for three years to support adaptation projects from the GEF Trust Fund.
- *CoP-13 (2007, Bali)* Operationalization of the Adaptation Fund under the Kyoto Protocol and Adaptation Fund Board to manage and supervise the Adaptation Fund.

Table 1 Estimates of global costs of adaptation

Study	*Date*	*Estimate* (US $ billion/annum)	*Basis*
World Bank	2006	9-41	Preliminary estimates of near-term 'climate proofing' needs in developing countries, incorporating % of ODA (Official Development Assistance) and Concessional Finance, FDI (foreign direct investment), and GDI (gross domestic investment).
Oxfam	2007	>50	Estimate of current adaptation costs and needs across all developing countries.
OIES (Oxford Institute Energy Studies)	2006	2–17	Estimates of current adaptation costs and needs across all developing countries, based on extrapolations of LDC (least developed country) *National Adaptation Programs of Action.*
UNDP (United Nations Development Programme)	2007	86	*Human Development Report* estimate of additional adaptation finance by 2015.
UNFCCC (United Nations Framework Convention on Climate Change)	2007	28–67 (Could rise to 100)	Investment flows needed in 2030 to meet adaptation requirements in various sectors, including agriculture, forestry and fisheries (14), water resources (11), human health (5), coastal zones (11), infrastructure (8–130).
IDA (Investment and Development Agency) replenishment	2007	0.6–1.9	% of IDA resources needed to climate proof its interest-free loans and grants (6%–21%, based on Stern Review 2006).

Source Wikiadapt (compiled by wikiadapt, based on different sources)

alignment with each other. In addition to the costs of adaptation, there will also be likely costs incurred in managing the residual climate impacts, which will occur regardless of improved adaptation efforts. These costs are only factored into the HDR (*Human Development Report*) estimates. These estimates have also been called 'guesstimates' because of the high level of uncertainties associated with their methodologies.

Funds actually available (funding deficit)

Climate change adaptation is supported through different funds created under the Convention. The financial mechanism (GEF) manages these funds for supporting adaptation and mitigation under the Convention.

The GEF Trust Fund was established in 1994, which followed an approach based on different stages: Stage one supported assessments and support for the national communication process; Stage two provided assistance for capacity building; Stage three involved support for adaptation activities on the ground, including insurance. As part of its expansion in operations in 2001, the GEF initiated the SPA (Strategic Priority on Adaptation) Fund.

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The SPA was considered ground-breaking at the time, as most multilateral and bilateral organizations had limited themselves to funding only research, assessment, and screening tools, stopping short of on-the-ground adaptation. To date, the GEF has allocated $50 million through the SPA.

The SCCF (Special Climate Change Fund) finances a number of different activities, top among them being adaptation. Adaptation funds under the SCCF go towards activities that increase resilience to the impacts of climate change by establishing pilot or demonstration projects to show how adaptation planning and assessment can be translated into practical projects and mainstreamed.

The LDCF (Least Developed Country Fund) aims to address the immediate adaptation needs of least developed countries, or LDCs. It prioritizes adaptation and enables the countries to develop NAPAs (National Adaptation Plans of Action) and submit concrete adaptation projects to the GEF and, thus, qualify for assistance in addressing the immediate and urgent adaptation needs, as identified by the NAPA. The LDC in question must complete a NAPA before it can access LDCF to finance the implementation of the adaptation actions identified.

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Table 2 An overview of the quantum of funds pledged and actually received under the LDCF (Least Developed Country Fund) and SCCF (Special Climate Change Fund)

	LDCF (million dollars)		*SCCF* (million dollars)	
Countries	*Pledged*	*Received*	*Pledged*	*Received*
Australia	6.7	0.0	0.0	0.0
Canada	6.5	6.5	5.2	5.2
Denmark	19.6	8.2	3.3	3.3
Finland	3.7	3.7	1.6	1.6
France	15.0	4.5	0.0	0.0
Germany	54.8	19.5	6.7	3.9
Ireland	4.6	4.6	0.6	0.6
Italy	1.0	1.0	5.0	0.0
Japan	0.25	0.25	0.0	0.0
Luxembourg	4.1	2.1	0.0	0.0
The Netherlands	16.1	6.6	3.1	3.1
New Zealand	2.5	2.5	0.0	0.0
Norway	4.5	4.5	5.4	5.4
Portugal	0.06	0.06	1.3	1.3
Spain	1.0	1.0	1.3	1.3
Swedan	0.9	0.9	3.3	3.3
Switzerland	1.4	1.4	1.5	1.5
UK	20.3	0.0	18.6	18.6
Total	163.3	67.3	57.1	49.3

Source GEF. Only contributors to the Programme for Adaptaton are counted under the SCCF. Number may not sum to total due to rounding off.

Adaptation Fund, established under the Kyoto Protocol, made operational at the Bali CoP is considered more promising and predictable (as it is based on a market mechanism and not on the discretionary nature of voluntary contributions) than other existing funds but may not still be adequate. The estimated value of the fund is currently around $70 million (UNFCCC 2008a). Considering the amount of CDM projects in the pipeline, this figure will rapidly increase to an estimated $80–300 million during the period 2008–12. However, clearly, it is not substantially greater than the SCCF or LDCF and nowhere near the quantum of funds required for adaptation in next few years. And, if the CDM continues post-2012, the levy could raise anywhere between $100 million and $5 billion a year by 2030, depending on the level of demand in the carbon market (UNFCCC 2007).

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At the UN Climate Change Conference in Poznañ, countries will consider extending the share of proceeds to the Joint Implementation and Emissions Trading (UNFCCC 2008a). Estimated funding potential of extending the share of proceeds to other flexible mechanisms, such as Joint Implementation, range from $25–130 million to $3.5–8.5 billion per year, depending on whether the levy is to be applied on transferred units or issued units (UNFCCC 2008b).

Therefore, while Article 4.3 in the UNFCCC well iterates the need for adaptation funding in developing countries, the current level of funding is inadequate to meet the requirements. Though the estimated potential funding figures imply a substantial advance on current finance, it may still be far too little and far too late to meet the scale of finance required. There have been proposals and requests from various countries time and again to explore the need for 'new' financial mechanisms under the UNFCCC, which supports adaptation in developing countries.

Who should pay for adaptation?

It is well understood that differential potentials exist across regions, communities, and individuals to cope with climate-induced changes; for example, the potential of the Netherlands and Bangladesh in coping with sea-level rise. Differential vulnerabilities and adaptive capacities give rise to the issues of 'equity' and 'justice'. Present-day need for adaptation to the risks of climate variability and change emerges as a result of previous actions perturbing the global climate system. Historically, these actions have resulted from anthropogenic activities largely concentrated in developed nations. Hence, the whole issue of adaptation needs to be seen in a larger context, based on the principles of common but differentiated responsibilities and polluter pays.

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The arguments put forth by developing countries are based on principles of 'polluter pays', 'historic responsibility', and 'common but differentiated responsibilities' and, thus, reiterate that 'current citizens of industrialized countries should inherit the environment debts of their ancestors and pay for adaptation' (Ecofys 2004). Some of the developed countries disagree with such an approach

and argue that the current generation did not participate in the decision-making of past generations, thus the current generation should not be responsible for something beyond their control. The 'Economies in Transition' have also brought in the principle of 'ability to pay' into the whole debate; for example, Communist countries have been heavy polluters in the past but may not be in a position to pay for historical pollution today.

Some researchers have attempted to integrate these different principles underlying the debate on who should pay for adaptation into different measures and indices for identifying responsibility and the scale of that responsibility. Examples of such measures are GDR (Greenhouse Development Rights) Framework of Ecoequity and Stockholm Environment Institute, and the AFI (Adaptation Financing Index) of Oxfam, which takes into account population size, measures responsibility based on a country's excessive CO_2 emissions per person since 1992, and also measures capability based on each country's current score in the UNDP's (United Nations Development Programme) Human Development Index. According to the AFI, of the 28 countries both responsible for and capable of financing adaptation in developing countries, the USA and the EU should contribute over 75% of the finance needed, with over 40% coming from the USA and over 30% coming from EU members; Japan, Canada, Australia, and the Republic of Korea should together contribute a further 20% of the finance, with Japan accounting for over half of this. Almost all the countries in the index are also classified as Annex II countries by the UNFCCC, that is, those that have agreed to provide finance for the costs of adapting to climate change in developing countries (Oxfam 2007).

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Different sources of raising financing for adaptation

It is clear that additional sources of finance will be required. Different proposals on different mechanisms have been made in the recent negotiations and meetings, which could generate additional resources to support adaptation in developing countries and meet other climate change financing needs—for example, carbon taxes; a passenger levy on international air travel; revenue from carbon-allowance auctions; transaction levies within national and global carbon-trading schemes; increasing and extending the CDM levy to other Kyoto instruments; and redirecting distorting fossil fuel subsidies. All these can be broadly classified into four broad categories (UN 2008), which are briefly discussed below.

It is clear that additional sources of finance will be required.

1 *Financial pledges* via general expenditure by national governments, without a specifically identified funding source. Pledges could be made unilaterally or be internationally coordinated, with each country raising revenues in normal way. An example of this is the Chinese proposal in which it is stated that in addition to existing ODA, developed countries shall annually provide financial support of no less than 0.5% of their total GDP (gross domestic product) to support actions by developing countries to address climate change in developing countries.

2 *Auctions of emissions allowances* as cap and trade systems emerge either by preassigning some of the revenue from permit (Assigned Amount Units, or AAUs) auctions as a funding source or pre-assigning a portion of AAUs. An example is the Norwegian proposal for the auctioning of AAUs as a means to generate financing.

3 *Levies on the carbon market* such as an extension of the levy on CDM credits (currently funding the Adaptation Fund) to, for example, Joint Implementation. A point of concern is that additional measures to secure adaptation financing from the carbon market must be managed in such a way that the regime is not undermined or international negotiations towards delivery of a Global Carbon Market are not hampered. Mobilizing adaptation finance through levies also has the advantage of providing an incentive to reduce emissions.

Each approach will need to be assessed according to its ability to meet adequacy, predictability, and additionality criteria established in the Bali Action Plan and some additional criteria considered.

4 *Global carbon tax mechanisms* The Swiss government has proposed a carbon tax, which is levied by each country according to its economic capacity and its responsibility for climate change. Other proposals include taxes on air tickets and bunker fuels. Levies on petrol, electricity supply, and emissions from the industry have also been suggested.

Some of the proposals, such as the Mexican proposal, have proposed a mix of one or more of the above approaches. Each of these mechanisms could raise significant international funds for adaptation year on year and by focusing on the most polluting industrial sectors, could also be compatible with broader national policy measures to cut GHG emissions (Oxfam 2007).

Each approach will need to be assessed according to its ability to meet adequacy, predictability, and additionality criteria established in the Bali Action Plan and some additional criteria considered important from a developing country perspective. These criteria are briefly discussed below.

- *Predictability* Article 4(3) of the UNFCCC states that the developed country parties must take into account the need for predictability in the flow of funds to the developing country parties. Decision 1 (e) of the 'Bali Action Plan' also calls for improved access to predictable financial resources and financial and technological support.

- *New and additional*' Both Article 4(3) of the UNFCCC and Decision 1(e) of the 'Bali Action Plan' call on developed country parties to provide 'new and additional' financial resources to support developing countries. This means that the funds donated must be over and above the ODA.

- *Adequacy* The funds must be adequate to meet the adaptation needs, that is, they should have the potential of amounting to tens of billions needed per year to finance adaptation throughout the developing world.

- *Appropriateness* Article 3(1) of the UNFCCC enshrines the principle of 'common but differentiated responsibilities and respective capabilities'. Under this principle, the UNFCCC recognizes that countries are responsible, to different extents, for the historical emissions, which are the cause of climate change. There is consensus among developing country parties that they are to receive financial support as 'compensation', and not as 'aid'. Therefore, neither voluntary grants nor reimbursable loans are acceptable, which would be in line with the 'polluter pays principle'. This principle is enshrined in the customary environmental law and holds that the polluting party must compensate for the damage done to the natural environment.

Mechanisms to generate resources that are independent from national budget decisions have a better 'performance' with regard to predictability, adequacy, and additionality.

- *Equitable* In accordance with the principle of 'common but differentiated responsibilities and respective capabilities', the burden of finance adaptation must be equitably shared amongst the parties. Equity, or fairness, is to be considered in terms of the respective payments required from different countries.

Mechanisms to generate resources that are independent from national budget decisions have a better 'performance' with regard to predictability, adequacy, and additionality. This is because they avoid the phenomenon coined as the 'domestic revenue problem' (Mueller 2008), which arises when money that is raised domestically, for example, through domestic taxation, is considered nationally owned, that is, taxpayers consider themselves to be entitled to the benefits of their contribution. The reluctance on the part of the citizenry to see their funds go out of the country and the implications of this reluctance for the national political situation make countries less likely to donate in a regular and predictable fashion. This is quite clear from the status of ODA flows that have been far from sufficient. Over the last few years, the share of the group of G7 contributing to nearly 73% of the ODA share has been below the DAC (Development Assistance Coverage) average.

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All other approaches (not related to pledges from domestic budget) satisfy the predictability and additionality criteria but fall short on the adequacy criteria. Levies on flexible mechanism transactions or the allocation of some fraction of global permits to an adaptation fund for sale on the global market are only partially fair, since the costs are paid by traders or purchasers, and not by emitters. Indeed, relative to the funding demand levels estimated, none of the discussed funding proposals would yield adequate adaptation funding on its own (Mueller 2008). According to Mueller (2008), the most promising candidates with regard to generating

significant levels of (international) revenue are the Norwegian proposal of an international auction of assigned amount units and some form of solidarity levy on bunker fuel activities, such as IATAL (International Air Travel Adaptation Levy)/IMERS (International Maritime Emission Reduction Scheme). Apart from having the potential to deliver adequate, new, additional, appropriate, and predictable funding for adaptation in developing countries, a combination of the Norwegian proposal and IATAL would have the additional benefit of addressing a fundamental equity problem, in that it would reflect the principle of common but differentiated responsibility and respective capability not only at the national, but also at the personal level (Mueller 2008).

Governance of the funds

The institutional structure and governance must be democratic and inclusive. Adaptation Fund Board constituted under the UNFCCC-Kyoto Protocol to manage the Adaptation Fund does attempt to address these issues, since it is represented by majority of developing countries, leading to greater ownership and decision-making powers.

Governance structures for funds so far have been largely administered by experts from industrialized nations, skewing decision-making processes. This has an impact on the prioritization and quality of projects selected, given the weak understanding of issues that underlie developing countries and their concerns. Therefore, for governance of adaptation funds, issues of developing country ownership in decision-making and transparency in documentation constitute essential elements. The process of decision-making should be made public.

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There are several multilateral adaptation funding mechanisms already in place – GEF and the two UNFCCC funds it manages and the more recently established Adaptation Fund. The World Bank Climate Investment Funds and the EU Global Climate Change Alliance will also soon be operational, and these too would provide prototypes of governance arrangements. Multilateral financial institutions can play an important role, but the regime should make sure that they do not dominate the decision-making process and do not result in atomization of funds. With a number of funds targeted at adaptation, avoiding duplication and bringing convergence to these mechanisms will be critical to coherent, efficient, and effective governance of financing adaptation to climate change. No new institutions/programmes are, however, required to facilitate this, and one could try and streamline these within the scope of existing institutions and frameworks that have been defined.

Delivery mechanisms

Delivery mechanisms refer to the criteria for allocating funds across different adaptation options – the criteria on the basis of which the funds could be allocated to different developing countries and modalities for disbursement of funds and the institutional mechanisms for the delivery of the adaptation funds could be established.

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Given that the amount of funding that can be realistically raised would most likely fall short of the amount of financing required for adaptation, the criteria for allocating funds across different adaptation options would have to take this deficit into consideration. Therefore, all adaptation projects cannot be funded fully and some co-financing model / framework (that is, part funding for adaptation provided from global adaptation funds and the rest would have to be contributed by the recipient of the adaptation funds) would have to be used.

One criterion for identifying the projects that would need full financing and projects that would need to adopt a co-financing framework is to consider nature of the goods and services that adaptation measures provide and their geographic reach. This was discussed in detail in TERI (2004). Here, the key issues and messages from that discussion are presented. Adaptation measures have both private and public interests in the nature of the goods and services that they provide. The case for using a public good[2] lens lies in the fact that with increased globalization, the lives of people are becoming more interdependent, and the global scene today is one where 'threats recognize no national boundaries, are connected, and must be addressed at the global and regional as well as the national levels' (UN High Level Panel on Threats, Challenge, and Change, December 2004). Sandler, Kanbur, and Morrison (1999) provide the following categorization of public goods based on their geographical reach.

- *GPGs (global public goods)* have universal impacts on regions, socio-economic groups, and generations (inter and intra); for instance, the global climate system. Further, 'global' here means spanning all divides—border, sectors or groups of actors (Kaul, Conceicao, Goulven, *et al*. 2003).
- *RPGs (regional public goods)* convey benefits to the public of nations with adjoining borders; for instance, information dissemination systems on extreme events such as those relating to GLOFs (glacial lake outburst floods), landslides, and so on.
- *NPGs (national public goods)* largely convey benefits to the national public; for instance, education, health, and other material infrastructure.
- The spillovers/benefits of *LPGs (local public goods)* are substantially sub-national; for instance, access to various facilities and services in a particular region.

The global public goods could be fully funded through the global adaptation funds. The main challenge would be to ensure that there are no asymmetries in the use of global public goods, related to climate change adaptation, by developed and developing countries,

[2] Public goods are so termed if they satisfy the following two criteria - non-excludability (impossible to prevent access by all) and non-rivalry/competition in consumption (consumption by one does not preclude consumption by another).

especially where the public goods are not pure[3] public goods. For the regional public goods, a full cost model may not be appropriate, but a substantial proportion of their costs could be covered through adaptation funding, and the rest of the proportion could be contributed by the countries within the region.

In case of national public goods, in developing countries, challenges such as sustained economic growth, access to potable water, food security, sanitation, improved health status, and so on take precedence over climate change, as climate change is considered a long-term issue. Hence, the concept of *mainstreaming* – integration of policies and measures to address climate change into ongoing sectoral and development planning and decision-making – was proposed, so as to ensure long-term sustainability of investments as well as to reduce the sensitivity of development activities to current and future impacts of climate change. Therefore, national or local public goods or services call for a top-up to conventional development transfers. Such additional funding will, in fact, provide greater value for resources invested, as these will in a way be 'climate-risk-proofed' (TERI 2004). The top-up to conventional development transfers should ideally fund the 'additional' (over the baseline) adaptation burden posed by climate change. However, separating this 'additional' burden becomes difficult, especially in the absence of baseline development levels and given that the progress on overall development helps to build general resilience/ adaptive capacity. In such a scenario, too, co-financing models would have to be developed, wherein a certain proportion of the funding is received from the international adaptation funds, and the rest is contributed by the national or local authorities. This might also help allay the concerns of developed countries that in the name of adaptation, they would essentially be funding development for which the funding requirement may be so huge that they may not consider it worthwhile to undertake the effort.

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Some observations and way forward

Adaptation is a necessity, but assessments on adaptation requirements and costs associated with it are only broad-based calculations based on top-down methodologies. There is clearly a need for better and more bottom-up methodologies for estimating costs of adaptation, and more comprehensive and country-specific work is urgently needed to understand the additional costs of implementing climate-resilient development at a national level.

[3] It is important to discern between a 'pure' public good and an 'impure' public good. Impure goods are either club goods (non-rivalrous in consumption but excludable; for example, private schools, clubs, and so on) or common property resources (non-excludable, but rivalrous; prone to congestion) or collective (social) goods (can be delivered as private goods but are delivered by the government for various reasons; usually social policy).

The current sources of funding are woefully inadequate to meet the estimated requirements for adaptation even in the short term. Since adaptation costs are huge, a mix of pubic and private funding is to be promoted in the future climate regime. In the private sector, the economic sectors that have largely been responsible for GHG emissions could be particularly targeted.

Any future adaptation funding mechanism must be new and additional, equitable, and should result in sustained supply of finances.

The question of national burden sharing contributions to international adaptation funding is fraught with different debates based on the principles of polluter pays, common but differentiated responsibility, ability to pay, and historic responsibility. Developing countries view adaptation funding as compensation for harm imposed on them and, therefore, expect to be compensated by the Annex I countries for this. For this reason, the adaptation funding would have to be new and additional to the typical ODA-type transfers from developed countries, which usually have conditionalities associated with the use of funds. The way in which the adaptation funds are used at the national level should be an outcome of a country-driven national planning process and not of conditions attached with ODA-type transfers.

At present, all adaptation funding mechanisms, except the recently operationalized Kyoto Protocol Adaptation Fund, are replenished through ODA-type bilateral voluntary contributions/ donations, which are fraught with problems of unpredictability in supply of funds, inappropriateness (from the perspective of compensation for harm done), and not being new or additional. Support for adaptation is fundamentally different from assistance for development. Any future adaptation funding mechanism must be new and additional, equitable, and should result in sustained supply of finances. The question of adequacy of funds is unlikely to be addressed through a single approach to funding, and a mix of funding mechanisms and approaches will have to coexist. However, given that estimated potential funding from the innovative and new mechanisms is unlikely to meet demand in the short term, voluntary contributions on a significantly larger scale may be required as short-term solution – the difficult issue here is developing 'willingness to pay'.

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Majority of the discussion has focused on the source and size of funds till date. For effective financing for adaptation, it is critical to bring other issues of governance and delivery, too, on the discussion table. Mainstreaming adaptation and identifying win-win solutions could reduce financial costs; however, care must be taken that in the name of mainstreaming, the adaptation cost burden and, therefore, the fund requirement do not get diluted. Efforts need to be made to ensure that any international financial assistance for adaptation in developing as well as developed countries is directed towards the most vulnerable communities within those countries.

Principles of democratic and inclusive governance must be built in the structure and management of future funds. The funds managed by the GEF have been very successful on this score;

however, the recently operatonalized Adaptation Fund has addressed some of these governance issues. In addition, CoP must bring about clarity on the emergence and use of various bilateral and multilateral funds for adaptation, streamlining of these funds, and avoiding fragmentation of funding both within and outside the UNFCCC. Finally, it is important to bear in mind that adaptation will not be the only funding purpose in a future agreement. A coherent approach is needed to facilitate effective and efficient use of multilateral and bilateral aid, market-based instruments and funding, and other non-climate-specific funding for adaptation.

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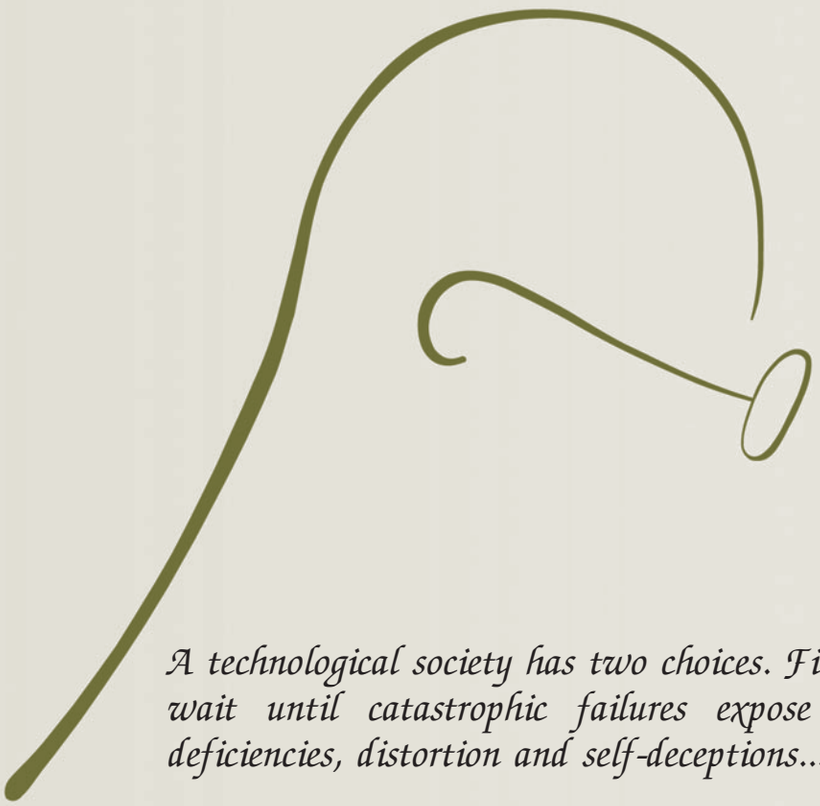

A technological society has two choices. First it can wait until catastrophic failures expose systemic deficiencies, distortion and self-deceptions...

Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures.

Mahatma Gandhi

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