



The *Up in Smoke* reports: a summary

November 2008



This summary highlights some of the main findings from five years of work by the *Up in Smoke* coalition. The group represents an unprecedented coming together of leading environmental and development organisations. Their conclusions reveal the threat from global warming to reverse progress in human development and render the Millennium Development Goals unachievable.

The *Up in Smoke* coalition has, to date, published:

Up in smoke? Threats from, and responses to, the impact of global warming on human development, October 2004

Africa – Up in smoke? The second report from the Working Group on Climate Change and Development, June 2005

Africa – Up in smoke 2: The second report on Africa and global warming from the Working Group on Climate Change and Development, October 2006

Up in smoke? Latin America and the Caribbean: The threat from climate change to the environment and human development, August 2006

Up in smoke? Asia and the Pacific: The threat from climate change to human development and the environment, November 2007

Trees planted in the Wuwei district of Gansu Province, China, to dissipate sand storms have already died from dry conditions. Low annual rainfall and high evaporation rates make this one of the driest places on earth. The desert, which already occupies more than 30% of Gansu, is expanding. An ever-growing population is converting land for agriculture, destroying trees and other natural vegetation, overusing groundwater, and building reservoirs to supply water for towns and irrigated agriculture. Compounding the problems are overgrazing, the use of wood as domestic fuel, and cultivation of crops that consume a lot of water. Water levels in the area have dropped from 8 to 12 meters below ground level in the 1950s to as much as 100 meters now. Photo: Greenpeace/John Novis.

Introduction

When the first *Up in Smoke* report was published to widespread media interest, some still doubted the relevance of climate change, considered an 'environmental issue,' to human development and poverty reduction. In the five years since the reports began, however, global warming has become understood as possibly the greatest threat faced by our generation. The weight of scientific evidence has mounted and the impacts themselves have begun to be felt. Not just stabilising, but reducing the concentration of greenhouse gases in the atmosphere is now described by NASA scientist James Hansen as necessary to preserve the conditions under which civilisation emerged on the planet. Events such as Hurricane Katrina have forced people to recognise the vulnerability of humans to the impacts of climate change and have shown clearly that climate change is not a future issue but a current problem. It has become clear that unchecked climate change has the potential to undo all the development achievements of the last decades. The *Up in Smoke* reports began with the intention of producing one short briefing. Now, together, they would make a very long book. For ease of reference we have produced this short summary. It reveals the comprehensive nature of threat we face, and the need for a collective, rapid and equally comprehensive response.

Globally, several environmental, economic and political trends are coinciding and contributing to rising instability that exposes people and biodiversity to greater risk and vulnerability than ever before. This means that new models of development and nature conservation will have to be found. The *Up in Smoke* reports recognise three overarching challenges:

1. How to stop and reverse further global warming.
2. How to live with the degree of global warming that cannot now be stopped.
3. How to design a new model for human progress that is equitable and sustainable.

The positive news is that across the globe there are successful projects taking place both to tackle climate change and to overcome its effects. The organisations that have come together to produce these reports all believe it is feasible and achievable to improve human well-being in ways that are environmentally sustainable. Together, they have practical expertise applied in partnership with local organisations around the world, ranging from growing food, to piping clean water and improving sanitation, to building and running schools and health centres, and making sure that homes have light and power.

Through case studies the reports produced by the coalition have highlighted many examples of successful responses to climate change. There are examples of projects which are tackling emissions, addressing the key issues of food, water and energy supply, as well as initiatives on health, natural disasters, environmental preservation strategies and the protection of livelihoods. What all these reports show is that the challenge is clear and many of the solutions are known. What is needed now is action.

The organisations that prepared these reports have decades of experience working on the issues of poverty and environmental issues. They have pledged to work towards a collective understanding of the threat posed by climate change and to share the best of their knowledge about how to build human and ecosystem resilience. They have also committed to doing everything in their power to prevent climate change and to help bring about a global solution that is fair and rooted in human equality.

The *Up in Smoke* reports call for a new model of development which includes strategies to increase human resilience in the face of climate change and to bolster the stability of regional ecosystems. A new test on every policy and project is necessary, in which the key question will be: 'Are you increasing or decreasing people's vulnerability to the climate?'

Urgent priorities which the coalition has identified include:

- Carrying out a global risk assessment of the likely costs of adaptation to climate change in poor countries.
- Industrialised countries making available new funds and other resources for poor country adaptation.
- Making effective and efficient arrangements to respond to the increasing burden of climate-related disaster relief.
- Designing development models based on risk reduction and incorporating community-driven coping strategies in adaption and disaster preparedness.
- Preparing disaster awareness campaigns with materials produced at community level and made available in local languages.
- Co-ordinating plans from local to international levels for relocating threatened communities with appropriate political, legal and financial resources.

Africa is more exposed to the impacts of climate change than many other regions of the world and is already suffering the effects of global warming. Small-scale farming provides most of the food produced in Africa, as well as employment for about 70 per cent of working people. These simple facts, coupled with farming being overwhelmingly dependent on direct rainfall, mean that Africa is exceptionally vulnerable to the uncertainties and weather extremes of global warming.

Africa's high sensitivity to climate is exacerbated by other factors, such as widespread poverty, recurrent droughts and floods, an immediate daily dependence on natural resources and biodiversity, a heavy disease burden, and the numerous conflicts that have engulfed the continent. There are yet further complications introduced by an unjust international trade system and the heavy burden of unpayable debt.

The *Up in Smoke* reports on Africa published in 2005 and 2006 give examples of many projects that are looking at the threats and building resilience in the face of climate impacts.

Natural systems form the foundation of most African economies and the majority of people in Africa derive their livelihoods from food, farming and the environment. People, especially those living in marginal environments and areas with low agricultural productivity, depend directly on genetic, species and ecosystem diversity to support their way of life. As a result of this dependency, any impact that climate change has on natural systems will threaten the livelihoods, food intake and health of the population.

Africa is therefore extremely vulnerable to negative impacts on food and farming, but there are ways to foster resilience, as the case studies show. To name but a few, the reports contains examples of how the landscape can be used to spread risk in Mozambique; how an agro-ecological approach can produce helpful synergies in Kenya; how forest protection can benefit local communities in Sierra Leone; and how smallholder agriculture is supported in Ethiopia.

Water, drought and the changing rains are a second area of great concern. Africa is already persistently affected by drought. Currently around two-thirds of the rural population and one-quarter of the urban population lack access to safe drinking water and the number of people suffering from water stress or scarcity is rapidly increasing as a result of urbanisation, increased economic development and population growth. In addition, the coast experiences the serious problem of coastal erosion. The problem of the lack of access to water already leads to conflict, disease and death. For example, conflict over water resources in northern Kenya is already serious and the impacts of

climate change will only further exacerbate these problems. A positive case study from the *Up in Smoke* reports highlights the harvesting of rainwater in Zimbabwe, where communities were mobilised in areas where rainfall has become more unpredictable. This project helped to increase food production.

The range of health problems made worse by climate change in Africa is enormous. To name but some: heat stress, air pollution, weather disasters, vector-borne, water-borne and food-borne diseases. There is also the insidious link between HIV/AIDs and climate change. Energy also represents an ongoing challenge and access to clean, affordable energy sources must be found. Development goals must be met while at the same time ensuring that Africa avoids the 'dirty' energy path that others have already gone down.

The positive side is that these alternative energy options also offer economic development and employment opportunities and help liberate countries from oil dependency. The *Up in Smoke* reports cover case studies looking at the use of fuel-efficient small stoves in Mozambique and indigenous tree species in Kenya, and the utilisation of low-energy building materials in Kenya and Zimbabwe.

Disaster risk reduction is an important strategy to tackle the vulnerability of communities in Africa to climate-related disasters; it is also a crucial way to encourage positive development. One problem in this area is the fact that donor organisations tend to approach disaster risk reduction on an *ad-hoc* basis, normally as a reaction to a major disaster, rather than systematically integrating it into their development planning and programming. There are some positive examples, such as the use of disaster-resistant housing and coastal management to reduce the impact of hazardous climatic events.

The *Up in Smoke* reports also address the problems of gender inequality and environmental refugees which will impact Africa. Women in Africa still have limited access to productive assets, such as land, and to other things necessary for production, like credit and education. This perpetuates gender inequalities. Country case studies throughout Africa – and emerging macroeconomic analysis – consistently show that gender-based inequality acts as a constraint to poverty reduction and sustainable development. Environmental refugees – people who have been forced to flee their homes or countries primarily because of environmental factors such as extreme weather events, drought and desertification- are already with us today. The effects of population movements on this scale are highly destabilising to the global community.

Some of the key recommendations from the *Up in Smoke* reports on Africa are:

- Cut developed country greenhouse gas emissions immediately. All G8 countries should commit to achieving caps on emissions at a national level, that are compatible with a fair global solution that is rooted in human equality and capable of stopping dangerous climate change. Build on Kyoto to toughen up international efforts post 2012. To avoid possibly cataclysmic climate change, global greenhouse gas emissions must ultimately be cut by between 60 and 90 per cent.
- Provide new and additional funding for adaptation to global warming. The legacy of higher historical emissions places the onus on industrialised countries to take the lead in significant cuts in greenhouse gases. It also reinforces the need to support adaptation in developing countries, particularly in the poorest countries that have contributed least to causing global warming.
- Increase support for small-scale agriculture and an approach to farming based on maximum appropriate diversification. Small-scale farmers in Africa need to be supported by a favourable policy environment and research that addresses the problems that farmers themselves have identified. Boosting production is crucial; achieving this requires systems that combine new insights and technologies with the wisdom of tradition.
- Map the complex impacts of global warming and ensure that the resources are available to tackle them. Focus on local needs first. Effective responses to climate change will differ everywhere depending on local circumstances, so a new flexibility is needed.
- Empower poor communities to be part of the climate change solution. Adaptation has to be about strengthening communities from the bottom up, building on their own coping strategies and enabling local participation in the development of climate change policies.
- Test whether initiatives are climate proof and climate friendly. At the very latest, in line with the recommendation of the Commission for Africa, climate change should be 'mainstreamed' within development policies, planning and activities by 2008.
- Help Africa adopt clean technologies. The exploitation of fossil fuels in Africa does little for the development or security of its people, whereas sustainable renewable energy has great potential.
- Support community, disaster-coping strategies. Experience shows that promoting disaster reduction at the local level is effective and yields immediate benefits beyond just tackling climate-driven disasters. The integration of disaster risk reduction in relief, reconstruction, development programming and poverty reduction plans should now be a priority.
- Reform the emergency, or 'humanitarian', system, so that it is truly able to deliver prompt, effective assistance on the basis of need. It must support people's livelihoods as well as meeting the immediate needs of the hungry. The stop-start approach must give way to longer-term support to address the underlying causes of food insecurity.

Latin America and the Caribbean

Temperature and rainfall patterns in Latin America and the Caribbean are changing due to climate change and becoming both less predictable and more extreme. Extreme weather is already a problem for people on this region, but this situation is worsening. The impacts are seen especially on the *El Niño* Southern Oscillation, hurricanes and tropical storms, sea-level rise, snow and rainfall patterns and warming in high mountain regions.

Effective responses to climate change will differ everywhere depending on local circumstances and Latin America and the Caribbean needs to be freed from a one-size-fits-all development approach. The greatest challenge in this region is to build climate resilience and resistance and to secure livelihoods at the local level. To do this, promoting recognition of local knowledge is central as is integrating gender analysis and gender-equality indicators into programmes and projects. This will help identify where specific vulnerabilities to climate change lie and where most opportunities for mitigating and adapting to climate change can be found. The cancellation of outstanding, unpayable international debt, and trade justice that promotes a fair and sustainable trade system, rather than trade liberalisation as an end in itself, would also help to tackle deepening poverty and environmental degradation in the region.

The *Up in Smoke* report identifies a number of significant current threats and responses in this region. Natural disasters cost lives, destroy communities, wreak havoc on people's livelihoods and leave a lasting impact not only on physical infrastructure and the economy but also on people's well-being. A number of projects have successfully helped communities to cope with natural disasters in the area; the Cuban population has adopted a culture of safety with many ordinary people seeing themselves as actors with important roles to play in disaster preparation and response. In Peru, disaster preparedness has been promoted through work with schools and communities; disaster risk reduction is now a part of the national curriculum. Community coping strategies have been developed in Bolivia to help reduce the risks of floods and mudslides.

Changes to the water cycle in Latin America and the Caribbean represent an enormous challenge and threat. Glacial retreat is occurring in southern South America. In the short term, this could cause overflows of reservoirs and mudslides and in the longer term a reduction in water supplies. In other areas, coastal erosion is threatening villages and communities. In Honduras, coastal lagoons have been contaminated with salt water due to erosion of the coastline; one case study documents a community-designed project which used reforestation to prevent erosion and to conserve valuable fresh water.

Agricultural land (excluding pastures) represents about 19 per cent of the land area of Latin America; up to 4 out of every 10 working people in the region are employed in agriculture. Global warming threatens crop yields and could worsen the impacts of a range of diseases and pests. Increasing climatic resilience and reducing environmental damage has been the strategy used by producers from 34 rural communities to tackle these problems in western Honduras. In the high Andes of Peru and Bolivia, a wide range of locally adapted crops are being encouraged; biodiversity is important in case any one crop should fail.

Awareness of gender issues is vital for ensuring initiatives to tackle climate change are appropriate. In El Salvador and Guatemala the primary source of fuel is wood and it is the job of women and girls to gather it. This places stress both on the environment due to deforestation and on women and girls who often spend many hours each week searching for wood. Women have an important role to play in safe guarding the environment as they often have specialist knowledge of the local environment and water sources.

Urban areas concentrate more than three-quarters of the Latin American and Caribbean region's population, around 90 per cent of its economic activities, most of the region's greenhouse gas emissions and a very large part of the population most vulnerable to the direct and indirect effects of climate change. The region is unusual in having the highest proportion of its population in 'mega-cities' – cities with 10 million or more inhabitants – compared to the rest of the world; reducing emissions from mega cities will be vital if climate change is to be tackled. One strategy documented in the *Up in Smoke* report integrates air quality and climate protection in Mexico City, one of the largest metropolitan areas in the world.

Latin America and the Caribbean are home to examples of both good and bad practice in relation to energy and climate change. The region has enormous potential for community-based, micro-renewable energy, but it is also the site of major extractive industries focused on fossil fuels. Pollution, deforestation and the infringement of the rights of indigenous people are widely reported. Micro hydro systems in Bolivia have demonstrated that solutions to energy problems can be found. In one area in the mid-Andes, small-scale hydro electricity has been brought to many communities who use the power to run everything from homes to schools, health centres and businesses.

Global warming represents a serious threat to the survival of many plant and animal species in Latin America and the Caribbean, one of the most biodiverse regions in the world. The loss of habitats, such as the tropical rain forest, will have a double impact,

contributing to both climate change and to the loss of biodiversity. In the absence of serious efforts to reduce climate change, it is estimated that globally up to one-third of plant and animal species could disappear by 2050. Empirical and modelled data suggest that the Amazon Basin is particularly at risk and deforestation and illegal logging threatens the rainforest further. Damage to the MesoAmerican Reef system, the largest barrier reef in the Western Hemisphere, is also a major cause for concern, particularly as reefs are very sensitive to rising temperatures and other stresses from human activity.

The health impacts of climate change in Latin America and the Caribbean will also be significant. The number of excess deaths caused by extremes of heat and cold will rise in vulnerable groups and water-borne disease such as cholera, which has already increased in recent years, will become ever more prevalent. More severe *El Niño* conditions could also increase outbreaks of malaria.

In terms of the nature of migration flows, there are multiple rural-to-rural and rural-to-urban movements. Migration to many of the regions' largest cities has actually stopped or slowed dramatically in the last couple of decades and it now tends to be towards coastal areas, where it has contributed to the deforestation of mangroves and the destruction of coral reefs. These coastal areas are also amongst the most vulnerable to climate change impacts including sea-level rises.

Urgent recommendations from this region are:

- Cut greenhouse gas emissions and raise commitments to cutting emissions after 2012 in a way that puts industrialised countries on track to cuts of at least 80 per cent by 2050. Increasing energy efficiency and moving towards more sustainable lifestyles are also priorities.
- Map national vulnerabilities in detail and research the climate change impacts on health and water supplies. All policies and programmes should face the test of whether they will leave people in Latin America and the Caribbean more or less vulnerable to the effects of global warming.
- Support both community-based coping strategies and disaster risk reduction. The climate change community needs to recognise that disaster risk reduction is a vital component of climate change adaptation and must work with the disaster management community to advance both fields and avoid duplicating activities.
- Increase support for small-scale agriculture and farming based on maximum appropriate diversification. The dangers associated with clearing forest land and planting bio fuels as opposed to food crops must also be recognised.
- Increase support for conserving biodiversity and win commitment to stop deforestation and illegal logging. Key recommendations include the protection of adequate and appropriate environmental spaces; the limiting of all non-climate-related stresses; and the management of adaptation.
- Develop and implement clean and efficient energy. Emerging Latin American countries need to contribute to climate change mitigation by implementing sustainable development policies that include halting deforestation and substantial development of both energy efficiency and renewable energy.
- Promote sustainable urban development. With 75 per cent of Latin America's people living in urban areas, reducing greenhouse gas emissions in the cities is vital. Case studies from cities such as Curitiba and Porto Alegre in Brazil should be highlighted to provide the region with examples of how to integrate sustainable transport considerations into business development, road infrastructure development and local community development.
- Implement existing agreements on environment and development. The Johannesburg Plan of Implementation agreed at the World Summit on Sustainable Development (WSSD) contains many commitments to 'protecting and managing the natural resource base of economic and social development', relating to water, disaster management, agriculture, desertification and drought, mountain ecosystems, biodiversity and forestry. These commitments remain largely unfulfilled.
- Apply new standards for the private sector. Corporate involvement in Latin America in such sectors as energy, logging, mining, water and the construction of infrastructure, such as pipelines and transport links, must take on board that development in the region needs to meet sustainability criteria.

Asia and the Pacific

Many of the most extreme effects of climate change will be played out in Asia, where over 60 per cent of the world's population live. Over half live near the coast, making them directly vulnerable to sea-level rises. Several factors contribute to an exponential rise in environmental stress that increases the vulnerability of people and ecosystems to a changing climate, including: air and water pollution, water security and ever-increasing consumption that, coupled with mass production for the global markets, produces growing mountains of waste.

Bangladesh is one of the most vulnerable areas of Asia with a high population density, low levels of development and poor economic strength. These factors combine to make Bangladesh very vulnerable to present climate variability and any future change in climate. Bangladesh has a drastic problem with water resources. It faces a double problem in the face of climate change. It will be exposed to increased flooding and droughts on the one hand and tremendous stress in the availability of fresh water during the dry season on the other. Changes in the sea level have increased the salinity of groundwater resources causing serious problems for coastal communities. Floods and droughts affect the health of people in Bangladesh, increasing the outbreaks of malaria, diarrhoea, asthma, skin diseases, dengue and dysentery.

Climate change impacts threaten the livelihoods of the poor in Bangladesh; there are 30 million extremely poor people living in Bangladesh who do not have access to basic health care, sanitation, safe drinking water, or education for their children. Women are the main users and carriers of water and with climate change they are forced to travel longer and longer distances by foot each day. One project provides training and technological support to farmers blighted by climate-related disasters to help them to increase output. Another initiative uses boats fitted with solar photovoltaics to provide education and information outreach services in remote areas.

Central Asia already experiences high degrees of water stress and thus it is an area vulnerable to the effects of climate change. In particular the semi-arid areas of Central Asia could be amongst the first to show the effects of climate change. Tajikistan has a very low income level and already experiences a high level of disasters, such as earthquakes, mudslides, mud flows and avalanches. Climate change impacts will make everyday life even harder for the local people. One initiative to tackle the impacts of climate change on communities in this country addressed the issue of food availability and shortening growing seasons by training women in food preservation techniques.

China is already experiencing the effects of climate change. The agricultural sector is threatened by climate change impacts with extreme events such as droughts, floods, cyclones, and tropical storms increasing, sea levels rising and glaciers melting. In June 2007, China launched its national climate change programme. The programme included strategies to reduce greenhouse gas emissions, alternative ways of fuelling its huge and growing need for energy as well as ways to cope with the worst effects of climate change ahead. The *Up in Smoke* report looks at community projects working to harmonise the relationship between disasters, environmental protection, and livelihoods. A second case study documents the success of a project to commercialise energy-efficient stoves and in this way lower greenhouse gas emissions.

India is also extremely vulnerable to climate change due to the number of people currently living in poverty; 250 million people live on less than \$1 per day in India at the moment. The rural and urban poor are most vulnerable to disasters and the least able to recover. Over the next 20 to 50 years, it is likely that India will suffer from a water crisis from the higher frequency of floods and droughts. In Rajasthan, one project to try to increase community resilience works with communities to assess and respond to the risks faced from extreme weather events; one response it has devised is the use of cisterns to provide drinking water for families.

India's response to the challenge of climate change is crucial as it is the fourth-largest greenhouse-gas-emitting nation. The energy sector is the main contributor to emissions and the Indian Government wants to grow this sector to provide electricity for the half a billion people currently living without it.

The archipelago nations of Indonesia, the Philippines and East Timor face a multitude of environmental problems such as deforestation and illegal logging, forest and peat land fires, loss of the region's rich biodiversity, disaster events, such as typhoons and floods and unsustainable mining practices. In Indonesia, unpredictable rainy seasons in some areas have led to a drastic decrease in agricultural output and had most negative impacts on the poorest communities. Sea-level rises also pose a severe climate related risk to these nations; Jakarta, the capital of Indonesia, is particularly at risk.

There is growing consensus about the current challenges facing Asia and what is needed to tackle them. Positive measures are being taken by governments, by civil society and by people themselves to reduce the causes of climate change and to overcome its effects.

Recommendations from this region are:

- Invest more in the agricultural sector. Asia is home to 87 per cent of the world's known 400 million small farms and to cope with a changing environment Asian small-scale agriculture will need dramatically increased support, and an approach to farming built on maximum appropriate, locally adapted crop diversification that boosts biodiversity.
- Halt deforestation and develop energy-efficient and renewable energy. To meet people's need for energy, to 'improve health' at the household level, and to help Asia leapfrog Western-style 'dirty development', international donors, financial institutions, energy companies and transnational corporations should phase out investment from fossil fuels and promote access to renewable and sustainable energy.
- Assist people to remain in their own communities where possible as the results of climate change take effect. Where migration is necessary, there is an urgent need for coordinated plans to cope with this.
- Cut emissions in urban areas and support for city governments to assess and mitigate climate-related vulnerabilities of growing urban populations.
- Build first on the traditional knowledge and crop biodiversity of indigenous communities to provide low-cost, effective approaches to drought resilience and flood management.
- Invest in early warning systems for droughts, floods and water-related disasters and scale-up water conservation and river-basin management. Donors and financial institutions need to take account of the water needs of different cash crops.
- Research coastal dynamics in a warming world. Policies that are likely to exacerbate future risks, such as mangrove destruction, should be reviewed. Development in coastal areas and river basins should be assessed for whether it promotes climate resilience and is reasonably climate proofed.
- Protect Asia's forests which provide vital livelihoods and are a vast carbon sink. Much stronger measures are needed to protect them from unsustainable logging and environmentally destructive development, including agricultural and biofuel expansion.
- Implement the global plan to minimise the impact of disasters drawn up as the Hyogo Framework for Action and agreed at the World Conference on Disaster Reduction in Kobe, Japan in 2005. Along with recommendations from the Johannesburg Plan of Implementation, these agreements call for affected countries

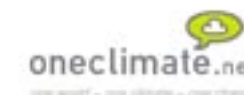
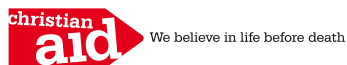
to encourage the dissemination and use of traditional and indigenous knowledge to mitigate the impact of disasters and call for promotion of community-based disaster-management planning by local authorities, through training activities and by raising public awareness.

On current trends, at the end of the year 2016, the world will enter a new, more perilous phase of global warming. After then, there will be little and declining certainty of avoiding an environmental domino effect. Warming may take on an uncontrollable life of its own.

Drawn together, the recommendations in this summary point to the urgent need for new development models. A few policy reforms concerning the operation of aid donors, the frameworks set by the international financial institutions and the rule-setting of the World Trade Organisation will not be enough. Today, the *Up in Smoke* coalition is exploring such new models. Its next report will begin to lift the lid on the nature and scale of the necessary reimagining of the global economy. One thing is sure, if meaningful human development is to be achieved in a severely climate and carbon constrained world, economic transition will need to be both bold, and fast.



Supporting organisations (The Working Group on Climate Change and Development)



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