



Global Climate Change – What is at Stake?

Summary

- Climate change is happening and threatens to undermine progress in terms of economic development and to provoke major social, political and economic upheaval in the future.
- Poorer countries will be affected sooner and more adversely than richer countries in higher latitudes.
- While immediate measures to reduce carbon emissions (mitigation) are necessary, the result of any such measures will not be realized for many years to come.
- ‘Adapting to climate change is the most immediate need for much of the developing world.
- Legislative action to address both mitigation and adaptation is overdue and urgently needed.
- Action to address climate change need not limit the aspirations for sustainable and equitable economic growth of either rich or poor countries, **provided both rich and poor countries share in the responsibility.**

Climate change and potential policy solutions will have an effect on poor and hungry people both in the United States and around the world. In this background paper, Bread for the World Institute looks at the issue of climate change from the perspective of global hunger and poverty -- how climate change will affect poor countries, and how the particular challenges that poor people will face as a result of climate change might be addressed.

The most recent report of the Intergovernmental Panel on Climate Change, IPCC¹, from February 2007, confirmed that climate change is “unequivocal,” and that the likelihood was extremely high (90 percent) that human activities were responsible. The greenhouse gas emissions (principally carbon dioxide) that lead to global warming mainly stem from fossil fuel consumption in developed countries. The effects, according to the IPCC, are already being documented in such areas as ocean temperatures, mountain glacier and snow cover, and changes in precipitation amounts over large areas.²

¹ The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Association and the UN Environmental Program to assess scientific, technical and socio- economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.

² http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_SPM.pdf

The poorest countries will be the worst affected. The IPCC panel set up to address the vulnerability and likely consequences of climate change has concluded that poor countries, with fewer options and resources for dealing with the problem, will be disproportionately affected by climate change. According to the [Stern Review](#),³ “the poorest developing countries will be hit earliest and hardest by climate change, even though they have contributed little to causing the problem.”⁴

Rising sea levels are a particular threat for less developed coastal countries and small island nations. For example, the Ganges/Brahmaputra delta at the head of the Bay of Bengal hosts a population of over 200 million at great risk of storm surges. Less dramatic but no less pernicious effects such as increasing salinization, or salt contamination, of aquifers and soils are already being observed. Other likely effects:

- Agricultural productivity and cropping patterns are being affected. These effects are likely to be seriously unfavorable to developing countries, with the most severe negative impact occurring in tropical regions of Africa, Latin America and India⁵ -- home to the vast majority of the world's poor. According to the IPCC, “in the Sahelian region of Africa, warmer and drier conditions have led to a reduced length of growing season with detrimental effects on crops.”⁶ The current violence in Darfur is at least partly the result of climate-induced resource scarcity.⁷
- The range of disease transmitting insects, such as malaria-carrying mosquitoes, is expanding. Malaria already being seen in previously unaffected areas like the east African highlands.
- River flows are showing increased variation: The Ganges River watershed, one of the poorest and most densely-populated areas of the planet, is already confronting this problem as the Himalayan glaciers, which trap precipitation, recede. The results are increased runoff and flooding in the summer monsoon, and reduced flow in the dry season with consequent water shortages and salt water intrusion in the delta.
- Migration pressures are increasing. The changing climate is already prompting increased movement of people out of more fragile agricultural areas, mostly in sub-Saharan Africa. However, this movement will be dwarfed by sea level rise in the Bay of Bengal, which has the potential to displace literally tens of millions, at unimaginable cost.

³ The *Stern Review on the Economics of Climate Change* is a major report on the effects of climate change and global warming commissioned by the UK government and released on October 30, 2006. Although not the first economic report on global warming, it is significant as the largest and most widely known and discussed report of its kind.

⁴ www.hm-treasury.gov.uk/media/4/3/Executive_Summary.pdf, p. 26.

⁵ Cline, William: *Global Warming and Agriculture: Impact Estimates by Country*; Peterson Institute for International Economics; July 2007

⁶ *Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Working Group II – Summary for Policymakers*; April, 2007.

⁷ Nyong, Anthony: *Continent Cannot Turn a Blind Eye to Climate Change*; Science and Development Network (www.scidev.net), August 1, 2007.

The past several years have seen increasing attention in the United States to the issue of climate change and its impact. Most of the attention has focused on whether and how to reduce the emission of greenhouse gases, and on the implications of climate change for the United States. At issue are questions about timing, benefits and costs of various possible approaches. In spite of the broad scientific consensus about the extent of the problem and the likely disproportionate impact of climate change on some of the poorest countries around the world, there has been relatively little attention to what can be done to help the most at risk communities to adapt to the changes that are already underway.

A way forward needs to be in the best interest of all. Should the global community's emphasis be on reducing carbon emissions, or adapting to its consequences? In fact, both are needed: reducing emissions ("mitigation") would limit carbon dioxide in the atmosphere by reducing emissions, while adaptation seeks to reduce vulnerability to or help the worst affected countries and communities cope with, the consequences of climate change in the short term. The frequently-cited Kyoto Protocol represents an attempt to address the issue of mitigation. While mitigation can slow the progression of global warming, any impact of reduced emissions today will not be manifest for years in the future. Thus, adaptation to the changes already underway is the most immediate challenge for developing countries.

Adaptation to climate change does not have to come at the cost of other development programs – good development is all about fostering the capacity of communities and institutions to deal with change: investments in agricultural research capacity will aid in identifying and promoting the appropriate crops and soil management and cultivation techniques in response to climate change; improved governance will ensure that the voices of those affected are considered in formulating adaptive measures.

Specific examples of adaptation measures include:

- Relatively straight-forward engineering solutions, such as raising the level of community centers to provide a refuge for people and livestock during floods;
- Reforestation to capture and hold carbon, reduce temperatures and stabilize fragile soils;
- Expansion of coastal mangrove and wetlands to contain storm surges and reduce saline intrusion;
- Agricultural research to identify more salt-tolerant varieties of paddy rice, vegetables and lowland cash crops like jute in areas facing increased salinization; and to look at drought tolerance and the suitability of alternative crops;
- Widespread distribution of bed nets to reduce malaria.

Adaptation does have significant cost implications. Oxfam International, in a May 2007 [briefing paper](#), estimates that adaptation will cost \$50 billion annually, and more if global emissions are not cut rapidly. The cost of inaction, however, must

also be considered. According to World Bank estimates, if climate change results in a decrease in economic growth of 0.5 percent per year in developing countries, the annual cost in terms of lost income will be roughly \$70 billion.⁸

A stream of resources of this magnitude clearly cannot be generated within current foreign aid budgetary parameters. Indeed, if one accepts the principle that the polluter should pay for damages caused, the additional resources should be regarded, not as aid, but as compensation from high-emissions countries to those most vulnerable to the impacts. There are many innovative mechanisms for raising this finance outside of aid channels which deserve consideration. One promising source lies in the proposed “cap and trade” carbon emissions regime, whereby a levy of perhaps two percent would be imposed on carbon credits generated under the [Clean Development Mechanism](#) established under the Kyoto Protocol. A tax on carbon emissions at the national level could also generate resources for adaptation. An additional tax on international air travel is third option.

Concerted action on climate change should stimulate the development of new technologies and with them, significant new business opportunities. As noted in the Stern Review, “The world does not need to choose between averting climate change and promoting growth and development. Changes in technologies and in the structure of economies have created opportunities to decouple growth from greenhouse gas emissions.”⁹ What’s needed is the political will to do so.

U.S. intransigence impedes any progress. According to the United Nations Development Program (UNDP)¹⁰, in 2004 the U.S. led the world in total carbon dioxide emissions, with over 6 million tons, followed by China (5 million tons) and Russia (1.5 million).¹¹ In per capita terms, the U.S. has highest emissions of any country outside of Persian Gulf states, at 20.6 tons per capita in 2004. For the same year, Japan, Germany and the United Kingdom had just under 10 tons per capita – half the U.S. level, but with comparable standards of living. China was far behind, at 3.8 tons, and per capita emissions for India were only 1.2 tons. Per capita emissions from other poor countries, particularly countries in Sub-Saharan Africa, are infinitesimal compared to those of the developed countries and emerging markets.

More recent data indicate that rapid economic growth and industrialization in China has meant that, in absolute terms, China has overtaken the United States as the leading emitter of greenhouse gases. This fact is often used to justify why the United States has not ratified the internationally agreed Kyoto Protocol of the Framework Convention on Climate Change, which aims to stabilize global emissions. But the United States’ refusal to agree to targets is a disincentive for

⁸ Noble, Ian: *World Bank and Adaptation Tools and Practices*: http://powerpoints.wri.org/vulnerability_noble.ppt#256,1.

⁹ Osborne, Hilary: *Stern Report: the key points*; *Guardian Unlimited*, October 30, 2006

¹⁰ Human Development Report 2007/2008: *Fighting Climate Change – Human Solidarity in a Divided World* (<http://hdr.undp.org/en/reports/global/hdr2007-2008/>)

¹¹ These figures are for 2004. Since then, indications are that China has become the leading global emitter of carbon dioxide.

developing countries to reduce emissions and seek alternative energy sources that will be crucial to achieve sustainable economic development without further harming the climate.

The involvement of a broad number of stakeholders will make for a more equitable agreement. Responses to the issue of climate change range across the spectrum, from faith-based NGOs to private sector to government:

- World Council of Churches has issued a statement, [Climate Justice for All](#), calling on countries to, “address the reality of climate change with the extreme urgency that it demands.”
- The Evangelical Climate Initiative has issued [Climate Change: An Evangelical Call to Action](#) and [Principles for Federal Policy on Climate Change](#) which calls for adaptation and mitigation assistance for least developed countries, among other measures.
- The private sector U.S. Climate Action Partnership, USCAP, composed of major industries and four environmental organizations, has called on the federal government for “swift action of global climate change.” Businesses participating in USCAP include Alcoa, Caterpillar, GE, Dupont and BP America.
- Legislative initiatives in Congress include:
 - Amending energy legislation to address the impacts of climate change on developing countries. One such amendment would require an assessment of current and anticipated needs of developing countries in adapting to climate change, including a strategy to address these needs and an identification of funding sources for such purposes.
 - Identifying a dedicated source of funding for mitigation and adaptation measures in developing countries.