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## Ethical issues in funding for adaptation in countries vulnerable to climate change

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## Ethical Issues in Funding for Adaptation in Countries Vulnerable to Climate Change; the Example of Bhutan

By ERICH WILLIAM SCHIENKE on July 20, 2008 1:16 PM | 0 Comments

### I. Introduction

Climate change is already impacting many regions and nations that have historically contributed little to almost nothing to current levels of atmospheric carbon and other greenhouse gases. Numerous models relied upon by IPCC project that adverse impacts in many of these vulnerable regions will grow in severity and range as global average temperatures increase. The majority of the most vulnerable countries do not have the capacity, in terms of scientific know how or technological infrastructure, to predict and respond to harmful climate impacts. Using the specific examples of climate impacts in the Kingdom of Bhutan, this post investigates some of the main ethical issues entailed by existing approaches to funding proposals for compensation and capacity building help the most vulnerable populations cope with the impacts from climate change.

Principles of retributive and distributive justice need to be followed to determine who should pay for adaptation in countries that have not caused climate change but are vulnerable to its impacts. Further, the principles of procedural justice require that regions experiencing significant impacts are able to meaningfully participate in political and scientific decisions that will affect their well-being and capacity to flourish. This post examines a few issues entailed by retributive, distributive, and procedural justice as they should be applied to climate change adaptation issues in developing countries. A full examination of all the ethical issues that need to be considered because of unavoidable needs of nations to adapt to climate change is beyond the scope of this post. An earlier post examined additional ethical issues that need to be considered in prioritizing adaptation projects, looking at the nation of Tanzania. (See Paavola at <http://climateethics.org/?p=19>)

This post will further argue that while adaptation funds provide a place to begin, a deeper engagement is required between development contexts that includes: transfers of knowledge and improvement of educational capacity; direct improvements to risk management and early warning systems; and improvements in legal systems that support the growth of civil society. Facing the costs of climate change adaptation in a way that values the rights of all cultures to exist and persist requires a diligent and robust adherence to principles of procedural justice and fair process.

As we shall see below, principles of retributive justice as well as certain soft-law principles that implement these principles require that those who are causing climate change adequately pay for costs of nations that are most vulnerable to climate change impacts particularly when these nations are not responsible for global climate change.

### II. The UNFCCC Adaptation Fund an insufficient distributive justice mechanism for climate change adaptation

In addition to the Adaptation Fund discussed in this post, there are three existing but limited funds to which developing countries may apply for adaptation funding. These funds are managed by the Global Environmental Facility (GEF), an organization housed in the World Bank that distributes funds under international environmental treaties. These funds are mentioned only in passing in this post because the Adaptation Fund promises to provide the most resources for developing countries for adaptation. These existing funds include:

- The Strategic Priority on Adaptation (SPA) is an ecosystem/focal area focused fund. The goal is to ensure that climate change concerns are incorporated in the management of ecosystems in GEF projects. It funds demonstration projects concerned with the management of ecosystems to show how climate change adaptation planning and assessment can be practically integrated into national policy and sustainable development planning.



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- The Least Developed Countries Fund (LDCF) is a fund that supports the poorest countries, which are most vulnerable to climate change impacts. The fund provides support to LDCs when they prepare National Adaptation Programs of Action National Adaptation Programmes of Action (NAPA) in which they identify their most urgent adaptation needs. Following their completion, additional funds can be made available to assist LDCs in implementing the NAPAs, up to US\$ 1.5 million.
- The Special Climate Change Fund (SCCF) is also a fund concerned primarily climate change projects in developing countries. Areas of support include adaptation in agriculture, water resources management, health, disaster-risk management and coastal zone management. This fund became operational in October 2005 but has little funds so far. (UNDP, Global Environmental Facility, 2008)

The following chart shows the amount of money in US millions of dollars for adaptation funds that will be available in these funds by 2010:

(UNDP, Global Environmental Facility, 2008, see below for a description of expected Adaptation Fund funding levels)

The most important adaptation fund for developing countries that has been created so far is the UNFCCC Adaptation Fund because of the potential size of its resources compared to the other funds.

Before discussing distributive and procedural justice issues that need to be considered in response to adaptation needs in a specific context, it is useful to look at the current plans for a UNFCCC run Adaptation Fund, the purpose of which is to provide financial support for adaptation resources for the most vulnerable nations. Reaching a formal status at the December 2007 (COP 13) meetings in Bali, the Adaptation Fund is a plan to channel funds for adaptation projects in developing countries. The Fund is not supported through donor nations, rather the Fund was designed to implement a 2% levy on CDM projects through the Kyoto Protocol. As of March 2008, the Adaptation Fund was worth about 37 million Euros. Based on the CDM projects in the works, the fund is projected to grow to about 300 million by 2012. (UNFCCC, 28 March 2008) Basically, the main idea is to make mitigation in richer countries help pay for adaptation in poorer countries.

A 2006 draft of goals and criteria agreed that the Adaptation Fund would be well managed, accessible and transparent in operations. The Adaptation Fund should begin providing resources to specific projects within the year.

1. Decides that the Adaptation Fund shall be guided by the following principles:

- (a) A share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation;
- (b) Access to the fund in a balanced and equitable manner for eligible countries;
- (c) Transparency and openness in the governance of the fund;
- (d) Funding on full adaptation cost basis of projects and programmes to address the adverse effects of climate change;
- (e) The Adaptation Fund should operate under the authority and guidance of and be accountable to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol which shall decide on its overall policies;
- (f) Accountability in management, operation and use of the funds;
- (g) No duplication with other sources of funding for adaptation in the use of the Adaptation Fund;
- (h) Efficiency and effectiveness in the management, operation and governance of the fund;

2. Decides that the Adaptation Fund shall operate with the following modalities:

- (a) Funding for eligible Parties will be available for national, regional and community level activities;
- (b) Facilitative procedures for accessing funds, including short and efficient project development and approval cycles and expedited processing of eligible activities;
- (c) Projects should be country driven and should clearly be based on needs, views and priorities of eligible Parties, taking into account, inter alia, national sustainable development strategies, poverty reduction strategies, national communications and national adaptation programmes of action and other relevant instruments, where they exist;
- (d) Funding shall be available for concrete adaptation projects and programmes in eligible countries;
- (e) Ability to receive contributions from other sources of funding;
- (f) Competency in adaptation and financial management;
- (g) Sound financial management, including the use of international fiduciary standards;
- (h) Clearly defined responsibilities for quality assurance, management and implementation;
- (i) Independent monitoring, evaluation and financial audits;
- (j) Learning by doing; (UNFCCC, Nov 2006)

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Given these criteria, the Adaptation Fund has the potential to eventually address some of the issues of equity and justice in the distribution of the burdens and benefits of climate change impacts. However, even when it is fully funded this fund along with others identified above will not prevent nations from experiencing damages and related costs far beyond what they will receive from international adaptation funding. That is, potential funding under the Adaptation Fund is grossly inadequate to cover developing country adaptation costs. In addition, there are insufficient funds to apply for the available funds, given the criteria that need to be satisfied to obtain the funds. Additional funds are needed to enable developing nations to put together the scientific case for available adaptation funds. Many developing countries have insufficient scientific understanding of the major threats they face.

The \$300 million USD that the Fund is expected to contain by 2012, while a start, is trivial compared to the projected yearly costs for adaptations. The UNFCCC secretariat estimated that total costs for developing countries in the coming decades will likely range from \$10-100 billion USD per year. (UNFCCC, 2007) No matter how quickly mitigation funds might spill into the adaptation coffers, the funds will likely never match the adaptation fund needs of many nations. Of course, the Adaptation Fund is not designed to come close to covering all needed adaptation funding but only provide assistance to the most pressing needs. The Adaptation Fund does not provide funding at levels required by justice. As such, further funding measures by Annex I countries above and beyond the Fund will be required. The last section of this post will suggest other measures that could help to improve adaptive capacity in developing nations.

Principles of retributive justice require that the nations who are causing climate change should pay for costs of climate change damage. The Adaptation Fund does not take the issue of past emissions into account, only a percentage of mitigation costs moving forward. For this reason, the Adaptation Fund is inadequate as a matter of justice in regard to climate change impacts.

### III. Ethical questions entailed by the Adaptation Fund funding criteria

Under the Adaption Fund guiding criteria identified above, a determination of which projects get funded necessarily will require positions on a number of ethical issues about such matters as what kinds of projects are most valuable to a nation, region, or the wider world. That is, despite the listed criteria for funding, additional ethical considerations unavoidably will need to be considered to prioritize limited funding. For instance, in determining the value of harms to human health and the environment, judgments about the value of these resources are unavoidable. If for instance, the GEF decided to rank projects based upon harms and benefits of adaptation projects and quantify these harms and benefits on the basis of standard economic evaluation techniques such as "willingness-to-pay", the prioritizing institutions will be making controversial ethical judgments. (For a discussion of the limits of cost benefit analysis, see a prior post on ethical limitations of cost-benefit analyses of climate change programs at <http://climateethics.org/?p=36>.) In fact, most of the listed funding criteria will require ethical judgments although some more than others. For instance, criteria 1(1) (b) above requires that funding shall be governed so that "Access to the fund in a balanced and equitable manner for eligible countries" To determine what is "balanced" and "equitable", principles of distributive and retributive justice need to be considered. A full examination of these considerations is beyond the scope of this post.

Next, this post will look at a specific example of how such funding measures will not adequately address problems countries like the Kingdom of Bhutan are already facing.

### IV. Climate impacts in the case of Bhutan

The Kingdom of Bhutan is a land-locked nation situated with the Himalayas in the northern stretch of the country, and is bordered by India and China. The country has a population of approximately 690,000 and mainly subsists on agriculture and forestry. In terms of climate change, the county has done little to almost nothing to add greenhouse gases to the atmosphere. Bhutan produces 2 billion kWh per year; all coming from large hydropower projects, of which 1.5 billion kWh is exported. Of course, except during their construction, hydropower emits no significant GHGs. Further, approximately 72% of the country is covered by forest, which act as a sink for CO<sub>2</sub>. Politically, Bhutan tends to approach negotiations and international collaborations in a slow and deliberative manner. The country has signed the Kyoto Protocol, and is currently investigating trading carbon credits on the world markets, which could be of significant value to the country.

Again, the Kingdom of Bhutan has done little to contribute to climate change. However, the impacts of climate change can have severe consequences on the rich biodiversity, glacial lakes, agriculture, infrastructure, human health and the overall socio-economic fabric of Bhutan.

Bhutan's entire northern highlands are either covered with glaciers or snow which also serves as the water source of most of rivers that are North-South oriented. It is estimated that 80% of the population, infrastructure and agricultural land are located in the most vulnerable mountain valleys (NEC Bhutan Report on Bhutan's State of Environment, 2005).

Studies have revealed (NEC Bhutan, 2005) that there are 677 glaciers and 2,674 glacial lakes in Bhutan. Of these, a total of 24 glacial lakes pose potentially high risk for Glacial Lake Outburst Floods (GLOF) (Ministry of Geology and Mines, 2005). GLOF events have taken place in Bhutan in 1957, 1960 and most recently in 1994. According to National Disaster Risk management Framework of 2006 by ministry of Home and Cultural Affair, the 1994 GLOF, which was caused by partial burst of Lugge Tsho, damaged more than 1,700 acres of agricultural and pasture lands and dozen houses, washed away five water mills and 16 yaks, and destroyed 6 tonnes of food

grains. One of the glacier lakes currently facing a high risk of outburst flooding is Thorthormi Lake in Lunana and is therefore considered to be one of the most critical growing glacial lakes with a GLOF threat in the near future. If this lake were to burst, it has the potential to cause three times the damage from the 1994 incident (Toeb, 2005).

(From the National Disaster Risk Management Framework, 2006.)

The rapid pace of economic development and increasing population pressure in Bhutan will increase the demand for water for domestic purposes. A larger population will not only use more water but will discharge more wastewater. An uneven distribution of precipitation may lead to seasonal and local imbalances in the availability of water. Melting of the glaciers faster than usual due to climate change will likely result in shortage of freshwater supplies in Bhutan in the near future.

The export of hydroelectric power provides 25% of government revenue in Bhutan. Hydroelectric plants in Bhutan are highly dependent on predictable runoff patterns. Changes in the flow of rivers would have direct impacts on the amount of hydropower generated. Therefore, increased climate variability, which can affect frequency and intensity of flooding and droughts, could also affect Bhutan's hydroelectric generation.

Agriculture is the single largest contributor to GDP (45%) and is the source of livelihood for 79% of the population of Bhutan. Upland crops production, practiced close to the margins of viable production, can be highly sensitive to variations in climate. Agriculture consumes the highest percentage of water resources and with climate change agricultural yield may be affected directly by an alteration in temperature, rainfall and carbon dioxide concentration, and indirectly through changes in soil quality, pests and diseases. In Bhutan, only about 12.5% of arable land is irrigated and irrigation water requirements may increase substantially with expansion of irrigated lands. In Bhutan, water requirements for irrigation and other sectors are highly dependent on rivers that originate from snow and glacial-melt water. Therefore, the failure or changes in the pattern of snowfall and/or glacial melt due to climate change would have adverse impacts on availability of water for irrigation (SaciWATERS 2000).

Global warming could also disrupt the potential growing season allowing earlier planting of crops resulting in earlier maturation and harvesting and push the cultivating zones further into higher elevation where crops that are sensitive to low temperatures can be introduced. It may even be possible to complete two or more cropping cycles during a season. Such practices could lead to long-term crop failure as result of the sustained use of fertilizer and this can come at the cost of environmental degradation. Additional use of chemicals will have negative impact on water quality, air quality, and human health. (NEC, Bhutan National Adaptation Programme of Action, 2007.)

Climate change imposes an extremely tough challenge to developing countries like Bhutan where economic progress is also a priority. On one hand, it is observed that almost all the sectors of the nation's economy, be it agriculture, hydro-electricity and other activities are vulnerable to climate change, and on the other hand, these activities need to be further enhanced to achieve socio-economic development.

The threat of climate change is so present that it could impact almost all aspects of Bhutan's future potential for development, yet the nation has done nothing to contribute to the problem. While resources for adaptation projects are coming from developing nations via the Adaptation Fund and other significant sources of project funding and technology transfer--such as the GEF, World Bank, and specific funds from various nations such as India, Denmark, and the Netherlands--the funds will likely only begin to scratch the surface of the fullest extent of the impact costs. For example, even though there are 27 lakes at risk for GLOFs, there are currently only enough funds to focus on building an early warning system, digging drainage trenches, and disaster planning for the highest-risk lake (Lake Thorthormi). This situation strongly represents the distributive and procedural justice problems that developing nations are facing regarding climate change, and even though resources are being provided, more is needed.

(From the National Disaster Risk Management Framework, 2006.)

#### **V. Nations are ethically obliged to assist developing nations with adaptation needs**

The 1992 UN Rio Declaration on Environment and Development, an international soft-law document that has normative but not legal effect, contains several provisions related to responsibility for adaptation.

For instance, Principle 13 provides that:

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction (UN Rio 13).

Principle 16 provides in relevant part that:

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

These two principles can be understood to require that nations that are causing climate change impacts in poor nations pay for the costs of adaptation to climate change and climate change damages. This is also what principles of retributive justice would require. These obligations are not satisfied if only part of the costs of damages is compensated for.

Yet in determining the costs of adaptation the following additional ethical issues need to be considered:

- How the value of damages is determined raises ethical questions. This is so because there are priceless structures of cultural heritage that cannot be valued in terms of welfare, such as some religious structures in Bhutan that date back to the 8th Century, which are under significant threat from the GLOFs. Yet, there are no completely satisfactory forms of compensation for the destruction of cultural heritage or the displacement of people from their land. Further, the threat of extinction to some high-alpine species is also difficult to put into strictly utilitarian terms.
- No fund will be able to fully address the costs of losing historical connections to land and sacred sites, as it deprives current populations and future generations of their cultural heritage. For this reason, prevention of climate change harms to the maximum extent possible is preferable to paying for climate change damages. This is so because no amount of damages may adequately compensate people for sacred entities.

As formalized in Bali 2007, the Adaptation Fund provides an initial roadmap and growing pool of funds for improving and implementing important climate adaptation projects, thereby attempting to address some distributive justice issues. Yet, as can be seen in the case of Bhutan, the Adaptation Fund, and other country specific mechanisms for channeling resources, does not go far enough to compensate for very high climate change costs that developing countries will incur. Of course, such funds are not meant to nor are they capable of compensating for the full extent of costs. The funds are meant, however, to improve vulnerable nations' capacity to adapt to climate change.

## VI. Procedural Justice and Adaptation

Procedural justice in policy formation and implementation requires that decisions, in this case about adaptation measures, are made and implemented according to fair processes.

Procedural justice requires at a minimum: a) that like cases are treated alike and any distinctions be ethically justified; b) that the decision making and implementation treat people fairly and impartially; c) that those directly affected by the decisions have a voice and representation in the process; and d) that there be transparency in the decision making process (Shrader-Frechette ). (See section 8 of the Ethical Dimensions of Climate Change whitepaper.)

For this reason, nations such as Bhutan have a right to be represented in decisions about climate change adaptation. Because scientific expertise is often a requirement to participate effectively in adaptation decisions, capacity building that will provide adequate technical expertise for effected developing nations needs also to be funded.

This includes funding to create the ability for vulnerable nations to investigate and communicate the full extent of plausible impacts in their nations to the global community. Along this line, it is important that scientific research used in adaptation assessments properly consult with the vulnerable populations. However, many nations do not have the proper institutional resources to produce the quality of research materials from developed countries. (See [ClimateEthics.org](http://climateethics.org) post on Equity Issues in IPCC Scientific Assessments <http://climateethics.org/?p=30>) Many developing nations are further handicapped by the need to write and read English, the language of relevant scientific journals.

While adaptation funding can assist with adaptation needs in developing nations, other measures can be taken by institutions that could also help with adaptation responses in light of capacity building needs to cope with climate change adaptation. These include:

- Academic institutions can expand support for research projects in developing contexts, through program initiatives or specific seed grants that prioritize funding research collaborations in these areas. Scientists conducting research in these contexts should be dedicated to improving local research capacity in these areas.
- Academic institutions can seek graduate students from vulnerable regions to improve research and communication capacity in vulnerable developing nations.
- To improve communication about vulnerable nations, large science publishing conglomerates can work to provide assistance to improve the quality of writing in developing nations to

including the grammar in submissions to relevant scientific journals. Along this line, the ability of developing nations to participate in adaptation decisions could be enhanced by building stronger collaborations among developed and vulnerable developing nations.

## VII. Conclusion

Nations such as Bhutan and Nepal, squeezed in between the developing world's two largest emitters (India and China), can do little to mitigate climate changes impacts yet they have significant adaptation needs. Although some compensation funds and costs of adaptation can be supplied by adaptation funds, some losses can never be fully compensated, and therefore ethics requires that nations and institutions act as soon as possible to reduce the likelihood and severity of climate impacts. That is, all nations must act to reduce GHG emissions to their fair share of global emission as quickly as possible even if developed nations provide robust financial adaptation assistance to vulnerable nations.

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