

# CC DARE

Climate Change and Development  
Adapting by Reducing Vulnerability

## Water Resources, Water & Sanitation Mozambique, April 2009

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# Water: A critical resource

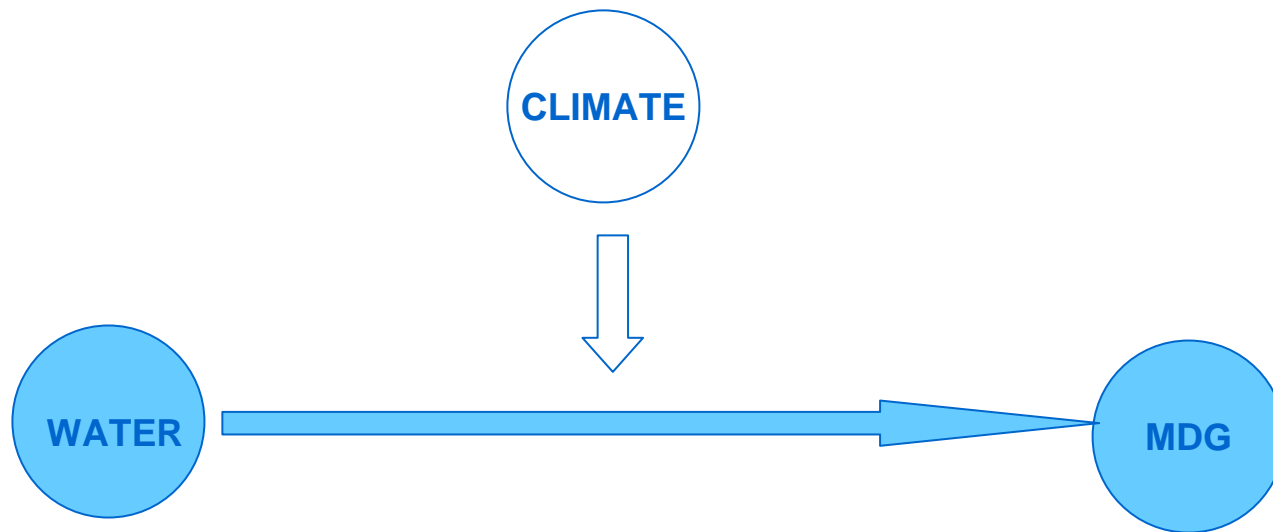
- Domestic use
- Agriculture
- Industry
- Energy
- Transport
- Livelihoods
- Ecosystems
- Tourism
- Sanitation
- Disposal



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## Climate change is an added challenge to achieve the MDGs



**- one of many key drivers of change**

IPCC : "Sustainable development can reduce vulnerability to climate change, and climate change could impede nations' abilities to achieve sustainable development pathways"

## Climate Change and Water Resources

IPCC fourth assessment report (2007):

*The effects of climate change will  
manifest through water;*

- Changes in the hydrological cycle and balance
- Increasing sea levels
- Increasing water temperatures
- Increasing variability in precipitations
- Increasing number of extreme climatic events causing more floods and droughts

## The impact of climate change on the management and use of water

- Reduced water availability
- Intensified competition among users
- Extreme rainfall increases risk and vulnerability among populations and increases the cost of flood protection
- Increased risk of floods reduces land available for production and residence

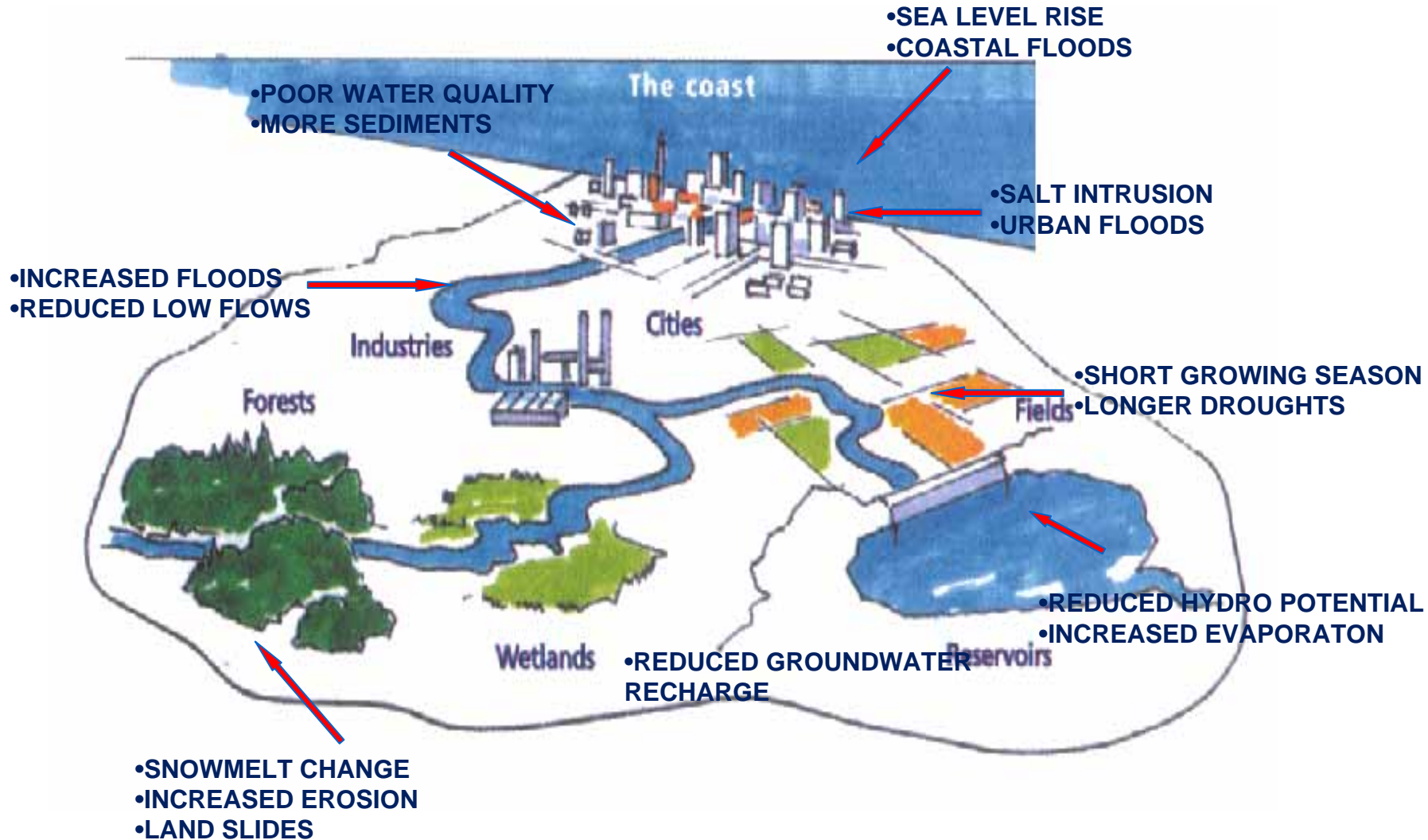
## Impacts (cont.)

- Limitations to energy production
- Rising sea levels will infiltrate unusable saline water into coastal aquifers
- Less water available to households for hygiene & health protection
- More waste water used for food production
- Reduced streamflows and reduced water quality

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# Water and climate change linked in the river basin context



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**A better management of water  
resources is essential  
IWRM is the framework for  
adaptation to climate change!**



**Mainstreaming water in the political economy**  
**Dealing with sectoral management**  
**Focusing on demand management**



## **Integrated Water Resources Management (IWRM)**



**Mainstreaming adaptation in IWRM**  
**IWRM ↔ NAPA**

## Infrastructural and institutional adaptation strategies to CC

- Dams
- Cannels, tunnels and pipelines
- Traditional water infrastructure
  
- Encourage a more rational use of water
- Produce crops that are more resistant to drought and salinization
- Improve the mangement of water basins
- Esthablish a flood warning system

### River basin impacts on the coast

- river discharge
- water quality
- sediment transport
- Floods

### Coastal impacts on the basins

- water levels, tides, salinity intrusion
- storm surges
- material transport along coastline

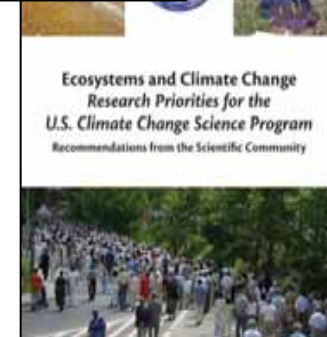
ICZM <-> IWRM <-> ICARM <-> NAPA



# Support for...

For example:

- Technical studies & reports
- Proposal development
- Workshops
- Plan formulation
- Training programmes
- Development of media
- Campaigns



# Knowledge gaps?

- **Analysis of how water-interested sectors are collaborating with each other, as well as with relevant national and regional data and information centres**
- **Identification of regions exposed to insecure water access based on criteria including health, agriculture, infrastructure, political, economic and environmental considerations**
- **Assessment of potential impacts on fragile ecosystems, including proposals of appropriate actions**

# Knowledge gaps?

- **Analysis of climate variability coping strategies that local communities already undertake, as well as relevance and possibilities for dissemination to others**
- **Assessment of progress towards Integrated Water Resources Management (IWRM) or Integrated Coastal Area and River Basin Management (ICARM) and how implementation can be accelerated and/or further supported in environmentally sensitive areas**
- **Assessment of climate change impacts in coastal zones**

# Knowledge gaps?

- Analysis of the extent to which principal water institutions integrate climate aspects in national policies, strategies and legislation of relevance for the management of water resources and the broader environment
- Assessment of the awareness and knowledge among decision makers in the key water-interested institutions
- Study of variability in water availability and demand (e.g. using environmental flows) and impact on various cross-sector activities
- **Your ideas ...**

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# Thank you!

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