



Economic Commission  
for Africa



African Union  
Commission



African Development  
Bank

ClimDev-Africa

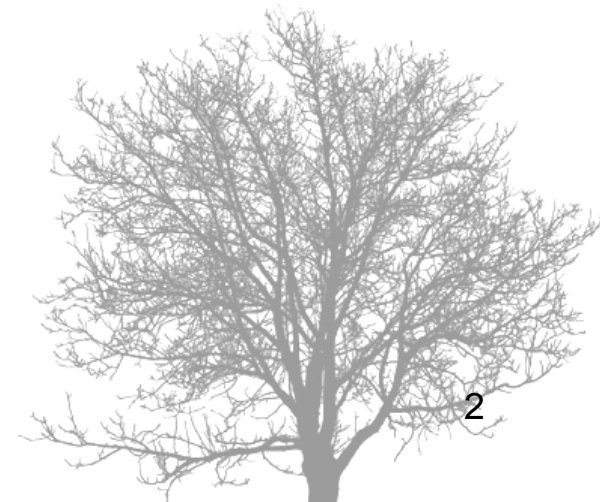
# Climate change, water resources of Africa and essential interventions

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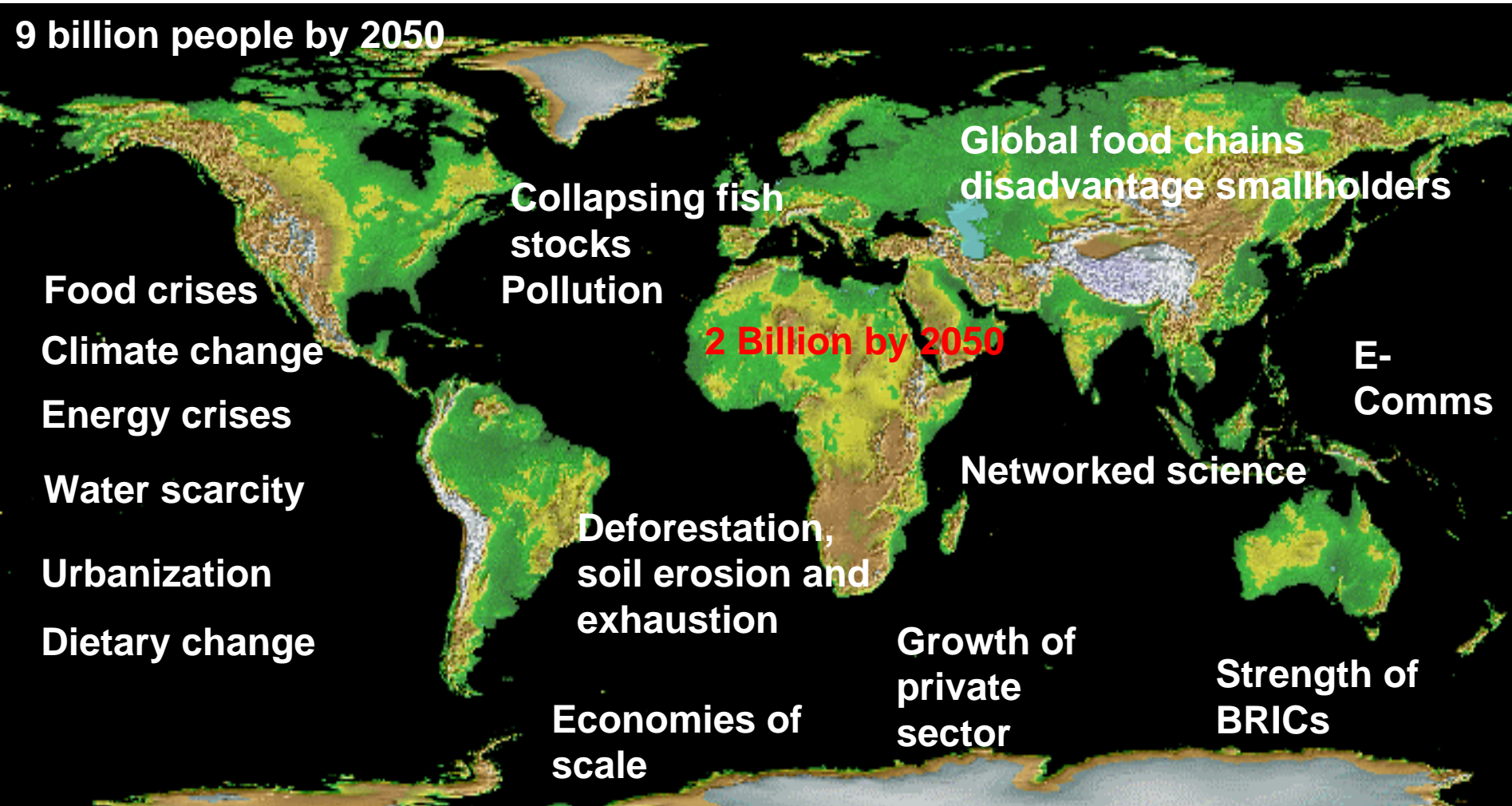
# Outline

- **Global Drivers of Change**
- **Africa's Water Challenges**
- **Development & CC Related Water Challenges**
- **Responses and Major Interventions**
- **Key Messages**



# Global Drivers of Change:

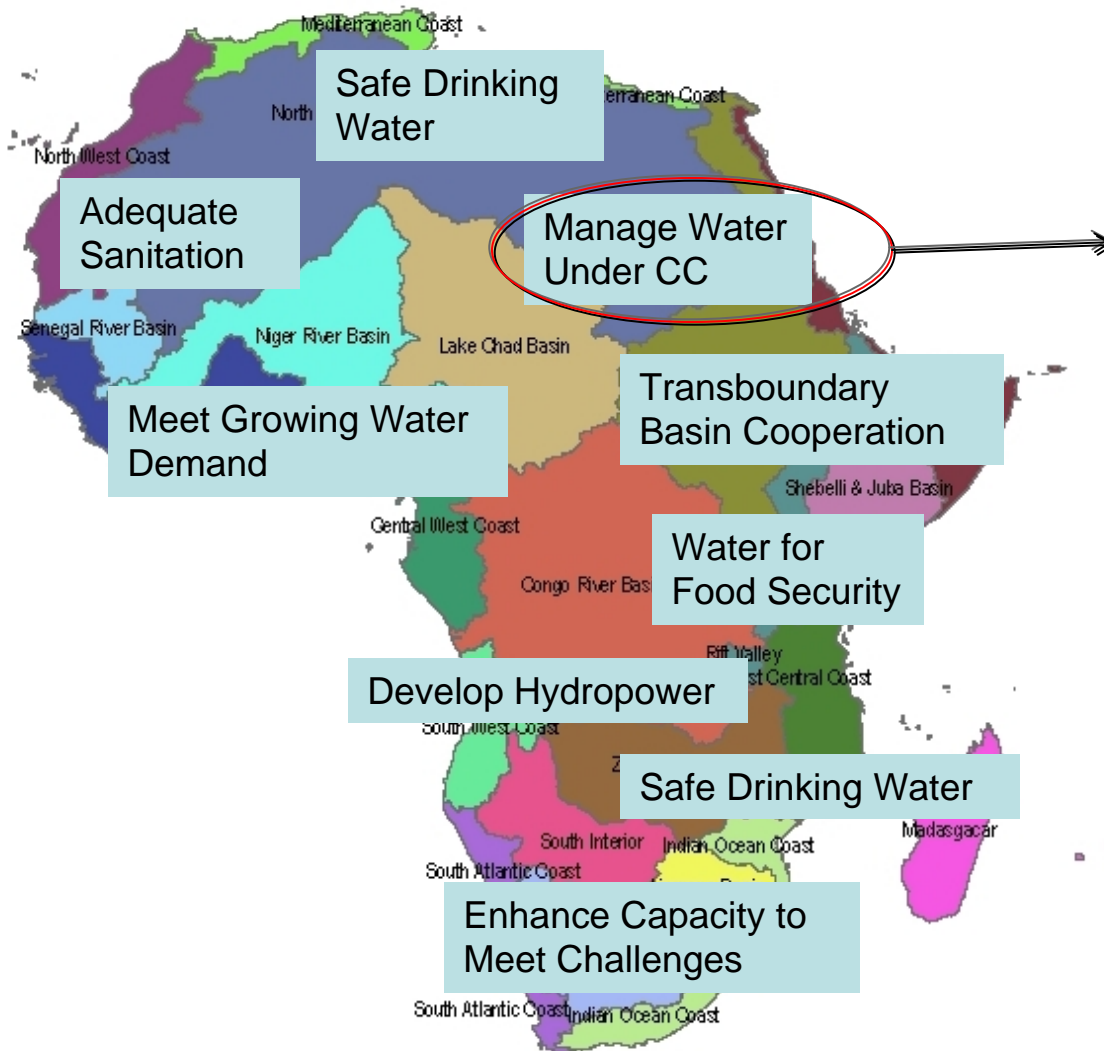
We are living in a fast changing world



increasing challenges – increasing opportunities



# Africa's Water Challenges



Managing water under climate change → complex problem

Gap exists:

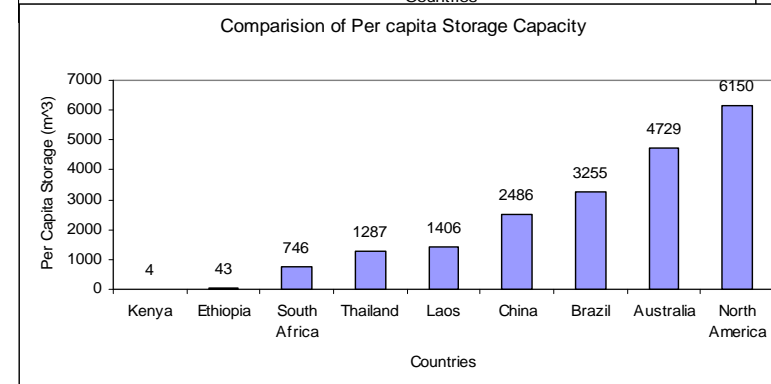
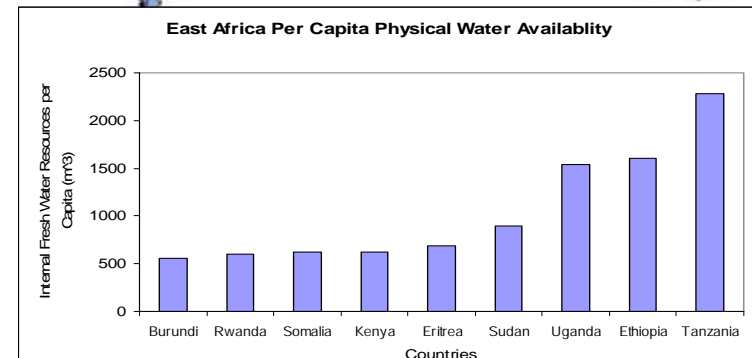
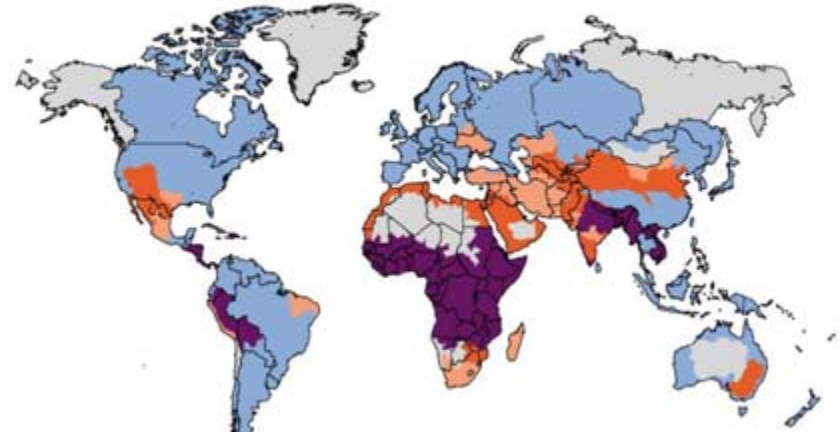
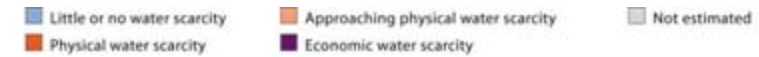
- Data, Science base and analytical capacity

- Adequate development => adequately responding to CV and CC

- Policy and institutional instruments eg. in TB management

# Development & CC Related Water Challenges

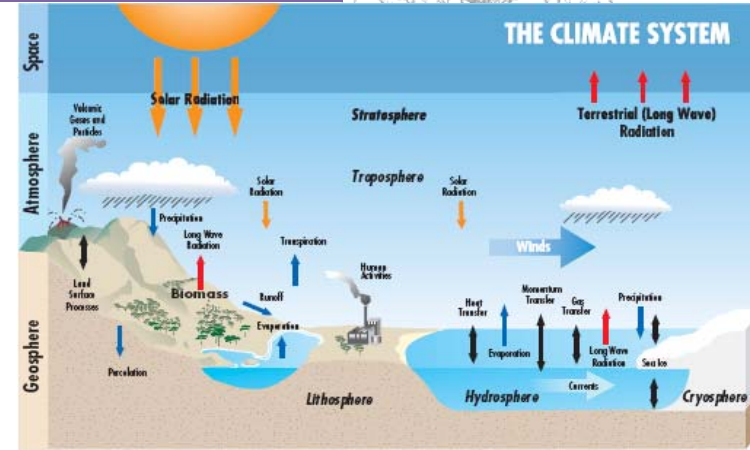
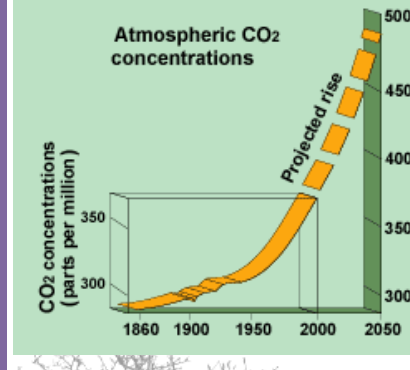
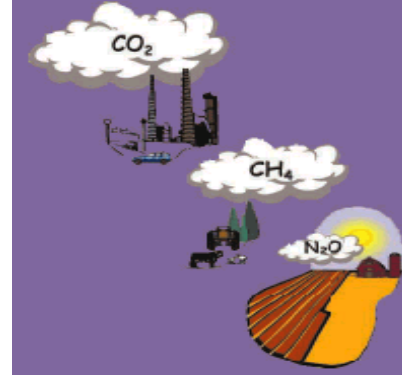
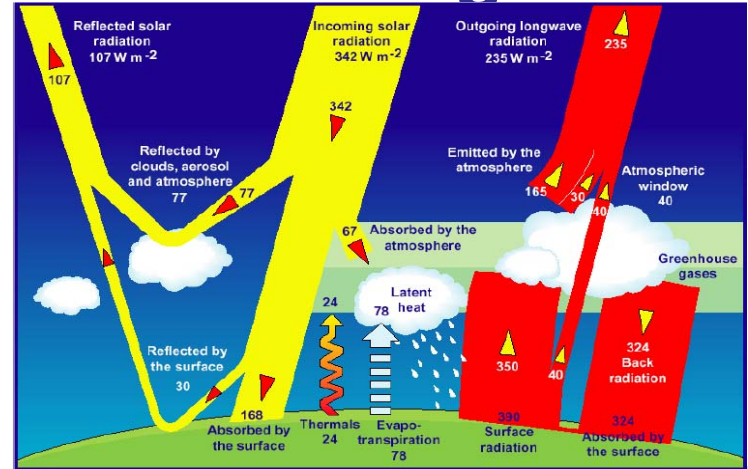
- **Knowledge gaps**
  - Uncertainty, knowledge management
- **Resource base related**
  - Water scarcity, quality, degradation
- **Extreme events & aggravation**
  - Flood, drought, variability, health, .
- **Use efficiency**
  - Inadequate use, low productivity,
- **Poor control & management**
  - Capacity, infrastructure, finance, institutions, policy



**Adaptation in water to meet the challenges**

# Scientific Consensus on Climate Change

- The climate system is driven by solar radiation from the Sun
- Phenomena that affect the energy balance of the climate system would ultimately alter the climate
- Global warming is caused by the emission of GHG & their increasing concentration in the atmosphere due to human activities
- Concentration of the major GHG has increased since 1750
  - Carbon dioxide (CO<sub>2</sub>) increased by 32%
  - Methane (CH<sub>4</sub>) increased by 150%
  - Nitrous Oxide (N<sub>2</sub>O) increased by 17%
  - The increase in atmospheric CO<sub>2</sub>:- fossil-fuel burning and land use change including deforestation
  - The increase in CH<sub>4</sub> & N<sub>2</sub>O : - emissions from energy use, livestock, rice agriculture, and landfill.
- Earth's climate results from interactions of many processes in the components of the climate system: **Anthropogenic system (human activities) disturb the balance**
- The climate system and hydrological balance change as a result



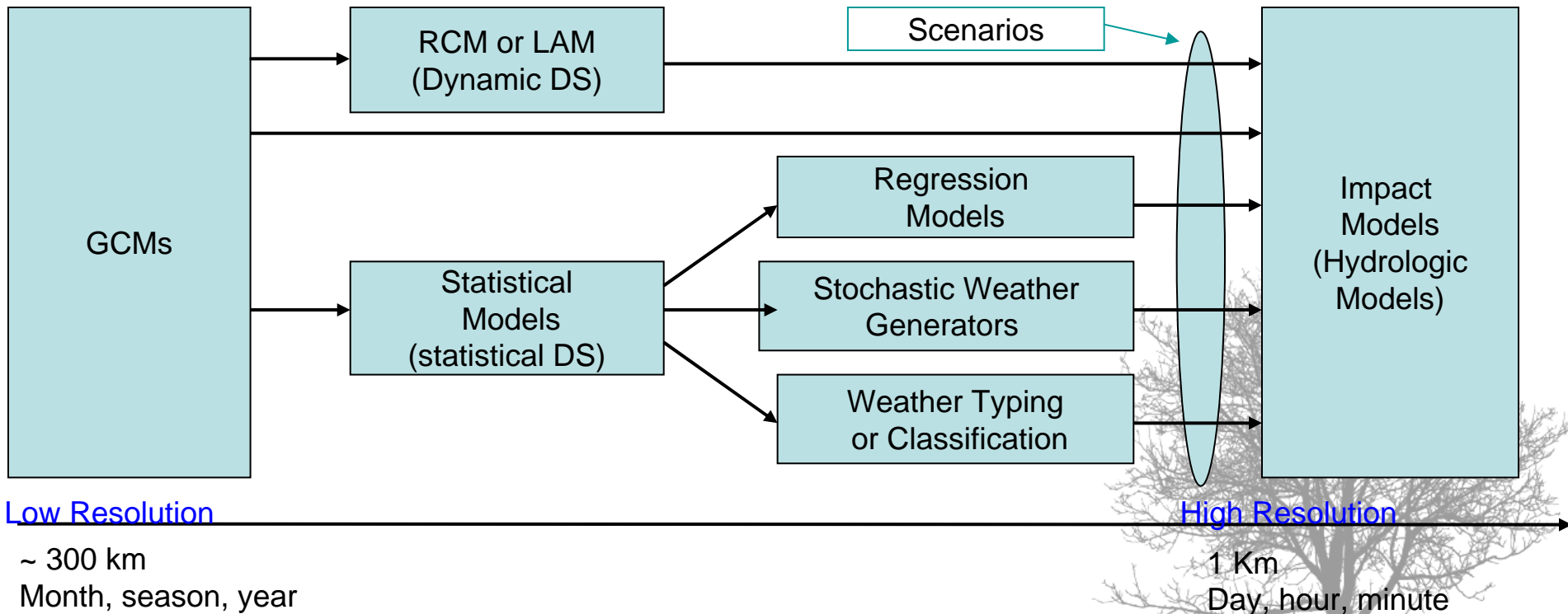
# Response: Knowledge and capacity

## Reduce uncertainty through research and capacity building

- Africa's climate change and water nexus is largely uncertain

## Significantly improve Africa's modeling and scientific base

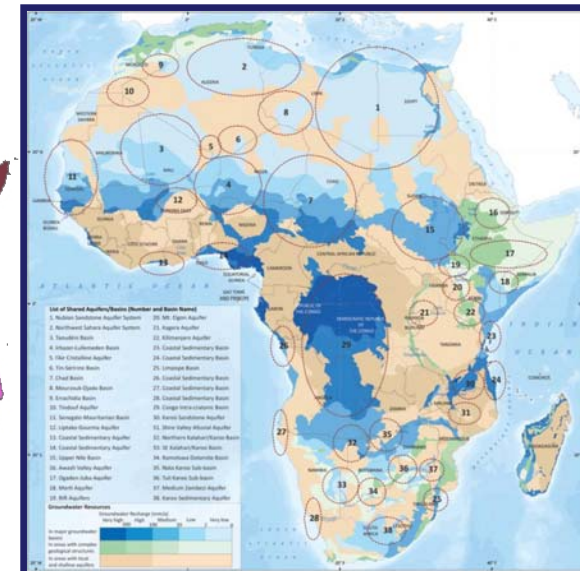
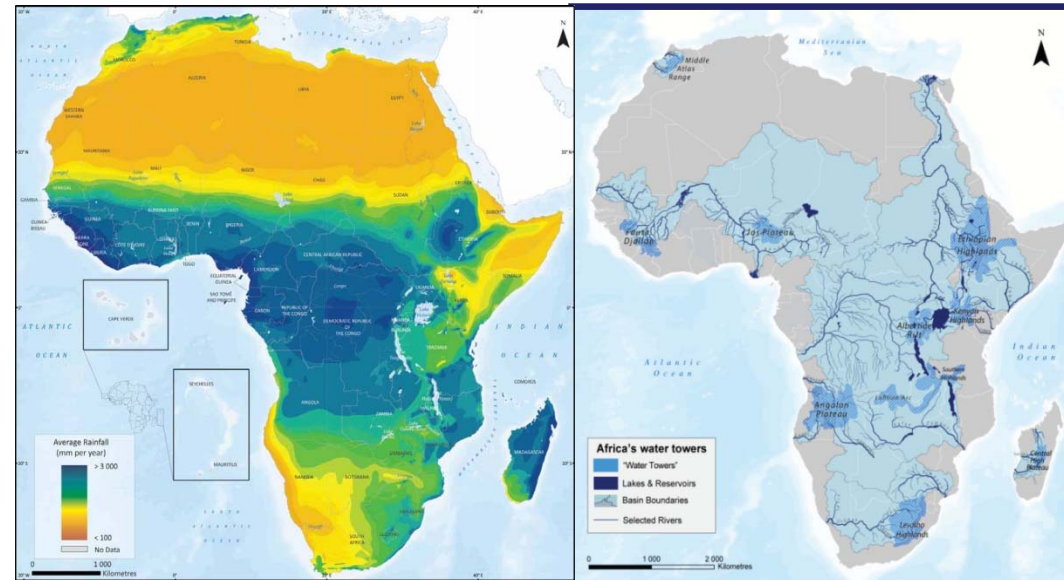
- The most common method of developing climate scenarios for quantitative impact assessments is to use results from Global Climate Model (GCM) experiments
- Negligible institutions are able to run such models in Africa



# Responses: Enhance sustainable resources use

## Resources summary

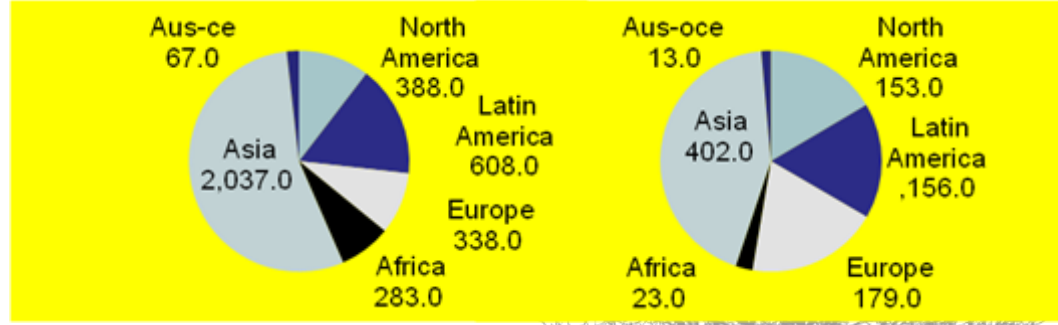
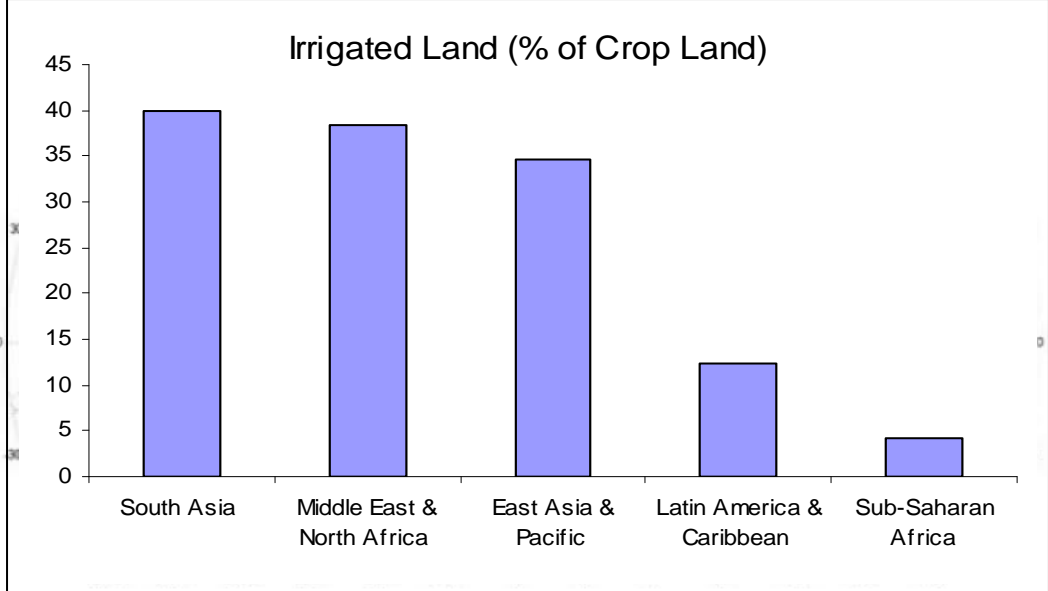
- Rainfall = 670 mm/year providing = 20,100 km<sup>3</sup>
- IRW = 3,931km<sup>3</sup> (20% of RF)
- 13 major river basins
- 63 TB, 63% land area, 93% total surface water, home for 77% of population
- GW is 15% of IRW
- 38 major TB aquifers
- Water management is critical for resilience and development
- Transform development & management of water





# Response: sector water resources use efficiency

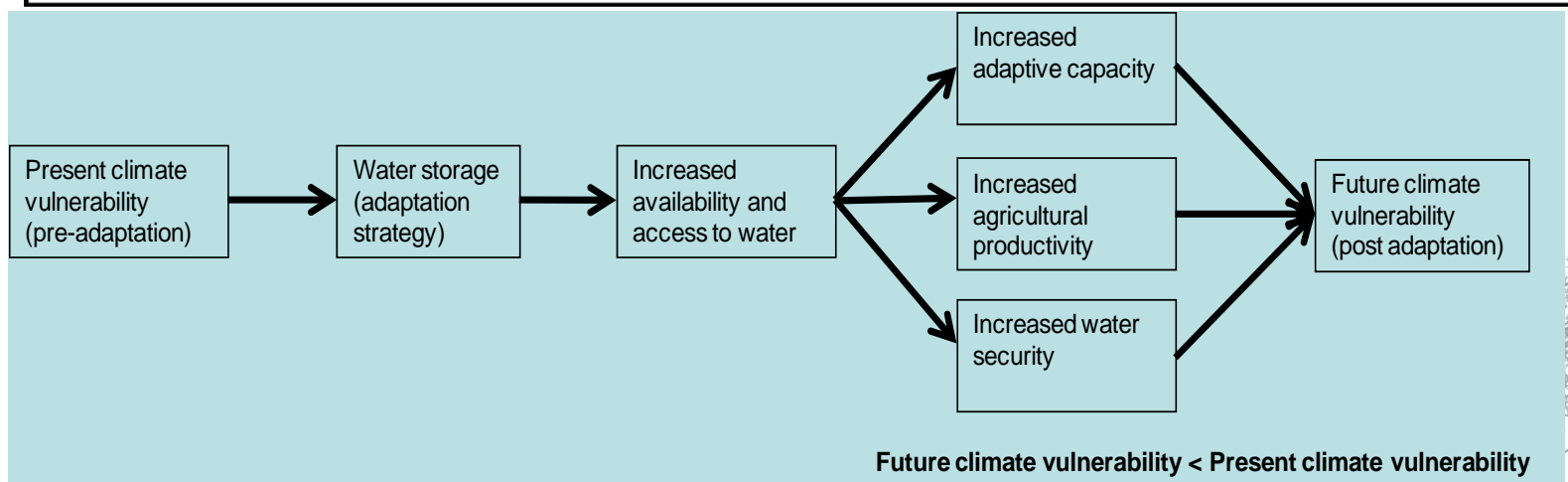
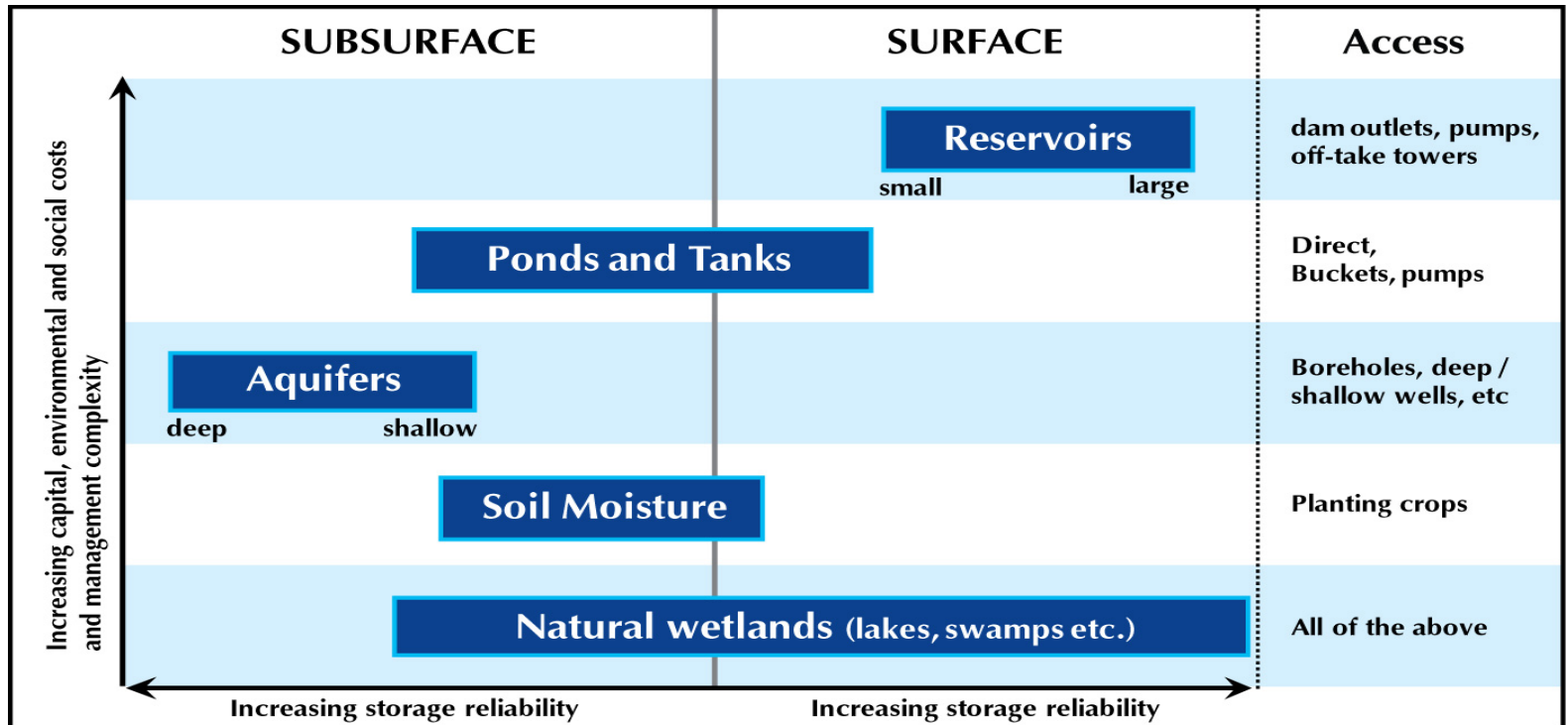
- **Water use about 4% IRW**
- **Water supply– 64%**
- **Agriculture about 185M ha; 7% irrigation**
- **Hydropower**
  - 283,000 MW potential
  - 8.3% use (2009)
  - 32% of energy source



Potential Use



# Response: Water Storage Continuum for Adaptation

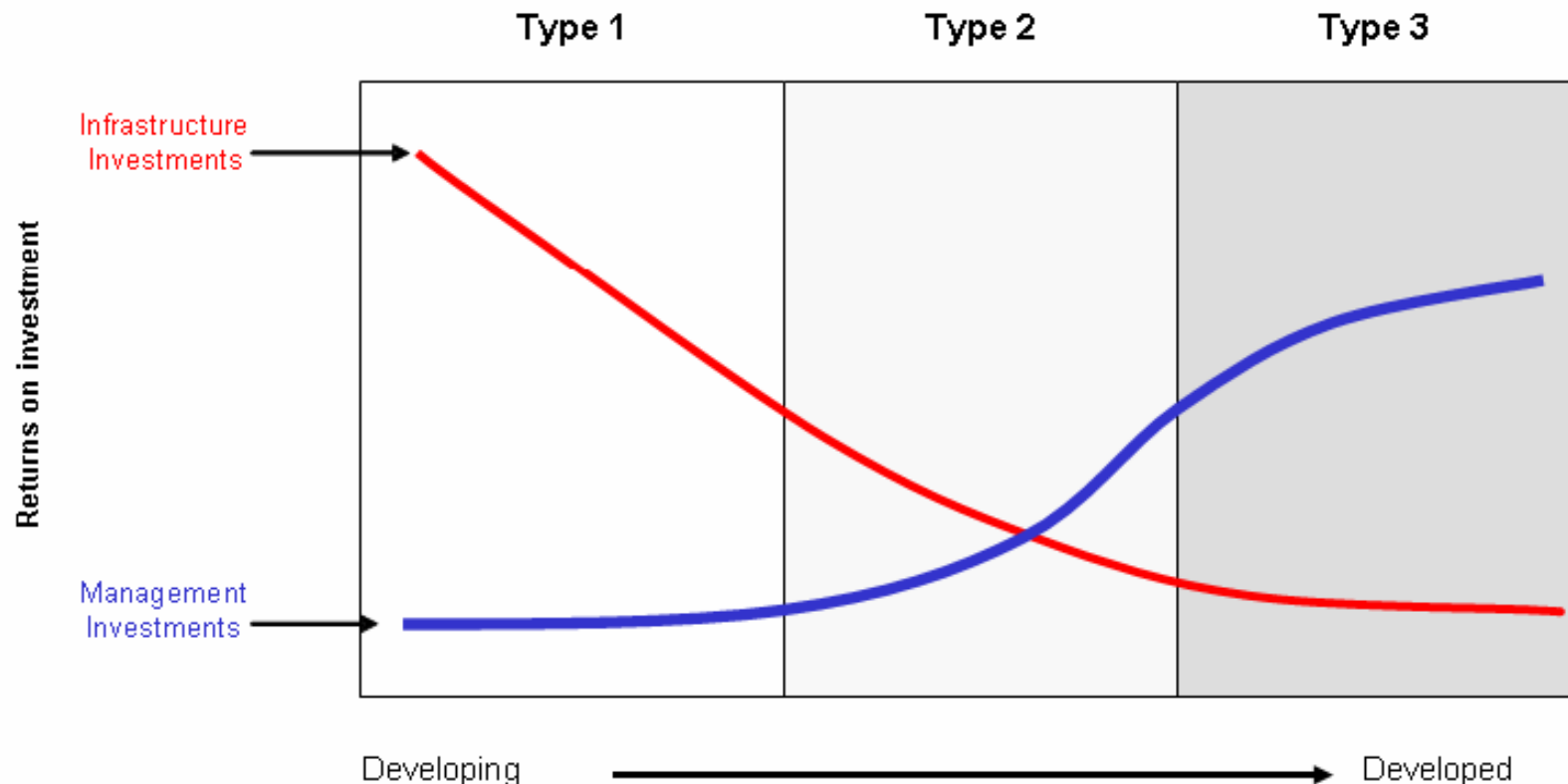


Maximize benefit through multi-purpose development

# Response: Finance, investment, policy

- Accessing adaptation funds to support WRD pays off and lead to 'Concrete adaptation activity' in Africa
- Enhance policy and governance mechanisms

**Physical-infrastructure capital for Africa is high return on investment and resilience**



# Key Messages: Adaptation in water

## Knowledge:

- Reduce uncertainty and knowledge gaps

## Enhance WRD

- Leapfrog in development, and water is one of the crucial path for LCD

## Use efficiency and sustainability

- Adopt critical interventions and technologies that are sustainable
- Increase land and water productivity, efficiency and value per unit of resources

## Technology

- Technology transfers and access

## Increase finance, investment and governance

- Accessing adaptation funds to support WRD pays of and lead to 'Concrete adaptation activity' in Africa
- Enhance policy and governance mechanisms

Thank you

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