



# time to adapt

by Martin Parry

As every month goes by it becomes increasingly clear that we will need to adapt to climate change. Of course, early action needs to be taken to mitigate it by reducing emissions of greenhouse gases, but this must be complemented by investment in adaptation in the places most affected. The sooner we put resources into adaptation the less damage will be sustained.

The latest assessment by the Intergovernmental Panel on Climate Change (IPCC) came to the new conclusion that the effects of climate change are occurring now. The Earth has already warmed by 0.5 degrees C due to increases in atmospheric greenhouse gases, and we can observe the effects of this on every continent — most troublingly the current drying and warming in Africa's Sahelian region, and the effects of sea-level rise on coastal flood plains and small islands. Inevitably, some adaptation is also occurring now but little of this is planned and almost no additional resources have yet been deployed toward it.

Some further warming is inevitable. Even if we were to cut emissions both immediately and so enormously that greenhouse gas concentrations in the atmosphere are stabilised at current levels — an impossible task — a temperature increase of a further 0.6 degrees C would still be inevitable due to thermal lag of the oceans and atmosphere. So 1.1 degrees C of climate change is the very least that we should plan for. The impacts from such an increase will probably include: reduced water availability — with consequent falls in agricultural productivity — in the dry tropics; increased coastal flooding; and increased morbidity and mortality from heat waves and droughts. Adaptation is the only way of avoiding or reducing these.

Humans have, over many generations, developed great capacity to adapt to extreme weather conditions. We know, for example, what farming systems work best in drought-prone areas, and what sea-defences protect best on low-lying coasts. Much effort goes into protecting our activities from the adverse effects of weather, as well as into making the most of the benefits that good weather can bring. Adapting to climate change would mean deploying this wealth of knowledge to meet the new changes in weather that will result. But our capacity to adapt will probably be exceeded if we do not reduce emissions very soon.

We cannot say precisely how much climate change we can adapt to, but it is unlikely to be much above 1.5 degrees C simply because many of the plants and animals that supply our food would be stressed in warmer conditions. Genetic modification might find a way through, but this is far from certain. Thus, if greenhouse gas emissions are not reduced both substantially and soon, we could be locked into a pathway leading to temperatures that ultimately exceed our adaptive capacity. Mitigation and adaptation have, therefore, to be seen as complementary. We can neither mitigate nor adapt our way wholly out of this problem. Both strategies are needed together.

We now have a picture, from the latest IPCC assessment, of the regions and systems and sectors most affected by climate change. This can be used as

a priority shortlist for targeting resources for early adaptation: The most affected regions are likely to be:

- Africa, because of projected drying there, together with the region's low capacity to adapt;
- small islands, because of high exposure and projected sea-level rise
- mega-deltas in Asia and Africa, due to large populations and sea-level rise;
- the Arctic, because of high rates of projected warming.

The most affected systems and sectors are likely to be:

- water resources in already-dry parts of the world, especially the semi-arid tropics;
- agriculture in these same regions;
- low-lying coasts;
- human health, especially in poor areas; and
- particular ecosystems that are prone to damage from warming — such as tundra, boreal forest, and mountain regions — or already weakened by other current stresses like mangroves, salt marshes, and coral reefs.

Adaptation is a 'win-win' strategy. Most of the adaptive actions we would wish to take to reduce damage from climate change are, in fact, ones we need to take anyway to protect ourselves and our activities from today's weather. For example, protecting farmers in north-east Brazil from the current risk of drought — such as by introducing drought-resistant crops, or catching and retaining water and using it more efficiently in drip-feed irrigation — also serves to increase their resilience against increased drought from climate change. The same is true for adaptation in coastal protection, in primary health care or wildlife management. Investment in adaptation can therefore yield near-term benefits and, at the same time, protect against the medium-term future.

It is clear from the IPCC assessment that there is a two-way street linking climate change and sustainable development: Climate change can threaten attainment of the Millennium Development Goals. But the corollary is that sustainable development can make a community or region much more resilient to damage from climate change. There are therefore two sound reasons to 'mainstream' adaptation into the development process.

Until recently those advocating adaptation were accused of defeatism, of implying that mitigation would not succeed. We need now to be pragmatic, and recognise that we cannot mitigate our way wholly out of the climate change problem. A portfolio of adaptation and mitigation strategies is needed to confront this huge issue. For too long adaptation has been the poor sister of mitigation. Now it needs the resources to do the job. 