



Climate change and disaster risk management

Natural disasters are on the increase, with the prospect of more frequent and more severe occurrences fuelled by global warming. In emergencies, it is the most vulnerable – the poor, elderly, women and children – who suffer the most from hunger and deprivation. Disaster risk management will play an increasingly key role in dealing with the effects of climate change on food security.

An uncertain future

Intense tropical cyclones, heat waves, severe downpours, droughts, floods, extreme winds and rising sea levels – global warming will likely lead to more natural disasters, which will affect food production. However, the impact will not be even. People living in high and mid-latitudes such as northern Canada, Siberia and Scandinavia will find it easier to grow crops, while those in areas already suffering food scarcity may face additional production risks.

Climate change impact models predict that some regions that at present grow cereals will lose areas of farmland. These include eastern, southern and western Europe, Central America and the Caribbean, Oceania and Polynesia, East, North, West and southern Africa, and South Asia.

North and southern Africa will be particularly hard hit, and sub-Saharan Africa according to some models may suffer cereal production losses of up to 33 percent by 2060. Latin America will see a loss of crop and livestock productivity and a drop in water supplies. In Asia, populous river deltas will experience floods, droughts and diminishing fresh water, which will affect food security.

Who is vulnerable?

Because of their greater reliance on agriculture, the poorest developing countries are most at risk from impacts of climate change. Already these countries – generally African – experience erratic rainfall and suffer consequent food shortages. Increased numbers of

tropical cyclones will damage crops, causing local food shortages.

Much has been said about climate change and changes in food production. However, food security must also take into account stability of food supplies (affected by extreme weather events), the use of food (with warmer temperatures food will be less safe with increases in food poisoning and diarrhoea), and access to food (the food may be available but price rises caused by natural disasters may put food out of reach of some people).

Managing risk

People have coped with disaster for thousands of years. Experiences need to be gathered, analysed and systematically used to improve local level disaster response planning and programming. New solutions also will be needed. We have to assess how useful past experiences can be in the context of the never before seen scale and speed of change likely to be caused by climate change.

At the community level, people can be trained in better risk prevention and preparedness. To that end rural organizations, such as Farmer Field Schools, should be strengthened. Technologies and systems to monitor local conditions should be developed to help local farmers and authorities know in as much detail as possible how climate change will affect their areas. In order to minimize the impact of climate change on hunger, a multi-pronged approach is needed, at national, regional and international levels.

Key facts

- A breakdown of agricultural systems as a result of increased exposure to drought, rising temperatures and more erratic rainfall could leave up to 600 million more people facing malnutrition.
- Between 2000 and 2004 around 262 million people were affected by climate disasters. Of these 98 percent lived in developing countries.
- Twenty percent of the world's population live in river basins likely to be flooded.
- Since the 1970s, drought has increased in the Sahel, the Mediterranean, southern Africa and parts of South Asia.
- By 2020 between 75 and 250 million people in sub-Saharan Africa are expected to have less water. In areas where agriculture is dependent on rainfall, yields could drop by 50 percent.
- In the United States, damage from a storm like Hurricane Katrina can reduce Gross Domestic Product by 0.5 percent, but in Viet Nam one strong typhoon reduces GDP by 1-3 percent.

There needs to be closer cooperation between climate change scientists, who make projections well into the future, and groups working on disaster risk management and food security, who deal with the here and now.

New ways of funding efforts to address climate risks and food security should be explored. These include microfinance tools for communities and households; expanding the role of the private sector; increasing the role of foundations; and enabling the rural poor to access the carbon credit market system.

In the short to medium term

Much can be done now and in the next few decades to lessen the worst effects of global warming. These measures include:

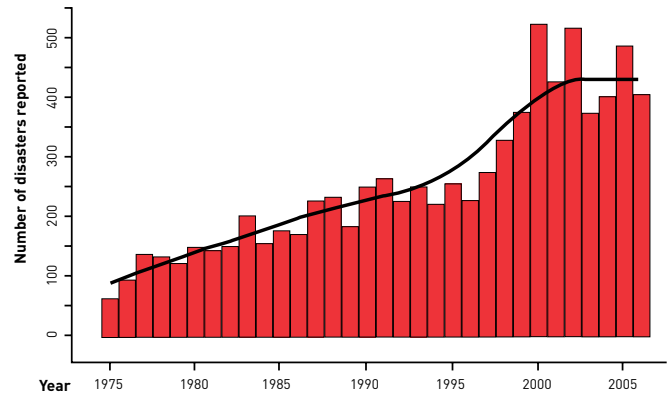
- developing climate models that give a better understanding of how climate may affect farming and forestry at a local level in order to be better prepared;
- diversifying livelihoods and adapting agricultural, fishing and forestry practices by encouraging better water management, soil conservation, resilient crops and trees;
- improving and expanding weather and climate forecasting;
- improving early warning systems

In the long term

To better adapt to climate change impacts:

- Land use plans must be adjusted.
- Cost/benefit analyses are needed to take account of climate change risks for irrigation or coastal protection.
- Contingency plans are necessary, taking into consideration new and evolving risk scenarios.

Natural disasters reported 1975-2006



Source: OFDA/CRED International Disaster Database

Proof that risk management saves lives

The value of disaster preparation was dramatically highlighted following Cyclone Sidr, which hit Bangladesh in 2007 with winds of up to 240 km/h. Nearly 6.8 million people were affected, 1.2 million houses destroyed and 2 997 people killed. Disastrous as this was, the death toll was greatly reduced from previous cyclones, which in 1970 killed 300 000 to 400 000 Bangladeshis, and in a 1991 cyclone, a further 130 000 to 140 000. Much of the credit for reducing the loss of life can go to the Bangladesh Government, assisted by USAID, which took disaster risk reduction measures and increased preparedness. These measures included building flood and cyclone shelters, wave protection walls and earth embankments. Early warning was given 10 days before the storm hit, 3 000 000 people were evacuated to safety and humanitarian relief personnel were predeployed to the area to be ready to help in the aftermath.

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