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Climate change adaptation will cost 2-3 times more



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UK scientists have warned that UN negotiations aimed at tackling climate change are based on substantial underestimates of what it will cost to adapt to its impacts.



Dr Pam Berry of the Environmental Change Institute led the work on estimating the costs of protecting ecosystems.

The real costs of adaptation to climate change are likely to be two-to-three times greater than estimates made by the UN Framework Convention on Climate Change (UNFCCC), the researchers say.

In a study published by the International Institute for Environment and Development and the Grantham Institute for Climate Change, they add that costs will be even more when the full range of climate impacts on human activities is considered.

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

But the report's authors – including Dr Pam Berry from the Environmental Change Institute at Oxford University – say that these estimates were produced too quickly and did not include key sectors such as energy, manufacturing, retailing, mining, tourism and ecosystems.

Dr Berry led the work on estimating the costs of protecting ecosystems and the services they can

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Further information

- › Report: 'Assessing the Costs of Adaptation to Climate Change'
- › Environmental Change Institute
- › International Institute for Environment and Development
- › The Grantham Institute for Climate Change



provide for human society, **largest of any sector.** ”

which were excluded from the UNFCCC estimates.

Dr Pam Berry

She found that this is an important source of under-estimation, and will cost over \$350 billion, including both protected and non-protected areas.

'The costs of adaptation for ecosystems are potentially huge, the largest of any sector,' says Dr Berry. 'This is not only because of the projected future losses of species, but also because of the immense value of ecosystems for human health and well-being through the provision of food, fuel and fibre. The worrying feature is that our report has identified how little is known about this, the biggest elephant in the room. Even worse, uncertainty is leading to its omission from the overall figures, which will compound the underestimate.'

The study's other findings include:

- ◆ **Water:** The UNFCCC estimate of \$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.
- ◆ **Health:** The UNFCCC assessed only malaria, diarrhoea and malnutrition and excluded developed nations in coming to a figure of \$5 billion. But this may cover only 30–50 per cent of the global total disease burden.
- ◆ **Infrastructure:** In arriving at a cost of \$8–130 billion, the UNFCCC 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 researchers point out that such investment must increase in order to reduce poverty and thus avoid continuing high levels of vulnerability to climate change. Their report says the costs of adapting this upgraded infrastructure to climate change will be eight times more than the higher estimates predicted by the UNFCCC.
- ◆ **Coastal zones:** The UNFCCC estimate of \$11 billion excluded increased storm intensity and used low IPCC predictions of sea level rise. New research on sea-level rise published since the 2007 IPCC report, and including storms, suggests costs will be about three times greater than predicted.



The researchers believe that the 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.

Professor Martin Parry (right, with Dr Berry, left), visiting research

fellow at the Grantham Institute for Climate Change at Imperial College London and a former co-chair of the Intergovernmental Panel on Climate Change, led the group.

He said: '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. But previous estimates of adaptation costs have substantially misjudged the scale of funds needed.'

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