

This key sheet introduces a series aimed at DFID staff and development partners on the impact of climate change on poverty – focusing on vulnerability, health and pro-poor growth.

This key sheet aims to guide the reader through the issues of:

- Defining climate change;
- Its impact on developing countries;
- Its impact on poverty, pro-poor growth, livelihood assets and vulnerability; and
- Responding to climate change;

– and it introduces mainstreaming in policies and processes as the best way to respond to the challenge of climate variability and change.

01 Climate change deepens poverty and challenges poverty reduction strategies

The world's poor will suffer the most from climate change, and international action to eradicate poverty will be at risk.

The climate is changing and it will have a negative impact on pro-poor growth and levels of vulnerability and poverty. The poor in developing countries are more at risk from the impacts because of their limited capacity to cope with existing climate variability and future change.

Defining climate change

Scientists agree that climate change is occurring. The Earth's atmosphere acts like the glass in a greenhouse, allowing much of the sun's solar radiation to travel through unimpeded, but trapping a lot of the reflected heat trying to escape back to space. This process raises the temperature in the atmosphere just as it does in a greenhouse.

Since industrialisation began, emissions of 'greenhouse gases' (GHGs) – in particular carbon dioxide – have significantly increased, primarily due to increased burning of fossil fuels. As a result, heat has been trapped in the atmosphere and the earth's global mean surface temperature has begun to rise, reaching its highest level for 140 years¹. Even if greenhouse gas emissions were entirely halted global



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¹ Royal Society 2002 Climate change: What we know and what we need to know. Policy document 22/02.

temperatures would still be expected to rise over at least the next 50 years. This would happen because of the time lag between emissions and the atmosphere's response, and because existing GHG concentrations have already reached a significant level.

The impact of climate change on developing countries

Historical data on temperatures and rainfall in developing countries is sparse. However, a pattern of general warming in Africa, Asia and South America over the past century is strongly supported by the available information. For example, in Africa, an annual mean warming of approximately 0.05°C per decade since 1900 is believed to have occurred, equivalent to approximately 0.5°C over the period.

Predicting the future extent of climate change remains difficult and uncertain, with predictions tending to be less confident and consistent for particular regions than for the world. However, the best available evidence we have suggests that further and more intense climatic change is likely to occur, based on a range of climate models and predicted GHG emissions scenarios².

- Global average temperatures are likely to rise by between 0.5°C and 1.7°C by the 2050s, depending on the predictive model used. The magnitude of predicted changes will vary from region to region. By 2100 rises could be as much as 5°C, and they will be at least 2°C (the lowest predictions).
- A global increase in precipitation is predicted, but it will vary, or even decrease, from region to region and within countries. The largest changes are anticipated in equatorial regions and southeast Asia.
- Severe weather events, such as tropical cyclones, are likely to become increasingly frequent and intense, involving heavy rainfall, high winds and storm surges³.
- Sea levels are expected to rise, with severe implications for coastal areas and low-lying islands in particular⁴.

While uncertainties remain, these predicted outcomes could have a major impact on poor countries and poor people. This sends a clear

signal that development activities should integrate responses to climate risks and thereby minimise the impacts of climate change.

The challenge of climatic variability

The impact of climate and weather on the poor is, however, not confined to the future. Many poor countries and poor people already face significant difficulty coping with existing climatic variability and recurrent extreme weather events. Drought, floods and other extremes of weather can seriously disrupt growth and poverty reduction processes in many developing countries.

The impact on poverty

Climate change and existing climatic variability are likely to have a negative impact on poverty and will almost certainly make the process of eradicating it more difficult through the:

- Likely negative effect on economic growth – the rate and pattern of which is critical to eradicating poverty;
- Direct effect on poor people's livelihoods and the assets upon which they depend; and the
- Increasing level of risk to which countries and people already extremely vulnerable to shocks are likely to be exposed.

The impact of climate change on poverty and on the Millennium Development Goals – measures of the international community's commitment to poverty reduction – is explored in Figure 1.

Pro-poor economic growth

Economic growth is a necessary, but not sufficient, condition for poverty eradication. Growth generates the livelihood opportunities poor people need to get themselves out of poverty and provides the means to finance important services, such as health and education, which are key to achieving the Millennium Development Goals.

The extent and pattern of growth in any country is the outcome of the interaction of a country's initial conditions, their institutions, their policy choices, the external shocks or stimuli they receive and luck⁵. Climate change and climatic variability add to this complex picture through their impact on key sectors of the economy, or important drivers of growth, including agriculture and natural resources, water, health and infrastructure.

Climate change will make the process of eradicating poverty more difficult

² The range of predicted temperature increases partly reflects uncertainty in future greenhouse gas emissions.

³ World Meteorological Organisation Press Release No. 695, 2 July 2003 'Recent scientific assessments indicate that, as the global temperature continues to warm due to climate change, the number and intensity of climate extremes might increase.'

⁴ Full details are set out in reports of the Intergovernmental Panel on Climate Change (IPCC), in particular the Third Assessment Report 2001, and Climate Change: The Scientific Basis 2001.

⁵ World Bank 2001 World Development Report 2000/2001.

Climate variability will increase people's vulnerability to shocks more generally

Climate change is likely to directly impact on poor people's livelihood assets

The ability of poor people to cope with a changing climate is weakening

The exact nature and scale of climate change's impact on growth will depend on the structure of the economy affected. In general terms however, we can conclude with reasonable confidence that:

- Climatic variability already affects short-term economic growth; and
- Unless levels of vulnerability and poverty are reduced, gradual trends in climate will have a long-term impact on economic growth and will affect the potential sources of growth.

This is explored in more detail in the following key sheet:

- Key sheet 02 The impact of climate change on pro-poor growth.

Vulnerability

Poor countries, and particularly the poorest people within them, are critically vulnerable to shocks that disrupt their lives and livelihoods. Their poverty increases their vulnerability – poor people often live in places and have livelihoods that are susceptible to natural calamities or adverse economic factors – and it limits their ability to cope with and to recover from shocks. Vulnerability is also a cause of poverty, with sudden loss of income and assets, sometimes on a periodic basis, condemning millions to lives characterised by an existence on the margins.

The reality for many poor households – perhaps most starkly in Africa – is a life of increasing vulnerability. The combined impact of HIV/AIDS, declining commodity prices and, in certain areas, conflict, has significantly reduced the capacity of poor households to cope with shocks, including extreme weather events like drought. The increasing impact of climate variability on economies and livelihood assets will have implications for people's vulnerability to shocks more generally.

Climate change is likely to directly impact on poor people's livelihood assets – including their health, access to water and natural resources, and homes and infrastructure. Recent experience of climate-related disasters shows that the lives, health and property of the poor are at greater risk. Poor people may also be affected by climate change through changes or a decline in common property resources, such as fisheries, rangelands or forests that they depend on for their livelihoods.

Scientists continue to examine the evidence for an increased incidence and intensity of extreme weather events and changes in the mean of climate parameters. What is clear, however, is that the ability of poor countries and poor people to cope with a changing climate is weakening and this presents a major challenge to the eradication of poverty.

This is explored in more detail in the following key sheets:

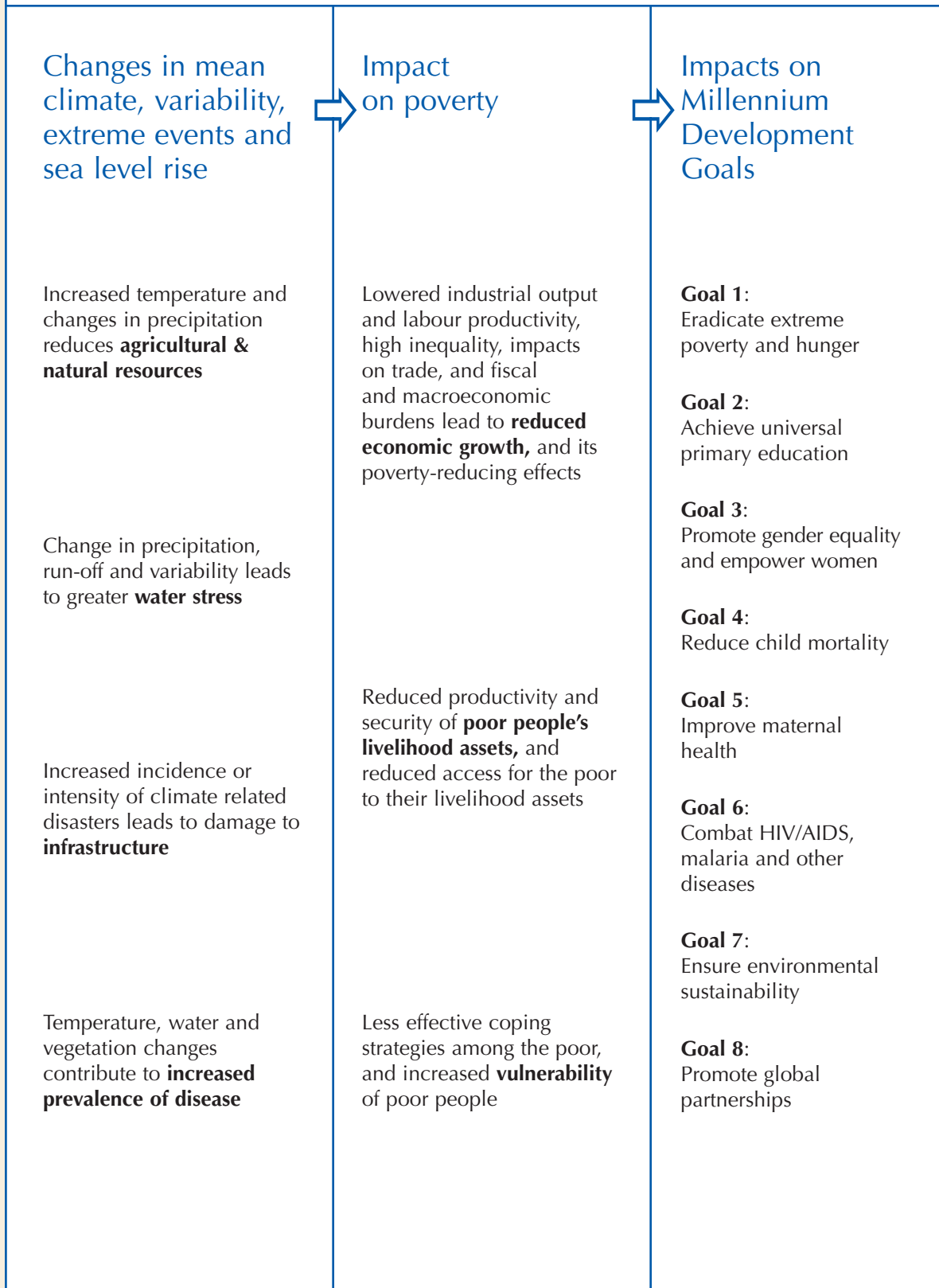
- Key sheet 03 The impact of climate change on the vulnerability of the poor; and
- Key sheet 04 The impact of climate change on the health of the poor.



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Figure 1

Impact of climate change on poverty and the Millennium Development Goals



Responding to the challenge

The international response

DFID will continue to work to ensure that the UNFCCC integrates the needs and realities of developing countries in international policy making. Conversely, DFID will help developing countries interpret what international policy outcomes mean for development responses.

Developing countries must be included in any emissions reduction regime to achieve the stabilisation of atmospheric carbon at a safe level, thereby tempering climate change impacts in the long term. DFID will seek to foster a collective process that will allow the exploration of options and the negotiation of solutions for a global emissions reduction regime, in partnership with developing countries. Securing developing country participation in a global emissions reduction regime implies that agreement will be necessary on a framework for resource transfers that provide incentives for the transition away from carbon-intensive economies, the provision of support for the integration of climate risks in development activities, and the necessary investment in the international political process.



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The country-level response

Climate change and variability are likely to worsen the prospects for poverty eradication unless action is taken to assist countries to become more response-capable.

This requires a focus on reducing vulnerability, achieving equitable growth and improving the governance and institutional context in which poor people live. Strategies to reduce vulnerability should be rooted in vulnerability analysis and a greater understanding of both household-level and macro-level response options that are available to decrease the poor's exposure to climate risks.

This argument is explored further in:

- Key sheet 05 Responding to the risks of climate change: Are different approaches to poverty eradication necessary?

Increasing the response-capability of developing countries will also require information on seasonal forecasts to enable preparedness to climate variability, as well as longer-term climate prediction data to ensure that strategies to reduce vulnerability also reflect the underlying longer-term climate trends.

These and other tools are covered in the adaptation key sheets:

- Key sheet 06 Adaptation to climate change: Making development disaster proof;
- Key sheet 07 Adaptation to climate change: The right information can help the poor to cope; and
- Key sheet 08 Adaptation to climate change: Can insurance reduce the vulnerability of the poor?

Further reading

Independent site with some recent ideas, research and action on climate change: <http://changingclimate.org/>

Intergovernmental Panel on Climate Change: <http://www.ipcc.ch/>

IPCC 2001 Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.

IPCC 2001 Climate Change 2001: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge.

Parry, M.L., Arnell, N.W., McMichael, A.J., Nicholls, R.J., Martens, P., Kovats, R.S., Livermore, M.T.J., Rosenzweig, C., Iglesias, A. and Fischer, G. 2001 Millions at risk: defining critical climate change threats and targets. *Global Environmental Change* 11(3): 181-193.

United Nations Framework Convention on Climate Change: <http://www.unfccc.int/>

WHO 2000 Climate Change and Human Health: Impact and Adaptation.

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