



## Financing adaptation

This discussion brief revisits the issue of adaptation to climate change, seeking to explore issues on financing adaptation. It suggests that a filtering of adaptation measures by the nature of the *services they provide* can offer insights into an alternative financing mechanism for adaptation.

### Why is the issue of adaptation to climate change impacts important?

It is now increasingly evident that irrespective of mitigation, climate change impacts are likely to be faced and there is an urgent need to build adaptive capacity to reduce vulnerability to climate variability and change. It is well understood that differential potentials exist across regions, communities, and individuals to cope with climate-induced changes. For example, the Netherlands and Bangladesh are both low-lying regions, exposed to the impacts of sea-level rise. However, the latter is more vulnerable than the former, not only because of its larger exposed populations, but also because of having fewer options to be able to respond to such impacts, given the resource constraints. Differential vulnerabilities and adaptive capacities give rise to the issues of 'equity'<sup>1</sup> and 'justice'. Adaptation is not a new activity; societies have adjusted their behaviour in the past to changing environmental (climatic) conditions, sometimes successfully and sometimes not.<sup>2</sup>

<sup>1</sup>For an elucidation on 'equity and justice' issues in global warming, see Rose, Stevens, Edmonds *et al.* (1998); Ikeme (2003); Thomas and Twyman (2005); Winters, Murgai, Sadoulet *et al.* (1998); Brown (2003).

<sup>2</sup>Diamond (2005) focuses on studying sharply divergent trajectories of societies when faced with environmental challenges. While some respond positively, and are able to adapt, others collapse, faced with declining populations, and other socio-eco-politico-cultural complexities. See his example of the Polynesians on Easter Island.



Need for disaggregating adaptive responses and measures by the types of goods and services they provide, distinguishing between the various lines of financing required

But present-day need for adaptation to the risks of climate variability and change emerge 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 begins from an ‘unfair’ starting point and, therefore, the principles of *common but differentiated responsibilities* and *polluter pays* principle must be taken into account. Inattention to developing adaptive capacities would create secondary spill-over impacts, with serious consequences at regional and global scales. This brief, thus, proposes the need for disaggregating adaptive responses and measures by the types of goods and services they provide, distinguishing between the various lines of financing required, thereby offering a rationale for the additional resources that are needed to be generated for adaptation.

### Adaptation cannot be treated as a mirror image of mitigation

The approach to adaptation needs to be different from the way mitigation has been handled, as the issues are very different. Mitigation represents activities to *protect nature from society*, while adaptation constitutes ways of *protecting society from nature* (Stehr and Storch 2005).

Adaptation and mitigation differ based on temporal and spatial scales, associated costs and benefits, and actors and policies involved

While mitigation seeks to reduce the principal cause of the problem, adaptation seeks to protect coupled socio-ecological systems from the impacts of the problem. In this case, the former is better defined as *facilitating the coordination for reduction of emissions* while the latter is more difficult and complicated to ascertain. The two options differ widely from each other based on: *temporal and spatial scales, costs and benefits associated, and the types of actors and policies involved* (Klein, Schipper, and Dessai 2005; Fankhauser 1998; Cohen, Demeritt, Robinson *et al.* 1998).

### Temporal and spatial scales

The benefits of mitigation activities if targeted can be felt over decades to come, given the long residence time of GHGs (greenhouse gases) in the atmosphere. Adaptation measures, depending on the type of services they provide, however, would yield benefits (both intended and ancillary) that can more or less be appropriated by those bearing the costs. The geographic scope of mitigation activities is global while the services provided by adaptation measures and actions vary across geographical scales and levels.

### Costs and benefits associated

Emission reductions obtained through mitigation options are expressed as CO<sub>2</sub>-equivalents (carbon dioxide equivalents), and cost-effectiveness *vis-à-vis* other mitigation options and the implementation costs so associated can be determined. In the case of adaptation, however, it gets more complex as the benefits are the reduction in climate-related damage costs for both natural and human systems by undertaking adaptation measures. Also, local/regional nature of its occurrence and implementation signify that benefits will largely be valued based on political, ecological, cultural, and behavioural contexts.

## Actors and types of policies involved

The focus of mitigation activities has been primarily in the energy, transportation, forestry, and agricultural sectors. These sectors are usually (and comparatively) well organized and closely linked with national planning and policy-making. In contrast, adaptation involves the interests of numerous actors: agriculture, urban planning, water supply, tourism and recreation, human health, etc. Albeit, all these sectors are potentially impacted—decisions, whether to adapt or not, are taken at different levels, ranging from individual farmers to national planning services. For most, climate change is not an immediate concern. Enforcement in mitigation is easier compared with ensuring the adoption of adaptation measures by affected groups.

## How have adaptation responses to climate change been financed?

Articles of the UNFCCC text that relate to adaptation

In the past, adaptation issues have largely been overlooked. This has been partly because attention has been focused on reduction of emissions of GHGs and enhancement of ‘sink’ options. Under the UNFCCC (United Nations Framework Convention on Climate change) process, there are several articles dealing specifically with the issue of adaptation and adaptation finance. More attention has been paid recently to adaptation issues at the various CoPs (Conference of Parties to the UNFCCC). However, the issue of financing adaptation, has lagged behind that of mitigation, despite the fact that adaptation issues in the UNFCCC’s 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 refers 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.

Article 4.3 allows for *agreed full cost*<sup>3</sup> (new and additional financial resources)<sup>4</sup> of preparing National Communications (under Article 12.1), to be funded by developed countries. The cost of implementation of adaptation measures and actions (Article 4.1), that is, *agreed incremental costs*<sup>5</sup> are to be borne by developed nations.<sup>6</sup>

<sup>3</sup> *Agreed* means agreed between the developing country party and the operator of the Conventions’ Financial Mechanism, the GEF.

<sup>4</sup> *New and additional* refers to additional resources to expected flows of development assistance.

<sup>5</sup> *Incremental costs* are the cost differential between a baseline course of action undertaken to address a national need and the additional costs of undertaking an alternative course of action, relative to the baseline course, which generates global benefits. That is, the extra burden on a country that would result from choosing the GEF-supported activity (which confers global benefits as opposed to national interest alone).

<sup>6</sup> In addition to the UNFCCC’s commitments under Articles 4.1(b), 4.1(e), 4.1(f), 4.4, 4.8, and 4.9, there are a number of other Articles relevant to adaptation, such as 4.1(d), 4.1(g), 4.1(i), 4.5, 5, and 6.

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, the CoPs. The responsibility has been entrusted with the GEF (Global Environment Facility)—the funding channel for developing countries under the UNFCCC (Box 1).

#### Box 1 CoPs and adaptation funding issues

**CoP 1 (1995, Berlin):** guidance to the GEF (Global Environment Facility) on Adaptation Funding

**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, for both mitigation and adaptation. Funding includes transfer of technologies, 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 allows for 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 dollars, over three years to support adaptation projects from the GEF Trust Fund.

Some of the shortcomings of these funding approaches are as follows.

- Contributions are essentially voluntary and insufficient to meet needs.
- It is clear that climate change operational programmes are mitigation oriented.<sup>7</sup>
- Terms of funds are not fully negotiated.
- Amount of funds in the Adaptation Fund depends on the size of the CDM market, which makes adaptation contingent on this development. It seems that no funds are likely to be available before 2008.

<sup>7</sup>The four operational programmes in climate change are essentially mitigation-oriented (removal of barriers to energy efficiency and energy conservation; renewable energy; reducing long-term costs of low GHGs-emitting energy technology, and development of sustainable transport). The GEF has spent, over the last ten years, over a billion dollars in the climate change operational areas but only a tiny fraction (less than 10%) has been spent on adaptation (Huq 2005). In September 2002, the UNFCCC Secretariat prepared a synthesis report reviewing the operation of the Financial Mechanism. According to this, since 1991, the GEF has provided 1.5 billion dollars in grants for climate change activities, of which virtually all was for mitigation. Approximately, 90% went for activities to non-Annex-I countries and 10% to economies in transition.

We argue, therefore, that a very different approach is required for adaptation financing. The next section discusses an alternative perspective that is based on the nature of the goods and services that adaptation measures provide.

### An alternative perspective on adaptation financing

Viewing goods and services provided through adaptation measures through a 'public good' lens

Adaptation measures have both a *privateness* and *publicness* in the nature of the goods and services that they provide. Distinguishing between these can help make clear the kind of financing that is required and help generate additional resources to meet them. Investing in the development of an adaptive capacity and putting in place measures to respond to climate change impacts can help reduce more global and regional consequences of non-action. The case for using a public good 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).

Public goods are so termed if they satisfy the following two criteria.

- 1 Non-excludability (impossible to prevent access by all)
- 2 Non-rivalry/competition in consumption (consumption by one does not preclude consumption by another)<sup>8</sup>

Since public goods are non-rivalrous in consumption and non-excludable, they face supply problems. A free market is highly unlikely to produce an optimum amount of the public good (resulting in non-production or under-production) and, hence, the situation is termed as 'market failure'. Provision of such goods by the state also faces several problems—rent-seeking behaviour on the part of policy-makers/bureaucrats, biases in favour of certain segments of the population, etc. (Olson 1971). Hence, public goods face a double jeopardy—market and state failures.

What is the geographic reach of public goods? The separating lines in the spectrum from local to global is nebulous, as is that of the privateness and publicness of goods—both must really be seen largely as social constructs (Kaul, Conceicao, Goulven *et al.* 2003). For purposes of analytical clarity, however, we will follow the distinction provided by Sandler, Kanbur, and Morrison *et al.* (1999), as follows.

Geographic reach of public goods: global, regional, national, and local

- *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)

<sup>8</sup>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, etc.) or common property resources (non-excludable, but rivalrous; prone to congestion) or collective (social) goods (can be delivered as private goods, but are delivered itself by the government for various reasons; usually social policy).

Financing based on the filtering of services provided by adaptation measures

- *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, etc.
- *NPGs (national public goods)* largely convey benefits to the national public; for instance, education, health, and other material infrastructure.
- The spill-overs/benefits of *LPGs (local public goods)* are substantially sub-national; for instance, access to various facilities and services in a particular region.

We argue here that a framework for financing mechanism for adaptation needs to be looked through a public good lens based on the services it provides. The goods and services that adaptation measures or actions provide, or plan to provide, need to be filtered based on the provision of the following.

- Global or regional public good or service that calls for international or regional cooperation
- National or local public good or service that calls for a top-up to conventional development transfers

Any intervention *vis-à-vis* the above proceeds with the understanding that climate change creates unfair impacts, which need to be addressed differentially.

### *Provision of global/ regional/public adaptation good*

Adaptation studies suggest that responses to some impacts would benefit from actions that involve international cooperation. Box 2 provides some examples in the context of climate-related threats.

#### **Box 2** Examples of adaptation measures that require international cooperation

- Early warning systems
- Climate monitoring systems and Trans-boundary information dissemination systems on occurrence of extreme events: floods, flash floods, landslides, GLOFs (glacial lakes outburst floods)
- Trans-boundary basin management
- Disease surveillance systems
- Afforestation programmes (sequestration of carbon)

These goods, we argue, are in the nature of global public goods, as it is not possible to exclude people from their use; also their consumption is non-rival. Their provision would have universal benefits on regions and different socio-economic groups. New funding for international and regional collaborations and programmes should be provided to fund these goods and services. Existing models of global funding through the GEF requires that the national provider of a mitigation and adaptation measure be compensated based on an assessment of 'incremental costs' and 'global benefits'. The GEF

requires a split of the project budget into baseline and incremental costs of activities that provide benefits to the global environment. All other costs that confer benefits locally/nationally are considered to be baseline and must be covered from other sources.

The concept of incremental costs is challenging and the costs are often difficult to estimate with the full burden of defending the estimates lying on the proposers. The strong point is that it allows recognition of the fact that those who are paying towards meeting these incremental costs are doing so out of their own self-interest, rather than for altruistic reasons; but the burden of proof can be a deterring factor for them in accessing their global funds. There is a need, therefore, to rethink the modalities for providing access to global funding for this type of good.

### Provision of national public adaptation goods

Additional funding to climate risk proof development programmes

Vulnerability to climate change is reduced not only when climate change is mitigated or when adaptation takes place, but when the conditions for those experiencing impacts are improved. In developing countries, this concern is motored by the fact that climate change is a long-term issue, whereas other challenges such as sustained economic growth, access to potable water, food security, sanitation, improved health status, etc., take precedence. Hence, the concept of *mainstreaming* – integration of policies and measures to address climate change into ongoing sectoral and development planning and decision-making – 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 (Noronha 2003; Klein, Schipper, and Dessai 2005; Huq, Rahman, Konate *et al.* 2003).

Many aspects of development – such as the MDGs (Millennium Development Goals) – will be at risk due to the hostile impacts of climate change and, hence, adaptation needs to be incorporated into development strategies at the local, national, and regional levels. This is indispensable in areas such as water resource management, agriculture, poverty alleviation, disaster management, coastal zone management, etc.<sup>9</sup>

Adaptation measures can be of two types: those of a more generic nature that enhance adaptive capacity, and those that are specific and dedicated responses to climate-related risks (Box 3).

We argue that *additional* funding to top-up development aid programmes is needed to provide for these goods and services. Such additional funding will in fact provide greater value for resources invested, as these will in a way be ‘climate-risk-proofed’.

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<sup>9</sup>In India, the National Conservation and Policy Statement on Environment and Development, 1992, provides the basis for the integration of environmental considerations in the policies of various sectors.

### Box 3 Examples of generic and climate-risk-specific adaptation measures

#### Development measures that enhance adaptive capacity (generic)

- Control of population
- Investments (public-private) in
  - Infrastructure
  - Technology, information, and communication technologies
- Population health status
- Increasing robustness of natural/ecological systems
- Fortification of institutional, social, and human capital networks
- Provision of education; provision of housing
- Public strategies to address equity and access issues and gender empowerment
- Development of flexible, customized credit and insurance schemes
- Agricultural development / food security
- Institutional/government policies

#### Specific interventions linked to the management of climate risks

- Short- and medium-term weather forecasts
- Rainwater harvesting
- Disaster preparedness plans
- Agriculture
  - Research and development on drought-/flood-resistant seeds, fertilizers
  - Changes in farm practices and timing of operations
  - New irrigation techniques for better water management
- Efficient utilization of energy in agriculture/irrigation
- Rationalization of power tariffs
- Food insurance schemes
- Coastal
  - Coastal bio-shields that protect against increased climatic variability
  - Sea-level-rise-sensitive coastal development choices

*Support activities and measures that reduce vulnerability of individuals and communities in developing countries*

*Special compensatory financing based on principles of 'common but differentiated responsibilities' and 'polluter pays'*

As argued earlier, adaptation measures have both a privateness and a publicness in the nature of the goods and services they provide. At the very local level, adaptation financing has to recognize differential vulnerability and the special needs of the least advantaged. Adaptation measures at this level may include the following.

- Capacity building of communities in withstanding the impacts of climate change; for example, insurance
- Provision of appropriate technical support
- Vocational training and alternative skill development for livelihood diversification
- Alternative weather-insensitive, income-generating opportunities

Special compensatory financing is needed to fund this set of measures based on fairness and 'polluter pays' argument. This may require harnessing expertise from the private sector in some cases for the management of climate-related risks.

### Conclusion

This brief argues for an international climate policy that clearly reflects the fact that adaptation cannot be treated in the same way as mitigation; that adaptation thinking needs to be sensitive to the fact

that vulnerability is different at different levels and actors and needs to be viewed through a gender and equity lens; that climate change impacts are closely interlinked with development issues; and that collective action and responses are key to resilience. In short, a novel and innovative approach to adaptation is warranted and we suggest that financing of adaptation measures be distinguished according to the services they provide.

- *New* financing for international and regional collaborations and programmes for those adaptation measures, which provide regional and global public goods to meet adaptation priorities
- *Additional* financing to top-up development aid programmes (greater value for resources invested) be provided to support the provisioning of goods and services to enhance adaptive capacity at the country level
- *Special compensatory financing* designed on fairness and ‘polluter pays’ argument that recognizes differential vulnerability and the least advantaged to support activities and measures that reduce vulnerability of individuals and communities in developing countries

Disaggregating adaptive responses and measures by the types of goods and services they provide enables a more systematic distinguishing between the various streams of financing required, and provides a rationale for the additional resources that need to be generated for adaptation.

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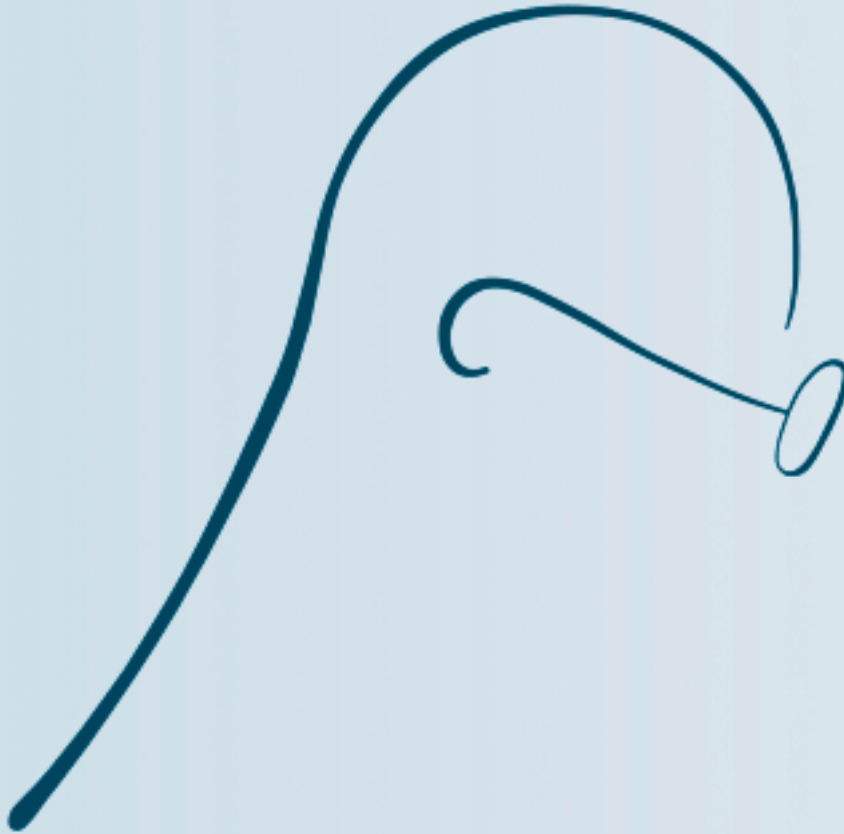
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*Be the change that you want to see in the world.*

**Mahatma Gandhi**

**For further details, contact**

Suruchi Bhadwal  
Area Convener  
Centre for Global Environment Research  
TERI  
Darbari Seth Block  
IHC Complex, Lodhi Road  
New Delhi - 110 003

*Tel.* 2468 2100 or 2468 2111  
*Fax* 2468 2144 or 2468 2145  
India +91 • Delhi (0) 11  
*E-mail* [suruchib@teri.res.in](mailto:suruchib@teri.res.in)  
*Web* [www.teriin.org](http://www.teriin.org)