

## Global justice and the costs of climate change

# Who pays?

Extreme weather events, partly caused by climate change, are already wreaking havoc, especially in the South. Both floods and droughts are expected to become more frequent and more severe. But who will pay for the measures needed to respond to the impacts of climate change?

By **Emmy Bergsma**

The impacts of climate change are becoming more visible. According to the United Nations Environment Programme (UNEP) in 2005 there was ‘an unusually large number of extreme weather events ... a development that most scientists agree is consistent with climate change’. At the same time, as populations grow, more people will be forced to live in vulnerable areas, and so are more likely to be affected by extreme weather conditions.

The economic impacts are likely to be enormous. Munich Re, one of the world’s largest reinsurance companies, estimates that even in 2005 the financial losses resulting from weather-related natural disasters amounted to more than US\$200 billion. In his 2006 report to the UK government, economist Nicholas Stern warned that climate change impacts will result in ‘an average 5–10% loss in global GDP’ by the end of this century if no action is taken.

Forecasts suggest that extreme weather events will become more frequent and more severe, while the global population will continue to grow. We will all have to adapt to climate change – by constructing dykes, or introducing stricter building and spatial planning regulations, for example – and that will cost money.

The costs of responding to climate change fall into two categories: compensation for the damage due to the impacts of climate change and financing adaptation measures. Both are expected to rise in the coming years.

### International problem

At present, the costs of climate change are being addressed at country level. Many Western governments are making some contribution to the costs of damage compensation and adaptation, but in Southern countries this is rarely the case.

Climate change is a global problem that cannot be addressed only at national level. Greenhouse gases discharged in one country will have an impact elsewhere. Southern countries are particularly vulnerable, and are expected to suffer many of the negative impacts of climate change. Yet these countries make a relatively small contribution to total greenhouse gas emissions, and have limited resources to protect their populations.

In this context, it is understandable that there have been calls from many quarters for the international community not only to talk about how to distribute the costs of reducing greenhouse gas emissions (known in the jargon as ‘mitigation’), but also to act, by setting up a just global infrastructure to spread the costs of damage compensation and adaptation to climate change.

### Justice

The concept of justice has long been the domain of philosophy, politics and the law. In the 1980s, however, the American environmental movement adopted the concept and used it in campaigns for a fairer distribution of environmental benefits and costs among different groups. Since then, civil society organizations, policy makers, academics and scientists have increasingly called for environmental justice in relation to climate change.

In broad terms, the concept of justice can be applied to the distribution of environmental costs in two ways: >

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deontological and consequential justice. The central premise of deontological justice is that it is the right *in principle* of every individual not to suffer the negative consequences of another's actions. Anyone who violates this right is liable for any negative consequences. This is the basis of the 'polluter pays' principle. In the case of deontological justice, therefore, the question of who is the guilty party is crucial.

In the case of consequential justice it is not the question of guilt that is central, but the fairness of the outcome. The idea is that no one individual is responsible for random events such as diseases or natural disasters, so the costs of the damage they cause are borne jointly by a large group of people. One option is to try and ensure that those who can best afford it bear a greater share of the costs. This is known as *distributional justice*.

There is growing academic debate on how ensure that the costs of climate change are fairly divided. In general terms, jurisprudence can be said to focus on the division of the costs on the basis of the deontological principle, while economic and political sciences address the distributional aspects. But other disciplines, such as environmental science, philosophy and anthropology, are also involved in the discussion.

### Current approach inadequate

There is much criticism of the current international approach to dealing with the costs of weather-related natural disasters. After floods or prolonged droughts, for example, Southern countries are often dependent the charity of Western countries for disaster relief. The random nature and sluggishness of international response efforts have been widely criticized. Furthermore, there is almost no direct compensation for the victims; farmers, for example, usually bear the costs of damage to property, crops and livestock.

In principle, Southern countries can appeal to five international funds for help with the costs of adapting to climate change. All of these funds are managed by the Global Environment Facility (GEF), and two are financed by the GEF itself. The other three were set up under the UN Framework Convention on Climate Change (UNFCCC), and are largely funded from voluntary contributions by Western countries. One critic of these funds is M.J. Mace (2005), a lawyer with the Foundation for International Environmental Law and Development (FIELD), a London-based NGO that advises small island states. 🇵🇸 In her view, the fact that the contributions are voluntary places the funds at risk. She also considers the

criteria for receiving support unclear, which leads to the arbitrary allocation of funds.

In response to these criticisms, a number of academics have started to discuss ways to ensure a global, equitable division of the costs of climate change.

### Distributional justice

The support provided by the West to Southern countries after a disaster is an example of distributional justice. The costs are partly shared by Western countries, which are better able to bear the burden than the countries affected. Benito Müller, a philosopher at the University of Oxford, UK, has long been concerned about a just distribution of the costs of climate change. He has called for an international ‘disaster relief fund’ to be set up to guarantee the rapid and systematic transfer of funds to Southern countries after a disaster. The fund would be financed by fixed annual contributions from Western countries.

Insurance schemes can also be seen as a form of distributional justice, in that the costs of redressing the damage are borne jointly by everyone who pays a premium. Jacob Park, professor of business and policy at Green Mountain College, USA, and insurance experts Andrew Dlugolecki and Mojdeh Keykhah believe that the vulnerability of Southern countries to extreme weather conditions can be overcome by expanding insurance cover, with insurers paying out directly in the event of a disaster. In recent years insurance companies have introduced a number of innovative products designed to spread the risks associated with extreme weather events (see box).

These solutions are aimed at spreading the costs of disaster relief and rehabilitation, but they do nothing to prevent or restrict the causes of climate change. This is an inherent problem with distributional justice. According to sociologist Ulrich Beck of Ludwig Maximilian University of Munich, Germany, in spreading the costs of the damage, the question of liability is not addressed and the causes of the damage are therefore not established. As a result, damage occurs that could have been prevented.

In response to this problem, many researchers are placing greater emphasis on the costs of adapting to climate change. For example, Laurens Bouwer and colleagues of the Institute for Environmental Studies at the VU University Amsterdam, reject Müller’s proposal for a disaster relief fund because ‘relief is provided irrespective of the cause of a disaster’. They suggest that the same money could be spent much more effectively on adaptation measures, because that would prevent much of the damage occurring in the first place. It has been estimated that adaptation costs would amount to only 7–10% of the total costs of climate change. Other researchers have adopted this rational economic perspective. Bouwer *et al.* have also called for the better integration of funding for adaptation into existing international agreements, like the Climate Change Convention.

### Spreading the risk

The insurance industry has developed a number of alternative risk transfer mechanisms (ARTs) to distribute the costs of extreme weather conditions as widely as possible.

- *Weather derivatives* are a sort of option sold by insurance companies, linked to a specific unfavourable weather event. As long as the event does not occur, the buyer receives a high rate of interest. If it does occur, however, the buyer has to pay the insurer a previously agreed sum of money. Weather derivatives are linked to frequent weather events that do not have very serious consequences, such as a dry summer.
- *Catastrophe bonds* work largely in the same way as weather derivatives, except that they cover infrequent catastrophic events, such as hurricanes. As long as the catastrophe does not occur, the buyer receives a very high rate of interest.

In practice, weather derivatives and catastrophe bonds are likely to be bought by wealthy individuals who are willing to accept high risk. The new market that has emerged with the introduction of ARTs has been used to extend insurance against extreme weather conditions in Southern countries.

In India, for example, insurers have been involved in setting up weather insurance cover at the micro level. In effect, farmers buy the reverse risk to investors in ARTs. If an agreed unfavourable weather event occurs, the compensation they receive is funded largely by ART investors. The farmers pay the premiums themselves.

In a similar scheme in Ethiopia, in 2006 the World Food Programme (WFP) signed a contract with AXA Re, a French reinsurer, in which AXA Re agreed to pay US\$7 million to the Ethiopian government in the event of a very dry summer. The premium of US\$930,000 was paid by the WFP and a group of donors, including the US and Ethiopian governments. It is unclear whether this scheme was continued in 2007.

For more information on insurance schemes in Southern countries, see the website of the Rural Finance Learning Centre. [www.ruralfinance.org](http://www.ruralfinance.org)

### Deontological justice

The former government of Tuvalu, a small Pacific island state, recently considered taking large polluters like the United States to court to establish their liability for the damage suffered by the island as a result of climate change. This is an example of spreading the costs on the basis of deontological justice, in that those emitting greenhouse gases are made liable for the negative effects of their behaviour. Although the current government of Tuvalu abandoned the plan, a number of legal scholars are now investigating the possibility of recovering the costs of the >



impacts of climate change from greenhouse gas emitters.

Richard Tol, an environmental economist at the Economic and Social Research Institute, Dublin, Ireland, and Roda Verheyen, a legal scholar at the University of Hamburg, believe that the ‘no harm’ rule in international law provides countries with an opportunity to hold other countries liable for the damage caused by their greenhouse gas emissions. ☞ In essence, this rule means that activities in one country may not have any detrimental effects on other countries.

Philippe Cullet, a legal expert at the Geneva-based International Environmental Law Research Centre (IELRC), rejects liability at country level, and has called for a system of individual liability. In his view, it is not justified to spread the costs across an entire country because polluters and victims are so diverse – some industries pollute more than others, while some groups are more vulnerable than others to the impacts of climate change.

Most solutions for distributing the costs of climate change on the basis of deontological justice focus on recovering the costs of damage. Only Tol and Verheyen offer an option based on recovering the costs of adaptation. They suggest using the ‘no harm’ rule to make polluters liable for funding adaptation measures in Southern countries.

Establishing liability at both country and individual levels has its merits, but also presents a number of challenges, according to Michael Faure and André Nollkaemper of the Amsterdam Centre for International Law. In particular, it is very difficult to establish a direct link between cause and effect. In the first place, the natural threat posed by extreme weather events is exacerbated by greenhouse gas emissions. This makes it very hard to determine which part of the damage is caused by emissions and which is natural. In addition, greenhouse gases are emitted from many different sources, so that it is almost impossible to identify which individuals, companies and countries have contributed to a certain disaster and to what degree. Another complicating factor is historical responsibility. Because the effects of greenhouse gas emissions become apparent only after many years, it is problematic to determine the extent to which past emissions can be taken into account when considering liability.

There have been a number of court cases against greenhouse gas emitters. Some have been rejected, often on the basis of the problems outlined above, while others are still under way. ☞ As far as we know, no cases have yet been successful.

## Cohesive infrastructure

The initial contours of a just international division of the costs of dealing with climate change are beginning to emerge. As yet, however, there is no cohesive infrastructure for distributing these costs.

A just division of the costs of climate change is complex because it is impossible to determine who or what is responsible, and to what degree. Increasingly, researchers are emphasizing that it is better to prevent damage in advance than to try to divide up the costs after it has occurred. Such an approach would be beneficial to all those who have to bear the consequences of the damage, irrespective of how the costs are divided among those involved.

This economic approach can help to separate the debate on adaptation from the complex discussion about cause and effect, and could speed up the provision of funds for adaptation measures. However, this does not mean that the discussion on justice is entirely resolved. Before any effective funding mechanism can be set up, the issue of how to ensure a just distribution of this funding will need to be addressed. Otherwise, adaptation will continue to be dependent on the system of voluntary contributions that has been so widely criticized in the past. ■

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