

Water and Climate Change Adaptation

Using water management, ecosystems and empowerment to build climate change resilience



Drought, floods, storms, melting glaciers and sea-level rise all feature in headlines and increase fears about the severity of climate change impacts. All these impacts concern water. Living with climate change will mean coping with impacts on water.

Adaptation to climate change – taking steps to reduce vulnerability and to build resilience to climate change impacts - is essential. Because expected impacts on water are so widespread, water is at the centre of climate change adaptation. Water resource management is fundamental to effective adaptation.

To guide effective country-driven climate change adaptation, agreement on an adaptation framework should reflect the importance of water management for reducing vulnerability and building climate resilience.

Key Messages

To make adaptation more effective, more coherent and to reinforce development, an adaptation framework is needed that will:

1. *Put Integrated Water Resources Management (IWRM) at the centre of planning and investment for climate change adaptation,*
2. *Promote implementation that incorporates management, restoration and sustainability of 'natural infrastructure' – the ecosystem services provided by healthy watersheds and coasts through Ecosystem-based Adaptation (EbA),*
3. *Encourage action to build climate resilience, by combining watershed management, sustainable infrastructure, empowerment and learning in adaptive institutions.*

Put Water Management at the Centre of Adaptation

With water the key medium through which climate change impacts are felt, critical adaptation responses will be implemented through integrated water, land and coastal management. Known land and water management practices should be deployed with renewed urgency to meet adaptation needs, using the Nairobi Guiding Principles¹:

- Address adaptation within the broader development context;
- Improve knowledge sharing, climate information and learning to create adaptive capacity;
- Build resilience through improved institutions and sustainable water technologies and infrastructure, including well-functioning ecosystems;
- Increase funding, including through innovative financing mechanisms, for adaptation through improved water management

Water management makes possible integrated management of climate impacts across sectors. Vulnerabilities in health, food production, water supply and sanitation, energy, industry and environment can all be reduced through IWRM.

Using IWRM to maintain and improve the healthy functioning of watersheds and coasts puts EbA into practice. People and development benefit by retaining ecosystem services that are critical to reducing climate change vulnerabilities – such as water storage, flood regulation and coastal defences.

¹ Dialogue on Land and Water Management for Adaptation to Climate Change, April 2009. www.landandwaterdialogue.um.dk

Building Climate Resilience in Practice

Adaptation will have to build *climate resilience* to safeguard the Millennium Development Goals. This means that adaptation must be implemented within strategies that make societies better at withstanding shocks and coping with unknown and unexpected futures.

Climate resilience is strengthened by ecosystem services provided by well-functioning river basins. More broadly, resilient systems are characterized by diversity and by self-organisation and learning. The challenge is to build climate resilience in practice.

IUCN's global experience of integrating environment and development in the *IUCN Water and Nature Initiative* has shown that four components combine to build climate resilience in practice:

- *diversity* – of the economy, livelihoods and nature
- *sustainable infrastructure and technology* – combining built infrastructure and the 'natural infrastructure' of river basins
- *self-organisation* – through participatory governance and empowerment in adaptive institutions
- *learning* – from improved climate information and capacity building

Adaptation actions such as developing or adapting drainage or water storage, whether with built or natural infrastructure, should be implemented within this framework. The components should guide policies, planning and investment strategies across sectors – including economic planning, poverty reduction strategies, agriculture, energy security and water resources development. The resilience framework is a practical means of mainstreaming climate change in development and safeguarding the MDGs.

From Dialogue to Action

Global dialogue on climate change adaptation will have to transform into country-driven action.

Support for country-driven implementation will be provided through a global IUCN programme of action on water and climate change that builds on the IUCN Water and Nature Initiative, incorporating:

- demonstrations of integrated water, land and coastal management to build climate resilience;
- application of empowerment and governance reform to build adaptive capacity;
- planning and investment strategies for sustainable infrastructure;
- capacity building and knowledge sharing;
- support for mainstreaming climate resilience in policy.

IUCN will support and assist climate change adaptation through its global network of members and partners from government and civil society, covering Latin America, Africa, the Middle East, Asia and Oceania.

"We want to take care of the environment so our children have a safe future."

Fausto Romero, president of the October 21 Cooperative and vice-president of the San Pablo-Suchiate River Midlands Micro-Watershed Committee.



Ecosystems are infrastructure for climate change adaptation that reduce vulnerability to floods, droughts, and storms. In the Tacana watershed (Guatemala, Mexico), degradation and climate change are raising the risk of devastating flash floods. Disaster propelled communities to take action. With support from WANI, communities created microwatershed councils to lead watershed restoration and development that met their priorities. Empowerment of community-owned institutions is making watersheds more secure and livelihoods less vulnerable to climate change.

More information

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IUCN Water Programme

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