

Costs of adapting to climate change significantly underestimated

August 27 2009



The new report claims that the cost of adapting to coastal flooding could be three times greater than predicted

Scientists led by a former co-chair of the Intergovernmental Panel on Climate Change will warn today that the UN negotiations aimed at tackling climate change are based on substantial underestimates of what it will cost to adapt to its impacts.

The real costs of adaptation are likely to be 2-3 times greater than estimates made by the UN Framework Convention on [Climate Change](#) (UNFCCC), say Professor Martin Parry and colleagues in a new

reviewed study published by the International Institute for Environment and Development (IIED) and the Grantham Institute for Climate Change at Imperial College London.

The study adds that costs will be even more when the full range of climate impacts on human activities is considered.

Professor Parry and colleagues warn that this underestimate of the cost of adaptation threatens to weaken the outcome of UNFCCC negotiations, which are due to culminate in Copenhagen in December with a global deal aimed at tackling climate change.

"The amount of money on the table at Copenhagen is one of the key factors that will determine whether we achieve a climate change agreement," says Professor Parry, visiting research fellow at the Grantham Institute for Climate Change at Imperial College London. "But previous estimates of adaptation costs have substantially misjudged the scale of funds needed."

The UNFCCC has estimated annual global costs of adapting to climate change to be US\$40-170 billion, or the cost of about three Olympic Games per year.

But the report's authors warn that these estimates were produced too quickly and did not include key sectors such as energy, manufacturing, retailing, mining, tourism and ecosystems. Other sectors that the UNFCCC did include were only partially covered.

"Just looking in depth at the sectors the UNFCCC did study, we estimate adaptation costs to be 2-3 higher, and when you include the sectors the UNFCCC left out the true cost is probably much greater," warns Professor Parry, who co-chaired the IPCC working group on impacts, vulnerability and adaptation between 2002 and 2008.

The new study's key findings include:

- **Water:** The UNFCCC estimate of US\$11 billion excluded costs of adapting to floods and assumes no costs for transferring water within nations from areas of surplus to areas of deficit. The underestimate could be substantial, according to the new study.
- **Health:** The UNFCCC estimate of US\$5 billion excluded developed nations, and assessed only malaria, diarrhoea and malnutrition. This could cover only 30-50 percent of the global total disease burden, according to the new study.
- **Infrastructure:** The UNFCCC estimate of US\$8-130 billion assumed that low levels of investment in infrastructure will continue to characterise development in Africa and other relatively poor parts of the world. But the new study points out that such investment must increase in order to reduce poverty and thus avoid continuing high levels of vulnerability to climate change. It says the costs of adapting this upgraded infrastructure to climate change will be eight times more costly than the higher estimates predicted by the UNFCCC.
- **Coastal zones:** The UNFCCC estimate of US\$11 billion excluded increased storm intensity and used low IPCC predictions of sea level rise. Considering research on sea level rise published since the 2007 IPCC report, and including storms, the new study suggests costs will be about three times greater than predicted.
- **Ecosystems:** The UNFCCC excluded from its estimates the costs of protecting ecosystems and the services they can provide for human society. The new study concludes that that this is an important source of under-estimation, which will cost over US\$350 billion, including both protected and non-protected areas.

The report calls for detailed case studies of what adaptation costs will be, and points out that the few that already exist suggest that costs will be considerable.

The new study adds that the UNFCCC estimates do not include the cost of bearing 'residual damage' that will arise from situations where adaptation is not technically feasible or simply too expensive.

"Finance is the key that will unlock the negotiations in Copenhagen but if governments are working with the wrong numbers, we could end up with a false deal that fails to cover the costs of adaptation to climate change," says Camilla Toulmin, director of the International Institute for Environment and Development, which co-published the study.

Professor Sir Brian Hoskins, Director of the Grantham Institute for Climate Change at Imperial College London, which co-published the study, says: "The costs of adapting to live with a changing climate are very uncertain. However, this new study suggests that previous attempts to figure out the costs have drastically under-estimated how expensive this could be. With such large sums potentially involved, the pressure to act now to reduce the extent of climate change is greater than ever."

The new study was reviewed by seven of the world's leading adaptation scientists, including the lead authors of the original UNFCCC study. Following this, close to 100 adaptation policy and research experts were invited to comment on the pre-publication draft.

The report's authors are: Professor Martin Parry (Imperial College London), Professors Nigel Arnell, Richard Tiffin and Tim Wheeler (University of Reading), Dr Pam Berry (University of Oxford), Drs David Dodman and David Satterthwaite (International Institute for Environment and Development), Dr Sam Fankhauser (London School of Economics), Dr Chris Hope (University of Cambridge), Dr Sari Kovats

(London School of Hygiene and Tropical Medicine), Professor Robert Nicholls (University of Southampton).

More information: The report is entitled 'Assessing the costs of adaptation to climate change: a review of the UNFCCC and other recent estimates'. Copies can be downloaded from the IIED website www.iied.org

Provided by Imperial College London ([news](#) : [web](#))

Citation: Costs of adapting to climate change significantly underestimated (2009, August 27)
retrieved 9 April 2024 from
<https://phys.org/news/2009-08-climate-significantly-underestimated.html>

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