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Climate Alarm

Disasters increase as climate change bites

Climatic disasters are increasing as temperatures climb and rainfall intensifies. A rise in small- and medium-scale disasters is a particularly worrying trend. Yet even extreme weather need not bring disasters; it is poverty and powerlessness that make people vulnerable. Though more emergency aid is needed, humanitarian response must do more than save lives: it has to link to climate change adaptation and bolster poor people's livelihoods through social protection and disaster risk reduction approaches.

Summary

Climatic disasters are on the increase as the Earth warms up – in line with scientific observations and computer simulations that model future climate. 2007 has been a year of climatic crises, especially floods, often of an unprecedented nature. They included Africa's worst floods in three decades, unprecedented flooding in Mexico, massive floods in South Asia and heat waves and forest fires in Europe, Australia, and California. By mid November the United Nations had launched 15 'flash appeals', the greatest ever number in one year. All but one were in response to climatic disasters.

At the same time as climate hazards are growing in number, more people are being affected by them because of poverty, powerlessness, population growth, and the movement and displacement of people to marginal areas. The total number of natural disasters has quadrupled in the last two decades – most of them floods, cyclones, and storms. Over the same period the number of people affected by disasters has increased from around 174 million to an average of over 250 million a year. Small- and medium-scale disasters are occurring more frequently than the kind of large-scale disasters that hit the headlines.

However, dramatic weather events do not in themselves necessarily constitute disasters; that depends on the level of human vulnerability – the capacity to resist impacts. Poor people and countries are far more vulnerable because of their poverty. Disasters, in turn, undermine development that can provide greater resilience.

One shock after another, even if each is fairly small, can push poor people and communities into a downward spiral of destitution and further vulnerability from which they struggle to recover. Such shocks can be weather-related, due to economic downturns, or occur because of conflict or the spread of diseases like HIV and AIDS. Such shocks hit women hardest; they are the main collectors of water and depend most directly on access to natural resources to feed their families; they have fewer assets than men to fall back on, and often less power to demand their rights to protection and assistance.

Now, accelerating climate change is bringing more floods, droughts, extreme weather and unpredictable seasons. Climate change has the potential to massively increase global poverty and inequality, punishing first, and most, the very people least responsible for greenhouse-gas emissions – and increasing their vulnerability to disaster.

There is hope. The global humanitarian system has been getting better at reducing death rates from public-health crises following on from major shocks like floods or droughts. But humanitarian response is still skewed, for example to high-profile disasters, and it will certainly be woefully inadequate as global temperatures continue to rise, unless action is taken quickly.

New approaches to humanitarian action are needed as well as new money. Political efforts aimed at reducing poverty and inequality, which provide people with essential services like health and education, and offer social protection (a regular basic income, or insurance), constitute a firm foundation for effective disaster risk reduction (DRR), preparedness, and

response. More work needs to be done to understand the linkages between development, DRR and climate change adaptation, and therefore to more accurately assess the financial costs climate change will impose.

Fundamentally, the world has an immediate responsibility to stem the increase in climate-related hazards. Above all, that means tackling climate change by drastically reducing greenhouse-gas emissions.

Oxfam's recommendations are:

Mitigate: Greenhouse-gas emissions must be reduced drastically to keep global average temperature rise as far below two degrees Celsius as possible. Rich countries must act first and fastest. The next UN climate-change conference in Bali in December is a vital opportunity.

Adapt: Oxfam has estimated that, in addition to funding for emergency response, developing countries will require at least US\$50bn annually to adapt to unavoidable climate change. These funds should be provided by rich nations in line with their responsibility for causing climate change and their capacity to assist. Additional finance for adaptation is not aid, but a form of compensatory finance; it must not come out of long-standing donor commitments to provide 0.7 per cent of gross domestic product as aid in order to eradicate poverty. At present, funding for adaptation is totally inadequate, and the forthcoming UN climate conference in Bali in December must mandate the search for new funds. Innovative financing mechanisms need to be explored.

Improve the global humanitarian system:

- **Increase emergency aid:** Major donor governments must keep their promises to increase Overseas Development Aid by an additional US\$50bn a year by 2010. If they do, then humanitarian aid is likely to increase in proportion from over US\$8bn to over US\$11bn. But aid is going in the wrong direction, and anyway this is unlikely to be enough; increased warming and climate change pose the very real danger that humanitarian response will be overwhelmed in the coming decades. More money and better responses are both needed.
- **Ensure fast, fair, flexible, appropriate aid:** This should include moving away from over-reliance on in-kind food aid, towards more flexible solutions such as cash transfers.

Reduce vulnerability and the risk of disaster:

- **Build long-term social protection:** Climate change is accentuating the fact that for many poor people, shocks are the norm. Governments must put poor people first. Aid should be used to build and protect the livelihoods and assets of poor people. Providing essential services like water, sanitation, health and education, and long-term social protection systems form the foundations for timely emergency scale-up when required.
- **Invest in disaster risk reduction (DRR) :** Governments have made commitments to make the world safer from natural hazards through investing in DRR approaches. They need to put their promises into

action and link DRR to both climate-change adaptation measures and to national poverty reduction strategies.

- **Build local capacity:** Build the capacity of local actors, particularly government at all levels, and empower affected populations so they have a strong role and voice in preparedness, response and subsequent recovery and rehabilitation.
- **Do development right:** Development aid should integrate analyses of disaster risk and climate trends. Inappropriate development strategies not only waste scant resources, they also end up putting more people at risk, for instance by the current reckless rush to produce biofuels without adequate safeguards for poor people and important environments.

1 Introduction

Late in 2007, former UN Secretary-General Kofi Annan warned: 'The humanitarian impact of climate change is likely to be among the biggest humanitarian challenges in years and decades to come. Action so far has been slow and inadequate compared with needs.'¹

He was speaking after a year of climatic crises, especially floods, often of an unprecedented nature.² These crises included:

- Africa's biggest floods in three decades, which hit 23 countries from Senegal in the West to Somalia in the East and affected nearly two million people. In West Africa, the July–October floods affected 13 countries and 800,000 people;³ floods in Central and East Africa during the same period affected ten countries and over a million people.⁴ Africa's climates have always been highly variable, but even more climatic extremes are in line with climate change models, with more intense rain and floods likely in coastal West Africa and much of East Africa, while at the same time other regions become drier.⁵
- Nepal, India, and Bangladesh were hit by the worst flooding in living memory, affecting more than 41 million people. As of August, some 248 million people were affected by flooding in 11 Asian countries.⁶ On 15 November, cyclone Sidr caused immense destruction in Bangladesh. Extreme floods are common in South Asia, but even heavier monsoon rainfall is likely, as is intense rain in unlikely places.⁷
- Two category five hurricanes (Felix and Dean), several tropical storms and unusual heavy rains in Central America, Mexico and the Caribbean affected more than 1.5 million people in ten countries. At the flood's height in Mexico over four-fifths of the state of Tabasco was under water, damaging the homes of nearly a million people. President Felipe Calderón called it 'one of the worst natural disasters in Mexican history'⁸.
- Heat waves and forest fires in Greece and Eastern Europe affected more than 1 million people⁹ – reinforcing climate change models that predict that Southern Europe and the Mediterranean will become hotter and drier.¹⁰ Severe drought continued in Australia with extensive bush fires,¹¹ and subsequently, wildfires set California ablaze.¹²

By mid November the United Nations had launched 15 'flash appeals',¹³ the greatest ever number in one year. All but one of these appeals were in response to climatic disasters. Sir John Holmes, UN

Emergency Relief Coordinator, said: 'We are seeing the effects of climate change... All these events on their own didn't have massive death tolls, but if you add all these disasters together you get a mega-disaster.'¹⁴

Reviewing Oxfam's operations this year, Nick Roseveare, Oxfam GB's Humanitarian Director, said: 'In addition to the larger, more newsworthy events, 2007 has been characterised by yet more local-level crises. For many reasons – including poverty, governance failure, war and conflict, HIV/AIDS and more – many communities are becoming ever more vulnerable, and repeated extreme weather events come on top of all that and knock them down time and time again.

'In many places, people we work with tell us the same thing: the weather has changed, and they have no explanation. In particular, the rains are more erratic – playing havoc with planting seasons or the predictability of pasture, on which their livelihoods depend.'

2 Echoes of 1983 'Weather Alert' report

Of course, global weather disruptions are not new. In 1983, before the problem of climate change was widely recognised, Oxfam issued a report – 'Weather Alert'¹⁵ – that highlighted the 'unprecedented climatic extremes' of floods and droughts that were then affecting both the developing world and also countries such as Australia, the UK, and the USA.¹⁶

Now, nearly 25 years on, Oxfam is issuing a new 'weather alert'. We argue that the grim events of 2007 represent a trend in line with climate change models, interacting with other environmental stresses. However, dramatic weather events do not in themselves necessarily constitute disasters; much depends on the level of human vulnerability – i.e. the capacity to resist impacts. Loss of life and damage to infrastructure can be reduced dramatically if the right measures are taken before, during, and after emergencies.

3 Disaster trends

The total number of natural disasters worldwide now averages 400–500 a year, up from an average of 125 in the early 1980s.¹⁷ The number of climate-related disasters, particularly floods and storms, is rising far faster than the number of geological disasters, such as earthquakes. Between 1980 and 2006, the number of floods and cyclones quadrupled from 60 to 240 a year while the number of

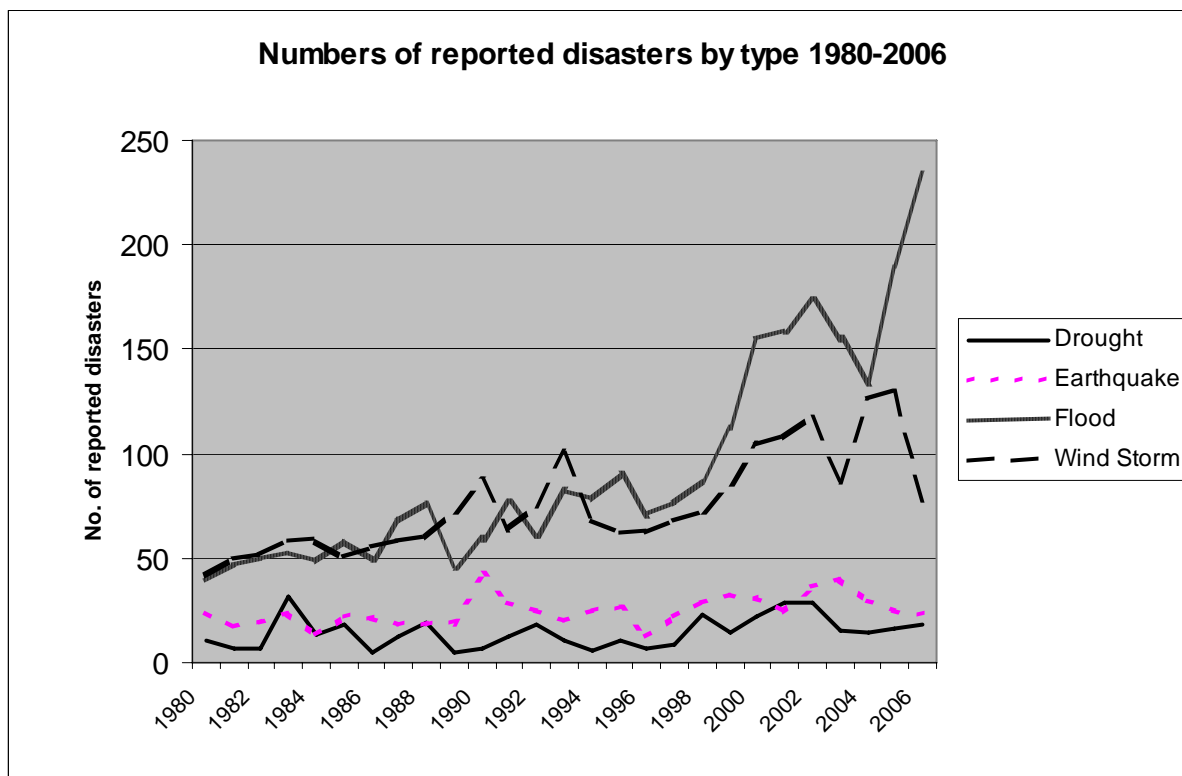
earthquakes remained approximately the same, at around 20 a year. In 2007 the Oxfam International family of agencies responded to floods or storms in more than 30 countries.

Disasters continue to happen in what the UN terms 'hotspots' of intensive risk, like Bangladesh, where regularly occurring hazards – such as floods, storms, and cyclones – combine with growing numbers of people living in vulnerable conditions.¹⁸

There has been some improvement in dealing with big disasters in such hotspots – in preparing for them and, especially, in tackling the public health crises that can often follow major shocks. Countless lives have been saved through the provision of clean water, sanitation, shelter, food, and medical care to large numbers of people.

At the same time as climate hazards are growing in number, more people are being exposed to them because of poverty, powerlessness, population growth, and the movement and displacement of people to marginal areas. Over the past two decades, the number of people affected by disasters has increased from an average of 174 to 254 million people a year.^{19 20}

As a result of all these trends, small- and medium-scale disasters are occurring more frequently than the kind of large-scale disasters that hit the headlines.²¹ When a large number of localised disasters occur simultaneously, or follow one another very rapidly, as in West Africa, they can merge to become the kind of 'mega disaster' that Sir John Holmes warned about.



Source: EM-DAT graphic: ISDR in Disaster Risk Reduction: 2007 Global Overview, Global Platform for Disaster Risk Reduction

According to Maarten van Aalst of the Red Cross/Red Crescent Climate Centre in the Netherlands, climate change is behind both more *unique events* and more *multiple* events.²² Unique events are those – such as storms, floods, or heatwaves – that are highly unusual in a region. ‘These are of great concern as governments and communities are typically unprepared for them and only have a limited capacity to handle them’, says van Aalst. Multiple events refer to situations where one area is affected by a series of, often different, disasters in a relatively short period of time²³. Both types of experience strain the coping capacities of governments and communities.

Heatwaves and intense rainfall

Two types of hazard are particularly noticeable. First, heat waves. In line with climate observations and predictions, the incidence of heatwaves has increased more than five-fold over the past 20 years, from 29 in 1987–1996 to 76 in 1997–2006.²⁴ In Tajikistan, for instance, one of the world’s most disaster-prone countries, agronomist

Mirzokhonova Munavara told Oxfam workers: 'There has been a change in climate in the last 15 years. It gets extremely hot and then extremely cold. People are struggling because we have to adapt and we do not have the rain at times to water our land. The soil has become dry and crops have changed in quality and in colour. We have irrigation channels but no water. We cannot leave this village as we have nowhere to go and no money to leave. God has given us this weather so we will need to learn how to adapt, change our seeds so that we can continue to work and grow food'.

The second is a trend towards more concentrated and more intense rainfall, causing or exacerbating flooding in countries as far apart as the UK, Viet Nam, South Africa, Mexico, and India.²⁵ For example, Manish Kumar Agrawal, Oxfam Programme Officer in Ahmedabad, reported: 'For the last three years, one trend which is coming up very clearly is that of very heavy rain in a very short duration (e.g. 500–600mm in just 24 hours). The number of such places affected is also increasing. For example, this year five districts of North Gujarat, which are considered as drought-prone, received very heavy rainfall (ranging from 200–550mm in just 24 hours). The same phenomenon is happening in drought-prone Rajasthan.'²⁶

4 Disasters in the future

Those societies that are being hardest hit by climate change, and which are likely to suffer most in the immediate future, are those that are least responsible for man-made greenhouse gas emissions.²⁷

Climatic disasters are on the increase as the Earth warms up – in line with scientific observations and computer simulations that model future climate²⁸. Scientists warn that an average global temperature rise of two degrees Celsius (3.6 degrees Fahrenheit) would be the threshold beyond which even more dangerous climate changes will become much more probable. Currently, temperatures are on track to go considerably higher than this. Such increases are likely to wreck the agricultural viability of whole regions of the world and destroy the livelihoods of millions of people, with appalling humanitarian consequences.²⁹ ³⁰ In particular, 'hundreds of millions' more people will be exposed to increased water stress.³¹

The example of Viet Nam – facing a ‘triple whammy’ from climate change

Vietnam faces a ‘triple whammy’ from climate change – typhoons, floods, and drought. In August 2007 a severe storm and flooding devastated the country’s central provinces. Then in October, Typhoon Lekima caused landslides and widespread flooding on a scale not seen for 20 years.³²

Viet Nam is also likely to be the country that is the hardest hit of all by rising sea levels, according to a new report from World Bank researchers.³³

And more severe droughts are becoming common. New Oxfam research in Ninh Thuan Province this year shows how women in particular suffer from having to walk long distances to fetch water, in extreme temperatures, or go without water or food so that men and boys can drink and eat first.³⁴

Poverty makes people vulnerable

The impact of a natural disaster is anything but natural: it is based on inequalities. In general, extreme climatic events in the rich world result in large economic losses and few deaths. In the poor world the impact is the other way round – greater loss of life and relatively less economic damage, because poor countries have fewer assets. But the damage can be proportionately more crippling. Between 1985 and 1999 the losses of the richest countries due to natural disasters were just over two per cent of GDP, while the poorest countries’ losses were 13 per cent.³⁵

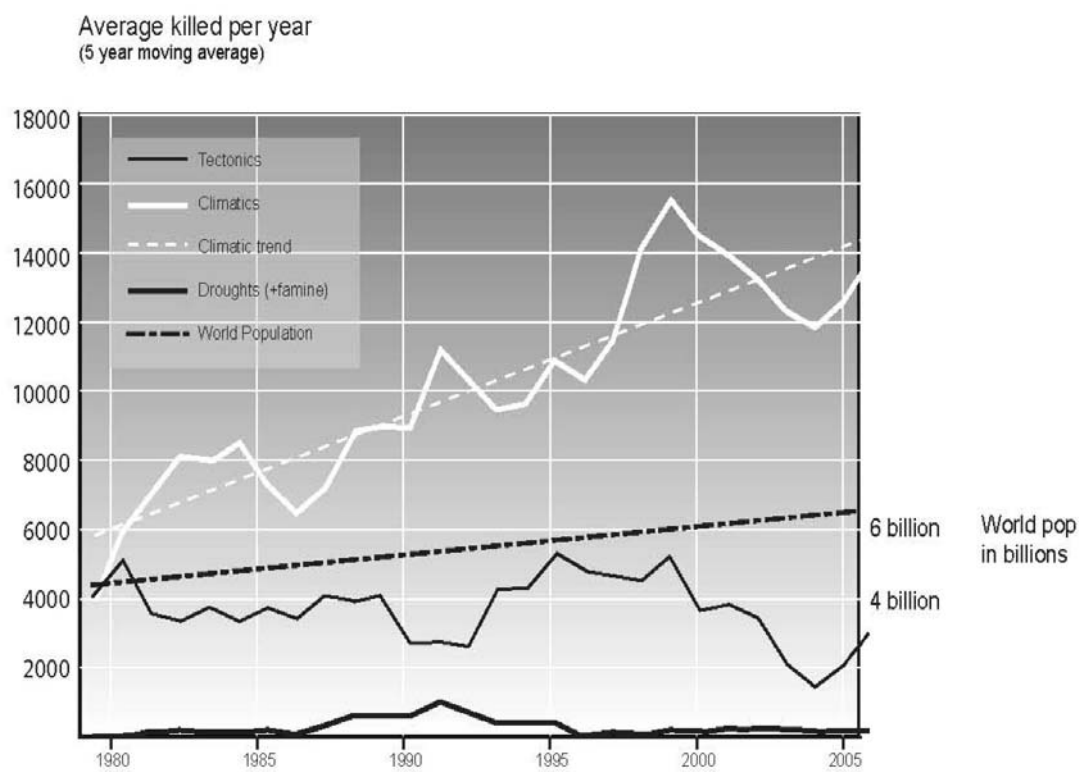
Poverty increases the ‘death to disaster’ ratio. According to the International Federation of Red Cross and Red Crescent Societies, between 1991 and 2000 in the richest countries there were 23 deaths per disaster, compared with 1,052 deaths per disaster in the poorest countries. According to one analysis, ‘in other words, development is an investment in disaster mitigation’.³⁶

The absolute numbers of people killed in disasters have been rising since the mid-1980s, but falling slightly as a proportion of overall population.^{37 38}

However, when mega-disasters such as the Asian tsunami of 2004 are discounted, the data shows that average deaths per year from small and medium-scale climatic disasters more than doubled from nearly 6,000 in 1980 to over 14,000 in 2006, outpacing population growth. According to UN disaster risk reduction (DRR) experts:³⁹ ‘The rapid growth in the number of small-scale climatic disasters and of mortality in these events tends to indicate that extensive risk is increasing rapidly.’

The figures suggest that while investments in disaster preparedness have reduced vulnerability to mega disasters, they have failed to keep up with the rising frequency and severity of small ones.

Average killed per hazard per year without "mega events"



Data source: EM-Dat, graphic: ISDR, 2007

Regular shocks undermine development

Vulnerability is a reflection of poverty and powerlessness – for example, having to live in a shack on a steep hillside in an urban slum, in danger from landslides. For poor people a succession of even relatively ‘small’ shocks – a week’s delay in the rains, sickness in the family, getting into debt as a result – can be more damaging to livelihoods than the occasional big one. In the absence of any form of social safety net or insurance, people struggle to recover before the next shock hits, and this can lead to a spiral of destitution and greater vulnerability. Even relatively small changes in climate can have dire consequences. Both floods and failures in rains, in particular, can dramatically accelerate the spread of debilitating and potentially deadly diseases such as diarrhoea.

In an interview in Tajikistan, woman farmer Umeda Ddinaeva told Oxfam: ‘Locusts attacked our fields and our entire crop has disappeared. I have noticed that when the temperature is above 34 degrees, when it is much hotter than usual, there is more chance that locusts will come. I will have to take out a loan to buy more seeds and spend the next two weeks getting the land ready to plant. It’s expensive and we won’t have an income for two months while the watermelons grow’.

Women are likely to suffer most

Globally, women depend most directly on natural resources to provide for their families: they are the main collectors of water and most women farmers depend on rain-fed agriculture, while at the same time women rarely own land and have minimum access to credit.⁴⁰ They have fewer assets to fall back on than men have. Social constraints on women’s involvement in public life may mean that they are the last and least to be informed and prepared for disasters, and the least able to access emergency aid after disasters. Drought and heatwaves, intense rain and floods and increasingly unpredictable seasons due to climate change are therefore likely to have disproportionately negative effects on women, potentially increasing their poverty and unequal status.

Floods in Uganda

In Uganda, torrential rains between July and August caused the worst floods in 30 years. An estimated 300,000 people were affected, and over 60,000 displaced. But the floods have had devastating effects far beyond the worst-hit areas. Even where the destruction of homes and infrastructure was small, contamination of water sources and a spoiled harvest have exacerbated poverty and led to an increased prevalence of waterborne diseases.

Savio Carvalho of Oxfam in Uganda said: 'It is essential that we help national and local government and the communities themselves to prepare for such events, and reduce the impact of natural disasters by ensuring minimum damage to water sources and crops in the future. Our response mode has to change from immediate relief for only the worst-affected area, to supporting disaster preparedness more widely.'

The rains started towards the end of the wet season but were of exceptional intensity and duration. Climate-change models indicate that such long and intense rains will be increasingly common.

5 Prevention is better than cure

The risk that a poor individual or household faces can be understood as a simple formula: risk = hazard x vulnerability. Protecting people's livelihoods and DRR can reduce risk.⁴¹

Cuba provides an excellent case study of exemplary disaster preparedness built on pro-poor development policies. Typically, the number of people killed by hurricanes there every year is in single figures. A report by Oxfam America says: 'At the national level, Cuba's disaster legislation, public education on disasters, meteorological research, early warning system, effective communication system for emergencies, comprehensive emergency plan, and Civil Defence structure are important resources in avoiding disaster.

'At the local level, high levels of literacy, developed infrastructure in rural areas, and access to reliable health care are crucial for national efforts in disaster mitigation, preparation, and response.'⁴²

Such examples are still, sadly, relatively uncommon, but Cuba is not completely alone. Bangladesh has made great strides in reducing the impact of the hazards that constantly assail it. In 1991 over 138,000 people perished in a cyclone. Subsequent cyclones – even the devastating cyclone that hit on 15 November, the biggest since 1991 – have killed far fewer people, due to the existence of cyclone shelters and greater community-based preparedness including evacuation plans, early warnings and the mobilisation of volunteers.⁴³ In the

Bangladesh countryside, 'raised villages' and flood shelters – artificial mounds the size of soccer pitches to which whole communities can retreat from floods – are fairly common sights. Mozambique too has got steadily better at implementing flood contingency plans, including providing essential services for displaced people (reducing recourse to international assistance).⁴⁴

Forewarned could be forearmed

Reducing vulnerability requires political will, particularly to put the most vulnerable people first – because they are usually the people with the least voice and influence in political decision-making. In East Africa, for instance, current climate models agree on the probability that much of that region will experience more intense rains. More rain could improve pasturelands, but a greening of semi-arid areas may also lure farmers to enclose pasture, pushing off pastoralists and their herds of animals and making them poorer and more vulnerable.

Knowing what the future climate is likely to bring allows governments and other actors to begin planning ahead and to undertake climate adaptation measures now. Viet Nam, for example, has effective systems for managing floods, but is less prepared for drought; the government could set up Drought Management Boards on the lines of its existing Flood Management Boards to tackle the new threat.⁴⁵ Conversely, West African countries have drought and food shortage early warning systems (at national and regional levels), but are less ready to deal with floods.⁴⁶ More intense rainfall will also increase soil erosion, which makes long-term soil conservation and water-harvesting measures even more necessary.

Humanitarian funding will not be adequate

National governments are ultimately responsible for the welfare of their citizens, before, during, and after a disaster, and they should be best placed to respond in the most appropriate manner. It is when the disaster – whether a natural disaster or one due to conflict – is so great that it overwhelms their capacity to respond that timely, effective, and equitable international aid is needed.

Global humanitarian funding trends have been improving. A recent review⁴⁷ concluded that there exists an increasing commitment to deliver timely and predictable funds that are both effective and equitable, a better appreciation of the links between relief and development, and a wider shared application of key principles.⁴⁸

However, there are still serious problems. Only around two-thirds of UN humanitarian appeals are met each year⁴⁹ – and only one-third in

the least-funded emergencies.⁵⁰ For all emergencies, including war and conflict as well as natural disasters, the shortfall in humanitarian aid in 2006 was some US\$1.7bn. The disbursement of aid is also still often skewed and is not based on humanitarian need. Visibility is a key factor; as the IFRC notes, 'there are even wider disparities between high profile, well-funded emergencies and those where people are relatively neglected.'⁵¹ Drought in a country like Niger might see funding per head of US\$20. In a high profile crisis such as the South Asia earthquake funding per head can reach more than US\$300.

If the rising trend in climatic disasters continues, can the system continue to cope? Both national governments and the international community have, to varying degrees, concentrated on, and have systems to respond to, large events, but are less prepared for small- to medium-scale crises. This points to the need to strengthen the capacities of local government and local communities and institutions, which should be better able to respond to these.

Who will foot the bill for climate change disaster?

The Caribbean state of Grenada was considered to be outside the hurricane belt – but this changed in 2004 when Hurricane Ivan devastated the island, destroying over 90 per cent of the country's infrastructure and housing stock and causing over US\$800m in damage, the equivalent of 200 per cent of Grenada's gross domestic product. This catastrophe was compounded by another direct hit from Hurricane Emily the following year. According to Grenada's Ambassador to the UN, Angus Friday, international aid covered just ten per cent of the costs – and not all aid that was pledged was received when world attention was directed to tsunami victims instead. To finance the massive reconstruction bill, the government of Grenada was forced to levy a tax on its citizens, but this 'reconstruction levy' still falls short of meeting the financial needs that have resulted. The island's economy is still suffering; the agricultural sector is still struggling to recover as Grenada's primary export crop, nutmegs, was destroyed. Loss of employment in rural areas, rising living costs, and the psychological trauma of the disaster still continue to challenge the small nation.

Ambassador Friday said⁵²: 'It would have been better if the international aid system had the capacity to help both disaster situations fully instead of the "either/or" reality that emerged when the tsunami hit. And it would be better if the international financial system recognised the environmental vulnerability of small island states such as Grenada, in a way that is predictable and allows a well-managed state such as ours to continue our public investment programmes in the face of new climate change realities.

'When Grenada introduced the reconstruction levy, you could argue that the poor people of Grenada, who had already lost their homes, many of which were either uninsured or under-insured, were in effect paying the price of climate change caused by the unsustainable patterns of production and consumption of the rich world'.

What has to happen

Deal with climate change

Mitigate⁵³

It is firstly essential that action be taken to drastically reduce greenhouse gas emissions to bring global temperature increases swiftly under control and to keep global average temperature rise as far below two degrees Celsius as possible. Rich countries must act first and fastest to reduce emissions, and both rich and poor countries must start working together to find low-carbon pathways for future human development. The next UN climate change conference in Bali in December is a vital opportunity. If mitigation does not succeed, there is the very real prospect that growing climate-related disasters will overwhelm the humanitarian system and undermine development.

Adapt

Regardless of emissions reductions, temperatures will continue to rise to some degree.⁵⁴ Separate to funding for emergencies that will arise, Oxfam has estimated that developing countries will require at least US\$50bn annually to adapt to unavoidable climate change. These funds should be provided by rich nations, in line with their responsibility for causing climate change and their capability to assist. Additional finance for adaptation is not aid, but a form of compensatory finance; it must not come out of long-standing donor commitments to provide 0.7 per cent of GDP as aid in order to eradicate poverty. At present, funding for adaptation is totally inadequate, and the Bali conference must mandate the search for new funds⁵⁵. Innovative financing mechanisms need to be explored.^{56 57} At the same time, commitment and political will is required in developing countries.

Improve the global humanitarian system

Increase emergency aid

The global volume of humanitarian funding remains inadequate and will need to increase. Major donor governments must keep the promises they made at the Gleneagles G8 Summit to increase overseas development aid (ODA) by an additional US\$50bn a year by 2010. This is a first requirement. If they do this, then humanitarian funding, which has persistently formed between seven per cent and ten per cent of total ODA, is likely to increase from US\$8.4bn in 2005

to over US\$11bn.⁵⁸ But it is currently a big “if” – two years on, aid to poor countries is falling, not rising. And that is without the challenge of climate change, which will require more. And although needs will vary from year to year, the aid has to be predictable and available when needed.⁵⁹ Innovative financing mechanisms should also be explored.⁶⁰

Make it faster, fairer, more flexible and appropriate

Humanitarian response must be timely and efficient and allocation must be fair – i.e. according to need. It must be provided more swiftly in the crucial hours and days after disaster strikes, including through the improvement and expansion of pooled funding mechanisms like the UN's Central Emergency Response Fund (CERF), and by minimising the number of 'links in the chain' between the source of aid and beneficiaries on the ground. It must be appropriate – for example, shifting away from over-reliance on in-kind food aid towards more flexible solutions such as cash transfers.^{61 62}

Build long-term social protection

Climate change is accentuating the fact that for many poor people, shocks are the norm. As well as more money for humanitarian response, more rounded approaches are needed to tackle human vulnerability.⁶³ Governments must put poor people first and provide essential services like education and health. Aid should be used to build and protect the livelihoods and assets of poor people and should be provided over sustained periods, not just as ‘humanitarian aid’ in response to events when they occur. Long-term social protection systems – providing a regular income – and forms of insurance cushion people against shocks and can form the foundation for timely emergency scale-up when required. Governments are running social protection schemes of various kinds in several countries, and insurance schemes are being piloted in others – for example, against rain or crop failure.⁶⁴

Reduce vulnerability and the risk of disaster

Invest in disaster risk reduction (DRR)

Sustained investment in DRR and in climate-change adaptation saves lives and limits losses. In any disaster, it is the communities affected who are always first to respond, before governments or outside agencies can get there to help. Building up community capacity to prepare for and respond to disasters is crucial. In implementing DRR, governments and donors need to join up work on DRR both with planning for adaptation to climate change and with poverty reduction strategies. More work needs to be done to understand these

linkages.⁶⁵ Governments have made commitments to make their citizens safer from natural hazards through DRR;⁶⁶ they need to put their promises into action by setting measurable targets, funding DRR adequately, and by building it into their plans and activities at all levels.

Build local capacity

Humanitarian aid in crises should not only save lives, it should also seek to reduce the future vulnerability of populations at risk. This includes building the capacity of local actors, including government at all levels, and not displacing or undermining them; and empowering affected populations so that they are not simply recipients of assistance, but have a strong voice in response and in subsequent recovery and rehabilitation measures. There is an important need to invest in better meteorological data-gathering systems and early-warning communication systems, especially radio, and to raise public awareness of climate change.⁶⁷

Do development right

Just as provision of essential services like health, education, water and sanitation build the resilience of communities and reduce risk, so inappropriate and unsustainable development strategies not only waste scant resources, they also end up putting more people at risk. Oxfam has recently expressed such fears about the current “dash for biofuels”.⁶⁸ Failure to tackle poverty, especially rural poverty, is one reason for increased rates of deforestation in many countries, increasing greenhouse gas emissions and raising the risk of mudslides and flooding. Development aid should integrate analyses of disaster risk and climate trends.

Notes

¹ Kofi Annan, quoted in a report for the new Global Humanitarian Forum ('The Humanitarian Impact of Climate Change', 22 September 2007).

² 2007 was also the year in which the Intergovernmental Panel on Climate Change (IPCC) (see reports at www.ipcc.ch) for the first time reported 'observed impacts' of climate change and, with greater certainty than ever before, confirmed past predictions of catastrophic climate impacts if urgent action is not taken immediately.

³ OCHA, 'Special update on floods in West Africa', 4 October 2007. www.reliefweb.int/rw/rwb.nsf/db900sid/SHES-77NR3W?OpenDocument&rc=1&emid=FL-2007-000141-NGA

⁴ OCHA, 'Floods in Central and East Africa – OCHA Regional Update No. 2'. www.reliefweb.int/rw/rwb.nsf/db900sid/EGUA-777NR5?OpenDocument&rc=1&emid=FL-2007-000151-TCD; 'Floods in Central and East Africa – July through to August'. [www.reliefweb.int/rw/fullMaps_Af.nsf/luFullMap/FD2D4F762F40B6AD85257359004D800D/\\$File/ocha_FL_afr070917.pdf?OpenElement](http://www.reliefweb.int/rw/fullMaps_Af.nsf/luFullMap/FD2D4F762F40B6AD85257359004D800D/$File/ocha_FL_afr070917.pdf?OpenElement).

⁵ For Africa climate change models and analysis, see: www.knmi.nl/africa_scenarios.

⁶ IFRC, Floods in Asia: Overview Map (as of 29 August 2007). [www.reliefweb.int/rw/fullMaps_Sa.nsf/luFullMap/EE72A21176B6F4B7C12573460042E334/\\$File/ifrc_FL_asia070829.pdf?OpenElement](http://www.reliefweb.int/rw/fullMaps_Sa.nsf/luFullMap/EE72A21176B6F4B7C12573460042E334/$File/ifrc_FL_asia070829.pdf?OpenElement)

⁷ Intergovernmental Panel on Climate Change (IPCC) *Fourth Assessment Report*, Summary for Policymakers, www.ipcc.ch/SPM13apr07.pdf. This states: 'Drought-affected areas will likely increase in extent. Heavy precipitation events, which are very likely to increase in frequency, will augment flood risk.' Floods are influenced by many factors (such as dams) but observations and climate models show significant increases or decreases in run-off in different regions, linked to climate change. See, for example P. C. D. Milly, K. A. Dunne, and A. V. Vecchia (2005) 'Global pattern of trends in streamflow and water availability in a changing climate', in *Nature*, 438 (7066): 347–50, and P. C. D. Milly, R. T. Wetherald, K. A. Dunne, and T. L. Delworth (2002) 'Increasing risk of great floods in a changing climate', *Nature*, 415 (6871): 514–17.

⁸ Economist, 8 November 2007.

⁹ EM-DAT: The OFDA/CRED International Disaster Database, www.em-dat.net. Université Catholique de Louvain, Brussels: Belgium.

¹⁰ IPCC, *op. cit.*

¹¹ *Herald Sun*, 'Bushfire Season', 8 February 2007, at: www.news.com.au/heraldsun/indepth/section/0,,5010763,00.html and www.news.com.au/heraldsun/story/0,21985,21190631-5010763,00.html.

¹²

www.oes.ca.gov/Operational/OESHome.nsf/ALL/D2FAEB3AABEC55258825737E006E6F8A?OpenDocument

¹³ <http://ochaonline.un.org/humanitarianappeal>

¹⁴ *The Guardian*, 'Climate change disaster is upon us, warns UN', 5 October 2007. www.guardian.co.uk/environment/2007/oct/05/climatechange

¹⁵

www.oxfam.org.uk/resources/policy/climate_change/downloads/weather_alert.pdf

¹⁶ Noting 'a world-wide climate of change', Oxfam said in 1983: 'Drought and flood of course are not new phenomena; what is new and ominous is their extent, producing an unusually large coincidence of bad years in different parts of the world.' In 1983 the severe weather was attributed largely to a very strong 'El Niño' effect at the end of the previous year – a warming of the Pacific Ocean that has major knock-on impacts on global weather patterns and is known to cause both floods and droughts. El Niño in 2006 was, in contrast, only moderate in strength. Floods in West Africa this year are probably related to the cooling 'La Niña' phenomenon that follows El Niño. But overall, the absence of a strong El Niño effect raises the possibility that 2007's bad weather may be related more to underlying global warming temperature trends. This is this author's speculation, but see discussion at: www.realclimate.org/index.php/archives/2007/01/el-nino-global-warming-and-anomalous-winter-warmth/

¹⁷ According to the Global Platform for Disaster Risk Reduction in its *Disaster Risk Reduction: 2007 Global Review* (June 2007), using data from the CRED-CRUNCH EM-DAT emergency disaster database (www.cred.be or www.em-dat.net). The Centre for Research on the Epidemiology of Disasters (CRED) data are usually seen as the most comprehensive available, but they are based upon restricted criteria for what constitutes a disaster.

For CRED, a 'disaster' is when one of the following occurs: ten or more people are killed, 100 or more are affected, the declaration of a state of emergency, a call for international assistance. A 'small to medium sized disaster' involves up to 50 deaths, affects up to 150,000 people or causes up to \$200 million in economic losses. Other methodologies for analysing disasters include UNDP's DesInventar (<http://desinventar.org> or www.em-dat.net/documents/bangkok06/DesInventarProject.pdf), which looks more at the local level.

¹⁸ 'Hotspots' - term used in *Disaster Risk Reduction: 2007 Global Review* for the Global Platform for Disaster Risk Reduction, 10 May 2007.

¹⁹ Walker, Minnear, and Leaning 'Smoke and mirrors: deficiencies in disaster funding', *British Medical Journal* 330, 29 January 2005, at that date calculated the increase in numbers of people affected as being 59 per cent.

See also the International Federation of Red Cross and Red Crescent Societies, *World Disaster Reports 2004-6*, Table 13, 'total numbers of people reported killed and affected' which cover the period 1984-2006.

²⁰ In 2006 some 46 million people were in need of humanitarian assistance. One study of future humanitarian needs makes a medium-range estimate that numbers of crisis-affected people will increase from some 38 million in South Asia (in 2005) to 97 million in 2010 and 105 million in 2015; and in East Africa from 11 million to 17.4m to 26.1m. In Southern Africa, by 2015 over 16 million people will be affected by a combination of cholera, floods, droughts, malaria, and HIV and AIDS. See 'Dimensions of Crisis Impacts: Humanitarian Needs by 2015' by the Humanitarian Futures Programme, for the UK government's Department for International Development (DFID), 17 January 2007.

²¹ *Disaster Risk Reduction: 2007 Global Review*. See: http://www.preventionweb.net/globalplatform/first-session/docs/session_docs/ISDR_GP_2007_3.pdf. This defines a large-scale disaster as one that involves more than 50 deaths, or affects more than 150,000 people, or causes more than US\$200m in economic losses. The *2007 Global Review* says that accurate global data on small-scale disasters is still inadequate, although DesInventar (see note 15) marks significant progress. To some extent the rise in small-scale disasters will reflect better reporting (itself a reflection of better disaster preparedness systems) but such disasters are also undoubtedly still significantly under-reported.

²² Taken from 'Climate Change and the International Federation', background note distributed to Red Cross and Red Crescent national societies, July 2007, by Maarten van Aalst.

²³ In the Sahelian countries of West Africa persistent droughts since the 1970s have triggered an ongoing, chronic disaster. The countries on the Gulf of Guinea have been hit by a series of localised disasters, including floods.

²⁴ CRED-CRUNCH Issue, 9 June 2007. The number of cold waves reported has increased more rapidly than reported heatwaves. Peru, Argentina, Bangladesh and Nepal suffered severe cold snaps in 2007. India suffered 12 heatwaves and 14 cold waves between 1987 and 2006. Intense cold snaps ('frijes' in Peru) cause serious losses, especially of livestock. However, globally, the coldest days are generally getting warmer, so there is a question about how far some of the increase in cold snaps may be attributable to better reporting.

²⁵ While large parts of the world – such as Southern Africa and the Mediterranean – are becoming drier overall, generally the world is becoming more humid as a result of climate change. This in turn may amplify climate changes. Higher minimum temperatures plus more water vapour also make nights muggier, prolonging the intensity of heatwaves, as happened in Europe in 2003. See Meteorological Office Hadley Centre and the Climate Research Unit at the University of East Anglia, press release, 11 October 2007, at:

www.metoffice.gov.uk/corporate/pressoffice/2007/pr20071011.html. See also B.P. Goswami *et al.* (2006) 'Increasing trend of extreme rain events over India in a warming environment', *Science* 314 (1442); DOI: 10.1126/science.1132027.

²⁶ Email to Oxfam, 16 July 2007.

²⁷ Report at www.ipcc.ch. The Humanitarian Futures Programme ('Dimensions of Crisis Impacts: Humanitarian Needs by 2015', 17 January 2007) forecasts that global climate change will interact with major demographic shifts (population growth and movement), environmental degradation (such as soil erosion), accelerating water stress, persistent health threats (notably HIV and AIDS and malaria), and inter- and intra-state instability. People in many regions will live increasingly difficult and precarious lives, and their chances of being overwhelmed and unable to cope when shocks occur will be greater.

²⁸ For an excellent overview of climate change science and computer modelling of future climates, see *The Rough Guide to Climate Change*, 2006, by Robert Henson of the National Center for Atmospheric Research, Colorado.

²⁹ See New Economics Foundation (2004–07), reports from the UK Working Group on Climate Change and Development: 'Up in Smoke?' (2004); 'Africa – Up in Smoke?' (1 and 2, 2005 and 2006); 'Up in Smoke? Latin America and the Caribbean' (2006); 'Up in Smoke? Asia and the Pacific' (2007). See also 'Two Degrees, One Chance: the urgent need to curb global warming' (Tearfund, Christian Aid, Practical Action, Oxfam) at: www.tearfund.org/webdocs/website/Campaigning/Policy%10and%20research/Two_degrees_One_chance_final.pdf

³⁰ See, for example: 'Australia Responds: Helping Our Neighbours Fight Climate Change' (2007) by the Climate Change and Development Round Table, which includes Oxfam Australia. This calls for measures that include disaster risk reduction and a review of Australia's immigration policy in the light of expected climate change impacts. See: www.ccdr.org.au/report.

³¹ IPCC Working Group II (Impacts, Adaptation, and Vulnerability) contribution to the *Fourth Assessment Report*, Summary for Policymakers, section on future impacts. See: www.ipcc.ch/SPM13apr07.pdf.

³² Le Xuan Truong, vice director of the Disaster Management Centre, Viet Nam, said on 1 November 2007: 'According to our statistics the floods and typhoons are getting more serious and frequent, leading to more damages in recent years, particularly in Central Vietnam....This can be explained in relation to climate change.'

³³ 'The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis', World Bank Policy Research Working Paper (WPS4136), February 2007. This states: 'The overall magnitudes for the developing world are sobering: within this century, hundreds of millions of people are likely to be displaced by sea level rise; accompanying economic and ecological damage will be severe for many. The world has not previously

faced a crisis on this scale, and planning for adaptation should begin immediately.'

³⁴ 'Drought Management Considerations for Climate Change Adaptation in the Mekong Region: Part 1, Vietnam', by the People's Committee of Ninh Thuan, Oxfam-Viet Nam and the Graduate School of Global Environmental Studies of Kyoto University, Japan: 2007. See: www.oxfam.org.uk/resources/policy/climate_change/downloads/ninh_thaun_research.pdf

³⁵ United Nations International Strategy for Disaster Reduction (ISDR), Guidelines for Reducing Flood Losses (undated), www.unisdr.org and www.unisdr.org/disaster-statistics/top50.htm.

³⁶ Walker, Minnear, and Leaning, 'Smoke and mirrors: deficiencies in disaster funding', *British Medical Journal* 330, 29 January 2005.

³⁷ 'Trends of recorded natural disaster and numbers killed 1977–2006' (CRED) in *Disaster Risk Reduction: 2007 Global Review*.

³⁸ www.em-dat.net/documents/figures/nat_dis_trends/05/nkilled7505.gif

³⁹ *Disaster Risk Reduction: 2007 Global Review*, see particularly pp.18–20.

⁴⁰ See this year's *UNDP Human Development Report 2007* (launched 27 November) on climate change impacts: <http://hdr.undp.org/en/reports/global/hdr2007-2008/>.

⁴¹ Disaster risk reduction involves more than just preparedness: it is about understanding the risks that people face and addressing their vulnerabilities, including addressing the root causes of these. A major focus – particularly for Oxfam – is helping local communities to prevent, prepare, plan, and respond ('Community-Based Disaster Preparedness'). See 'Promising Practices for Risk Reduction' by the Emergency Capacity Building Project, www.ecbproject.org, or K. M. Allen, 'Community Based Disaster Preparedness and Climate Adaptation: local capacity building in the Philippines', Social Research Associates, UK; or A. V. Rojas 'Local Initiatives and Adaptation to Climate Change', Both ENDS.

⁴² Oxfam America, 'Weathering the storm', www.oxfamamerica.org/newsandpublications/publications/research_reports/art7111.html. The report points out that in the USA the level of human vulnerability (Disaster Risk Index) is more than 15 times greater than in Cuba. The Disaster Risk Index expresses human vulnerability as the relationship between the average number of people killed by a type of hazard annually in a country over a 20-year period (1980–2000) and hazard exposure for the same period and country.

Note especially that the term 'mitigation' as used here and by many humanitarian and development agencies refers to *reducing risk*; as used in climate change discourse, 'mitigation' is quite different and refers to the *reduction of greenhouse gas emissions*. See: 'On Better Terms: A Glance at Key Climate Change and Disaster Risk Reduction Concepts', at www.unisdr.org.

⁴³ Oxfam press release, 16 November 2007.

⁴⁴ Norwegian Institute for Urban and Regional Research, 'Natural hazards and disasters', 16 January 2006. Mozambique's 'Master Plan' for dealing with the country's vulnerability to natural disasters covers issues ranging from the need for reforestation and the development of a national irrigation system to the development of crops that can survive prolonged droughts. And to restore 'self-esteem, self-confidence, and dignity' the government is determined to avoid 'running to international donors without first exhausting national capacities'.

⁴⁵ 'Drought Management Considerations for Climate Change Adaptation in the Mekong Region: Part 1, Vietnam', *op. cit.*

⁴⁶ IRIN, 'West Africa: floods prompt greater focus on risk reduction', 18 October 2007; see also: www.knmi.nl/africa_scenarios. Disaster preparedness also requires better decision-making tools for land use planning at national and local level.

⁴⁷ Development Initiatives, *Global Humanitarian Assistance 2006*, Chapter 5: 'Trends in humanitarian assistance'.

⁴⁸ See www.goodhumanitariandonorship.org.

⁴⁹ According to the UN's Consolidated Appeal Process (CAP), at: <http://ochaonline.un.org/humanitarianappeal>.

⁵⁰ IFRC, *World Disasters Report 2006*. The report cited the experience of Niger's locust and food crisis from 2003 to 2005 as a prime example of 'too little, too late'. It noted: 'During a multi-donor meeting in Paris on 24 October 2004, there was agreement that only US\$1 million would have been needed to contain the locust threat in July 2003, whereas the delayed response meant that, in the end, 100 times that figure was needed'.

⁵¹ *Ibid.* The report notes that 'the data suggests that the reasons for neglect are rooted in the policy priorities given to different countries.... The same countries appear continually at the top and bottom of the table for the share of needs met (p177)'.

⁵² Email correspondence with Oxfam, 6th and 13th November, 2007.

⁵³ See note 29; here 'mitigation' refers to reductions in greenhouse-gas emissions.

⁵⁴ Regardless of what measures governments take to curb rising greenhouse-gas emissions, the IPCC confirms that we must expect an additional increase in global average temperatures of at least 0.6 degrees Celsius by the end of this century. See: www.ipcc.ch/SPM13apr07.pdf.

⁵⁵ The subject of a forthcoming (November/December 2007) Oxfam paper updating 'Adapting to Climate Change: what's needed in poor countries, and who should pay' (see below).

⁵⁶ 'Adapting to Climate Change: what's needed in poor countries, and who should pay', Oxfam International Briefing Paper 104, 29 May 2007. See: www.oxfam.org.uk/resources/policy/climate_change/downloads/bp104_adapting_to_climate_change.pdf

⁵⁷ See for example IATAL – an Outline Proposal for an International Air Travel Adaptation Levy by Benito Muller and Cameron Hepburn, Oxford Institute for Energy Studies, October 2006, at

<http://www.oxfordenergy.org/pdfs/EV36.pdf>

⁵⁸ *Global Humanitarian Assistance 2006*, *op.cit.* See also 'Two Degrees, One Chance', *op. cit.*

⁵⁹ See: 'The UN Central Emergency Response Fund (CERF) One Year On' by Tanja Schuemer-Cross and Alexis Arthur, www.oxfam.org.uk/what_we_do/issues/conflict_disasters/downloads/bp100_cerf.pdf The CERF is meant to provide a rapid response to sudden-onset disasters and bridge the funding gaps in under-funded emergencies and be a transparent and accountable mechanism. Oxfam finds its performance has been mixed.

⁶⁰ Muller's International Air Travel Adaptation Levy (*ibid*), for example, proposes a levy of five euros or dollars per air ticket which would raise US\$10bn per annum and provide the CERF (see above) with predictable replenishment and upfront funds.

⁶¹ Cash transfers put poor people in the driving seat. In Viet Nam, for instance, Oxfam gave unconditional cash lump sums to some 500 poor households in a deprived village, and monitored how the villagers spent the money. The top six uses were clearing debts, buying livestock, repairing and building houses, paying for school fees and books, buying seeds and fertilisers, and paying for health care. The results demonstrate how, given the chance, poor people will invest in the future.

⁶² This paper has not had space to discuss food aid. See Oxfam's Policy Compendium Note on Food Aid at: www.oxfam.org/en/files/oi_hum_policy_foodaid.pdf.

⁶³ In its 1983 'Weather Report', Oxfam was at the forefront of new thinking, calling for 'a fundamental reappraisal of disaster relief work', away from short-term relief towards long-term engagement in a full spectrum of preventative measures, including environmental rehabilitation, recovery, and rehabilitation of people's livelihoods.

⁶⁴ South Africa, Ethiopia, Brazil, Mexico, and Kyrgystan have all brought in forms of social protection – regular payments by the state to poor families. Other countries are bringing in child support or pension systems, or experimenting with micro-insurance. Oxfam's forthcoming (2008) major international report *From Poverty to Power* will explore this area in detail.

⁶⁵ The IPCC defines adaptation as 'an adjustment in natural or human systems, in response to actual or expected climate stimuli or their effects, which moderates harm or exploits beneficial opportunities'. The British NGO Tearfund has recently called for a clearer definition of adaptation to be agreed as a matter of urgency (Adaptation and the post-2012 Framework, www.tearfund.org). It defines adaptation as 're-shaping and redesigning development, social and economic practices in response to the impact of actual or anticipated climate change. Focusing on environmental sustainability, it builds community resilience in order to maintain

development gains'. Adaptation to climate change therefore covers the full gamut of natural and human systems, although National Adaptation Programmes of Action (NAPAS) to date have tended to focus more on immediate requirements for hard infrastructure. Disaster risk reduction is integral to adaptation but both more focused (on hazards and vulnerability to disasters) but also wider, in that it seeks to reduce risk around any potential disaster, not just climatic and not just due to climate change. There are, however, debates about the essential focus of DRR and its boundaries (e.g. how far it encompasses conflict as a risk). Furthermore, both adaptation and DRR are necessary to respond to climate change, but not sufficient; e.g. they can build resilience, but cannot completely prevent damage, so humanitarian response and capacity building will always be needed.

There are large questions to be addressed around how the streams of finance for adaptation, DRR and humanitarian response, plus aid for development and for clean energy should best interact. This debate is only just beginning. The climate change adaptation, DRR and development communities have much to learn from each other (see also footnote 42, re; different uses of the word 'mitigation'). A successful financing mechanism must encourage coherence and be as simple as possible.

⁶⁶ In January 2005, 168 governments adopted a ten-year plan to make the world safer from natural hazards by implementing the Hyogo Framework for Action 2005–15. See: www.unisdr.org/eng/hfa/docs/HFA-brochure-English.pdf.

⁶⁷ In Oxfam's Viet Nam study, the great majority of respondents expressed satisfaction with the timeliness of the early-warning system for floods but suggested the radio-broadcasting system could be improved further. How the system can be adapted to droughts, which occur on a very different timescale, is a challenge.

⁶⁸ The current 'dash for biofuels' is an example of potentially inappropriate development strategies, which is increasing deforestation rates and pushing poor people off their land at the same time. See Oxfam Briefing Note 'Biofuelling Poverty: why the EU-renewable energy target may be disastrous for poor people', at: www.oxfam.org.uk/resources/policy/trade/bn_biofuels.html.

Another contentious development strategy has been building large dams, which have resulted in widespread human displacement and ecological damage. See 'Before the Deluge: Coping with Floods in a Changing Climate' by International Rivers (formerly International Rivers Network (IRN)), 31 May 2007, at: www.irn.org/. (new website: www.internationalrivers.org) Dams have also increasingly been blamed for exacerbating the impacts of floods, including in northern Ghana this year. See: <http://allafrica.com/stories/200709130800.html> and <http://allafrica.com/stories/200709270007.html>.

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