



Fact sheet: The need for adaptation

The world's climate is changing and will continue to change at rates unprecedented in recent human history. The risks associated with these changes are real and are already happening in many systems and sectors essential for human livelihood, including water resources, food security, coastal zones and health. Developing countries, especially those that are least developed are the most vulnerable to these risks. In the most vulnerable communities, the impacts of climate change pose a direct threat to people's very survival. The devastating effects of extreme events, temperature increases and sea level rise will worsen with consequences for all of us, particularly the poor.

Definition of adaptation

Adaptation is one of the two central approaches in the international climate change process. The term refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

- *Climate change impacts* refer to the effects of climate change on natural and human systems.
- *Resilience* in the context of climate change refers to the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.
- *Vulnerability in the context of climate change is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.*

Options for responding to adaptation needs

- Adaptation options are many, including:
 - technological options such as increased sea defenses or flood-proof houses
 - behavior change at the individual level, such as the sparing use of water in times of drought
 - early warning systems for extreme events
 - improved risk management
 - insurance options
 - biodiversity conservation to reduce the impacts of climate change on people, e.g. by conserving and restoring mangroves to protect people from storms.

Projected impacts according to the IPCC	Possible example of such an impact	Examples of actions that can be taken
<p>Sea-level rise:</p> <p>In many areas, sea-level rise will threaten fresh water supplies due to increased salinisation and impair food quality and/or food supplies. It could also drive large-scale population movements (environmentally displaced persons).</p> <p>The population in the near-coastal zone has been calculated at between 10-23% of the world's population (between 600 million and 1.2 billion). Globally coastal populations are expected to increase rapidly.</p>	<p>The Small Island Developing State of Tuvalu is already witnessing the salinisation of agricultural land and vanishing beaches due to sea-level rise. The Tuvaluan government in the year 2000 appealed to the Australian and New Zealand authorities to provide permanent homes for at least 3000 people, and possibly its whole population, within the next few years.</p>	<p>Nearly half of the Netherlands is protected from flooding by dykes and dams given that approximately 27% of the country is situated below sea level.</p>
<p>Water stress</p> <p>Runoff and water availability are very likely to decrease over much of the mid-latitudes and dry tropics, which are presently water-stressed areas.</p> <p>By 2020, between 75 and 250 million people in Africa are projected to be exposed to an increase of water stress due to climate change. If coupled with increased demand, this will adversely affect livelihoods and exacerbate water-related problems.</p>	<p>Lesotho is currently experiencing its worst drought in 30 years.</p> <p>The production of maize, Lesotho's staple food, has dropped by more than half compared to 2006.</p> <p>The UN has appealed for \$18.9 million to feed more than 500 000 people in Lesotho struggling to cope with food shortages and below-average rainfall.</p>	<p>Implementing a drought-early warning system</p> <p>Planting drought-resistant crops</p> <p>Water allocation management</p> <p>Building sand dams in river beds to prevent rain water loss due to run-off</p>
<p>Floods</p> <p>Heavy precipitation events, which are likely to increase in frequency, will augment flood risk.</p>	<p>In Africa, natural disasters are increasing in number and frequency, and affect most countries on the continent. Floods in Mozambique in 2000 and in Kenya in 1997-1998 sparked major emergency relief as hundreds of people lost their lives and thousands were displaced from their homes.</p>	<p>Building flood-proof houses on stilts</p> <p>Adjusting infrastructure, e.g. roads, to cope with floods</p> <p>Using pre-flood seed preservation methods (e.g. storing enough seed in flood-proof places)</p>

- Adaptation needs sufficient and sustained funding. Without such funding, humanity will face increased costs and greater risks in the future, including possible:
 - large-scale population movements, with the number of environmentally displaced persons outgrowing the numbers of “traditional refugees”
 - conflict due to competition over scarcer resources such as water, food and energy.

- Current sources of Overseas Development Aid (ODA) are insufficient to cover the adaptation needs as estimated by the IPCC, the Stern Review and others. Calculations indicate that available per capita money for adaptation in developing countries ranges from between 3 cents per annum to \$3.82 per annum.

Adaptation and sustainable development

- Climate change has the potential to push developing countries back into the poverty trap and to undo many achievements that have been made to date with regard to the Millennium Development Goals (MDGs).
- Climate change impacts on all aspects of sustainable development.
- Future vulnerability depends not only on climate change but also on development pathways. Sustainable development can reduce vulnerability.
- The implementation of adaptation needs to be integrated:
 - in the context of national and international sustainable development priorities
 - in national and sectoral development plans.
- Steps for effective implementation strategies at the national level:
 - enhancement of the scientific basis for decision making;
 - strengthening methods and tools for the assessment of adaptation;
 - education, training and public awareness on adaptation, including for young people;
 - individual and institutional capacity-building;
 - technology development and transfer; and promotion of local coping strategies;
 - appropriate legislation and regulatory frameworks, which promote adaptive-friendly action;
 - an adaptive planning process that covers different time-scales and levels (e.g. national, regional).

- Using climate change, including adaptation, as a driver to undertake activities with multiple benefits can catalyse progress in achieving a country's sustainable development goals.
- Many countries are starting to take concrete action towards adaptation to climate change. Such action needs to be expanded and integrated into national and sectoral planning to ensure that sustainable development and adaptation are mutually enhanced.

Current efforts under the UNFCCC

- It is critical that adaptation be brought forward on policy agendas. Parties to the UNFCCC have already highlighted the most important elements that might be part of an enhanced multilateral response to climate change post-2012.
- Developing countries need to receive increased and sustained assistance to adapt to the impacts of climate change under a post-2012 regime.
- A future climate change regime will have to deliver sustained and sufficient funding for the implementation of large-scale adaptation initiatives to prevent funding being largely limited to "reactive" funding, e.g. short-term emergency relief. Reactive funding would be unsupportive of sustainable development approaches and be very costly.
 - It is estimated that one US dollar invested in anticipatory measures can save up to 7 USD in future relief costs.
- The UNFCCC commits all Parties to formulate, implement, publish and update adaptation measures, as well as to cooperate on adaptation. It provides for a variety of support mechanisms for adaptation implementation in developing countries, including measures on:
 - the provision of funding
 - insurance and technology transfer
 - scientific and technical assistance for all Parties to enhance their knowledge base
- National Adaptation Programmes of Action (NAPAs) are currently an option for Least Developed Countries and provide a rigorous assessment of urgent adaptation needs in LDCs.
 - Significant support from the international community is needed to implement the projects included in the NAPAs, such as drought early-warning systems.
- The five-year Nairobi work programme on impacts, vulnerability and adaptation to climate change (NWP) has the objective of assisting all countries in understanding and assessing impacts, vulnerability and adaptation. It enables informed decision-making



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on practical adaptation actions and measures and provides a structured framework for cooperation.

- For adaptation, new investment and financial flows of several billions of USD will be needed in 2030. Specifically, additional investment and financial flows for adaptation needed in developing countries is estimated between USD 28 to 67 billion.