



Global Water
Partnership

ADAPTING TO CLIMATE CHANGE THROUGH BUILDING WATER SECURITY

Dr Ania Grobicki
Executive Secretary, GWP
15 October 2009

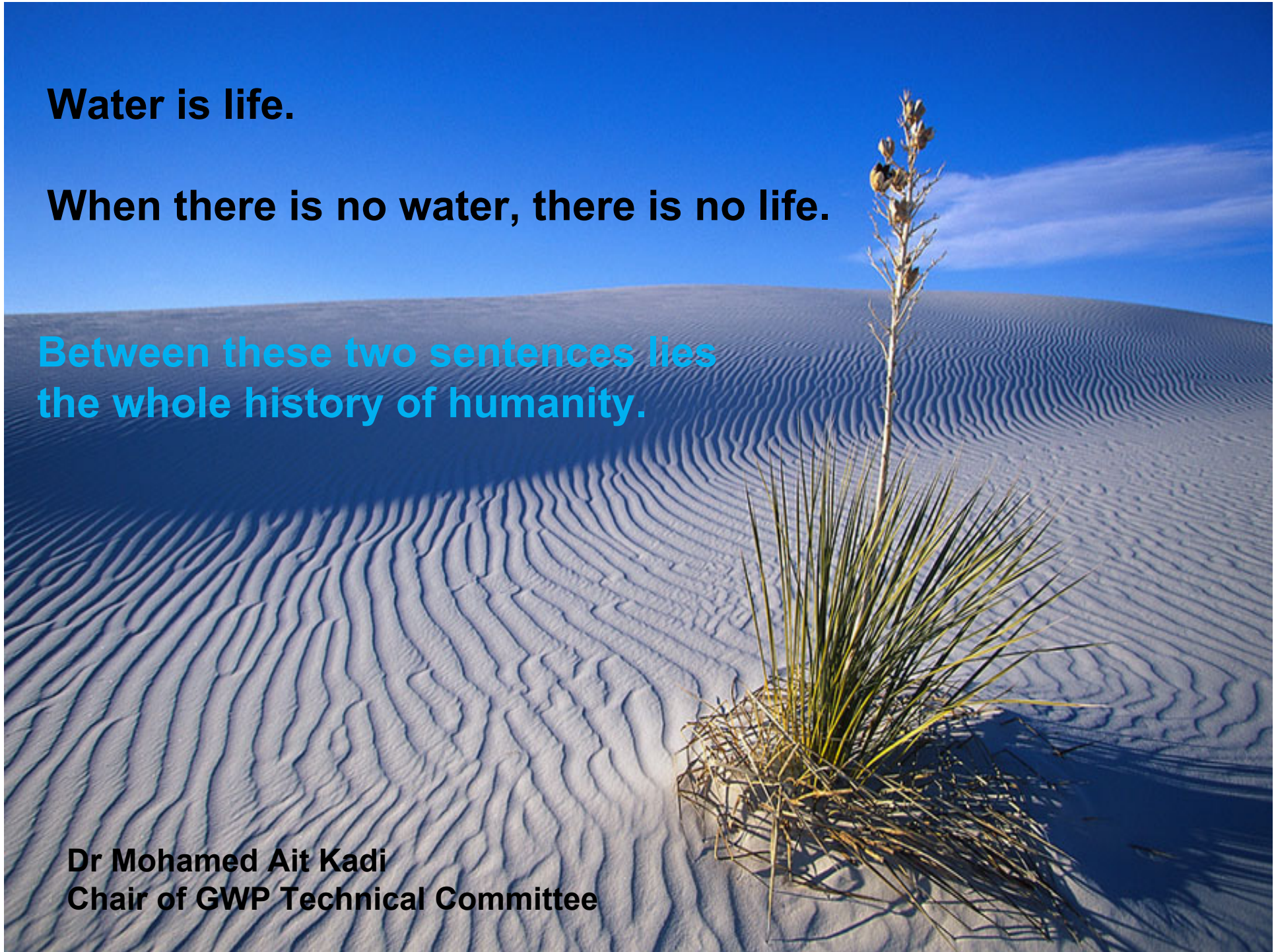
www.gwpforum.org

Water is life.

When there is no water, there is no life.

**Between these two sentences lies
the whole history of humanity.**

**Dr Mohamed Ait Kadi
Chair of GWP Technical Committee**



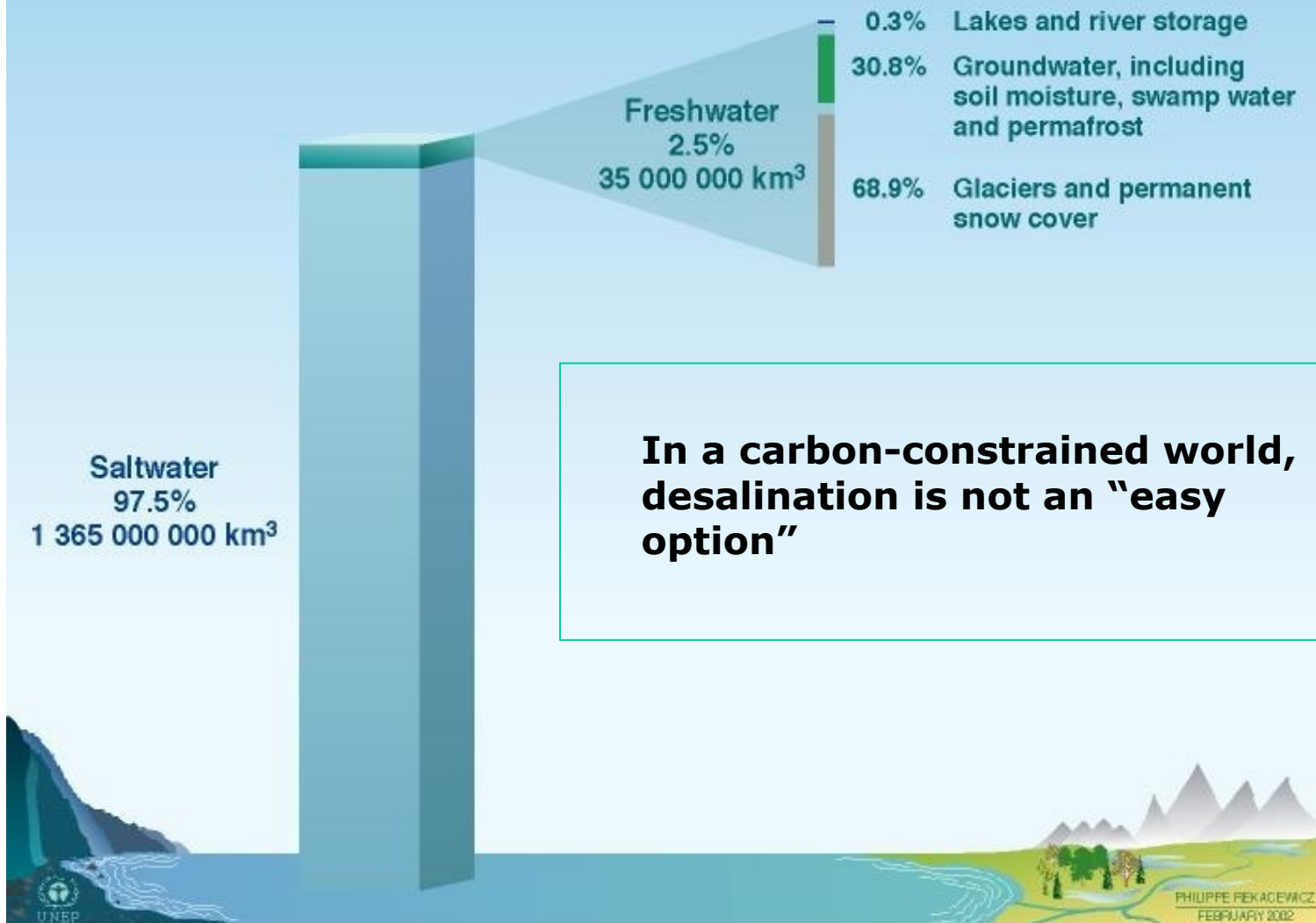
EARTH IS A WORLD OF WATER . . .



Yet we hear of conflicts over water, water stress, water scarcity . . . Why?

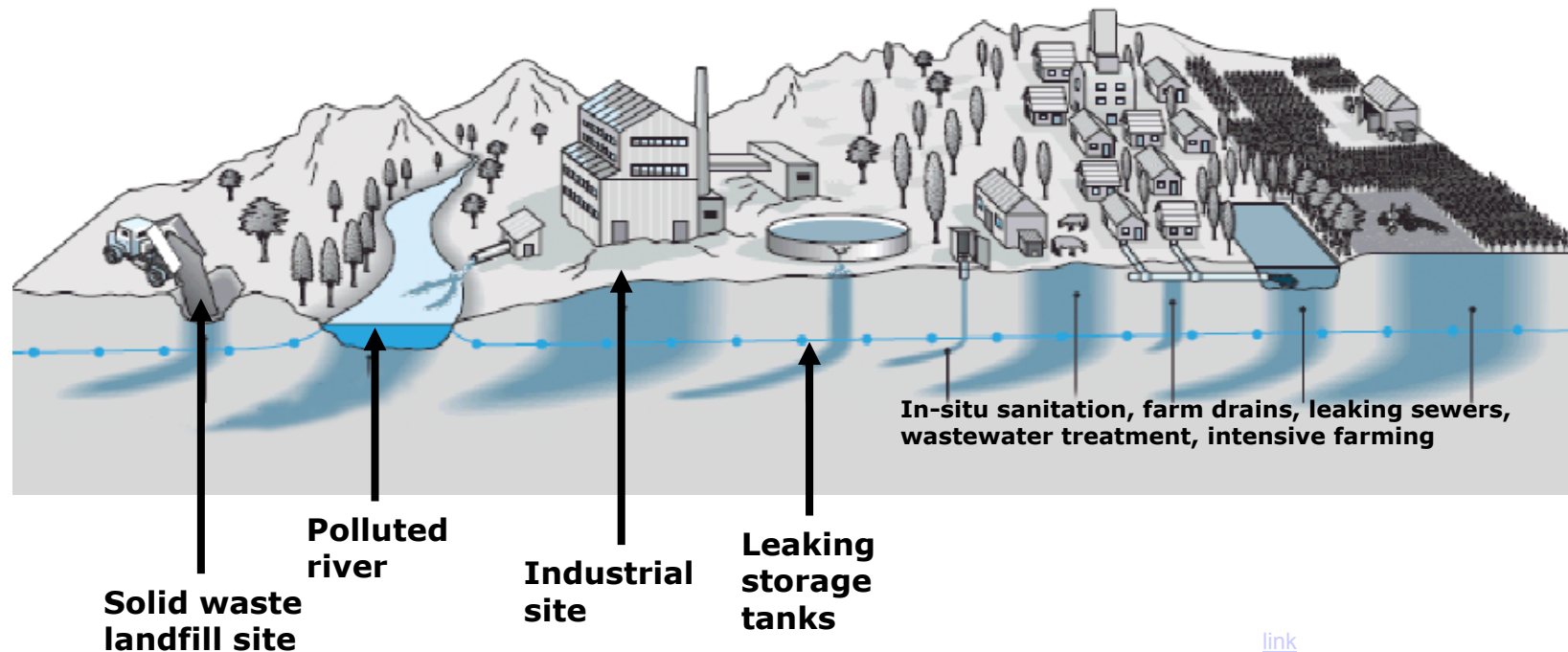
A World of Salt

Total Global Saltwater and Freshwater Estimates



Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999.

Both water quantity and water quality are critical to groundwater reserves:
Aquifers are dropping, and many are becoming unusable through pollution or saline intrusion



Primary sources of groundwater pollution

GWP VISION :

A water secure world

- Sufficient clean water for all life – for human society and for the ecosystems of which we are part
- Security for all the economic sectors which consume or harness water - agriculture, energy, industry, domestic water supply, tourism . . .
- Security from droughts, floods, landslides, water-borne diseases – all the negative aspects of water
- Improved quality of life, health and well-being for the most vulnerable groups, especially women and children
- Improved transboundary co-operation

The economics of water

“The raw economics of water are both compelling and challenging: water security, economic development and GDP are interlinked.”

The Bubble is Close to Bursting : A Forecast of the Main Economic and Geopolitical Water Issues Likely to Arise in the World during the Next Two Decades

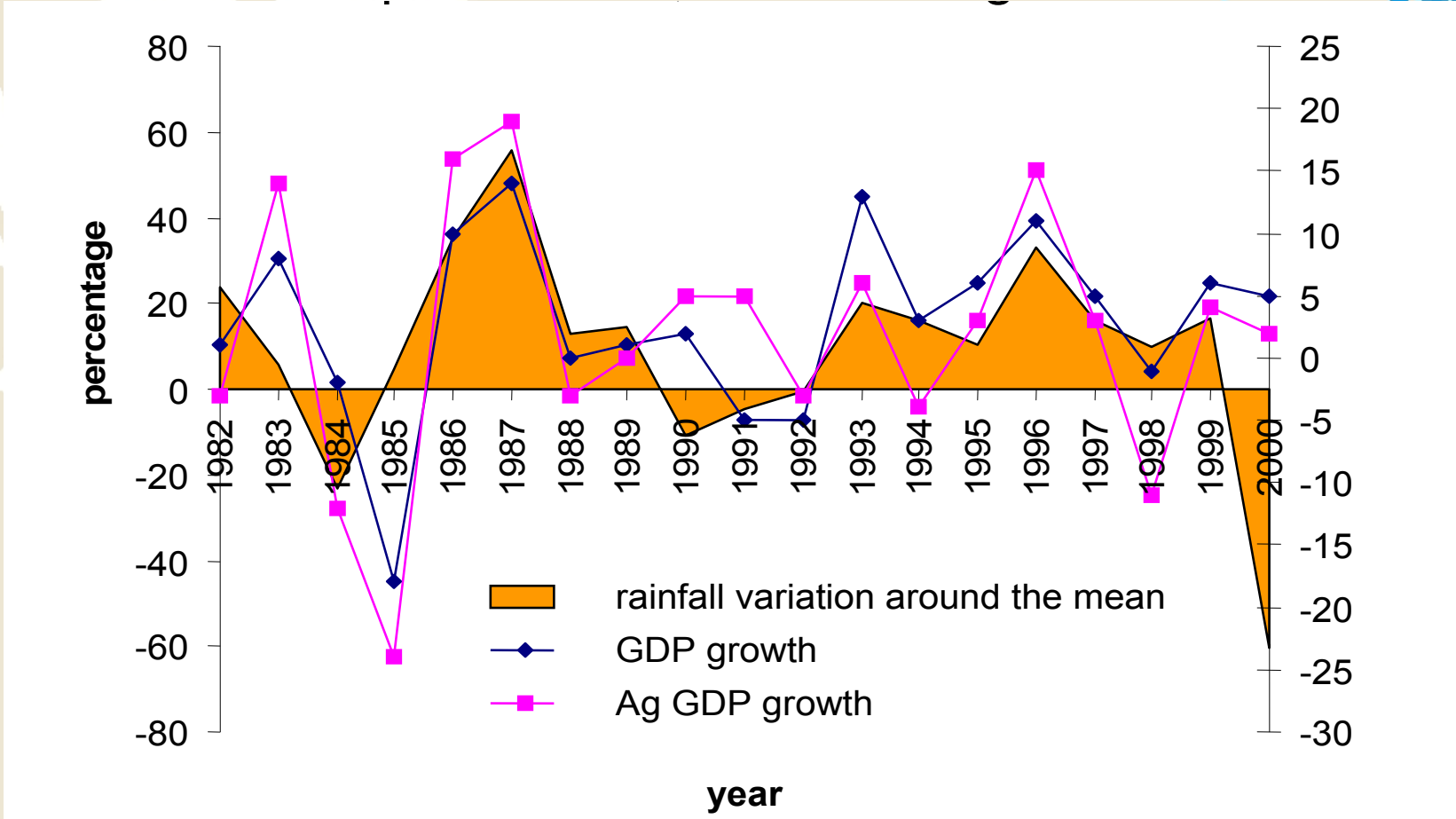
World Economic Forum, Davos, 2009

EXISTING CHALLENGES TO WATER RESOURCES MANAGEMENT

1. Closed river basins : 70 major rivers around the world are close to being totally drained in order to supply water for irrigation systems and for reservoirs, including the Colorado, Ganges, Jordan, Nile and Tigris-Euphrates. In China, the Yangtze and Yellow Rivers are dry in their lower reaches for much of the year.

2. "Under-exploited" river basins

Ethiopia: Rainfall, GDP and Agricultural GDP

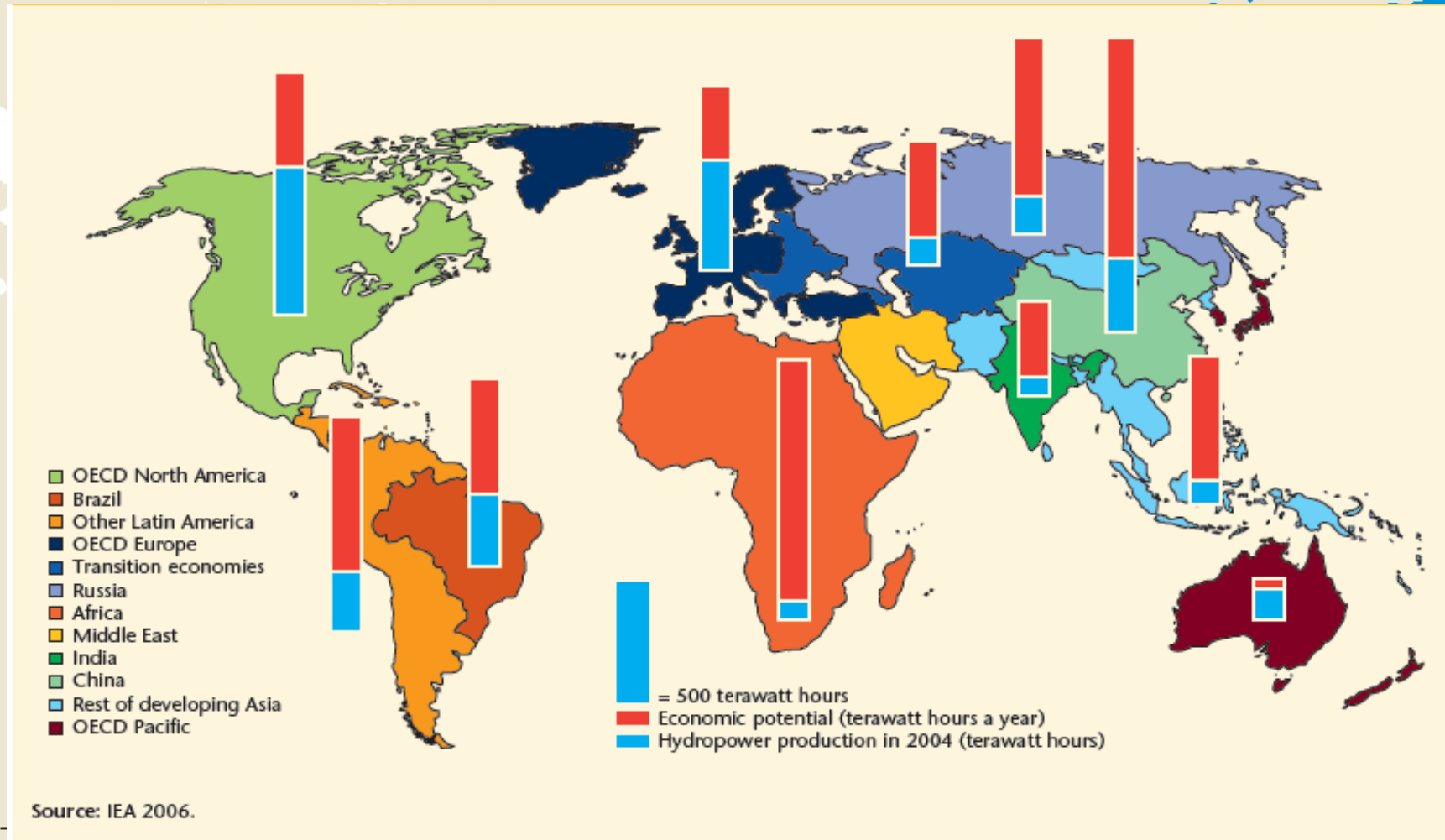


World Bank

Food security requires better water storage and better water productivity (more crop per drop)



World potential and current hydropower production, 2004 : Opportunities and risks for energy security

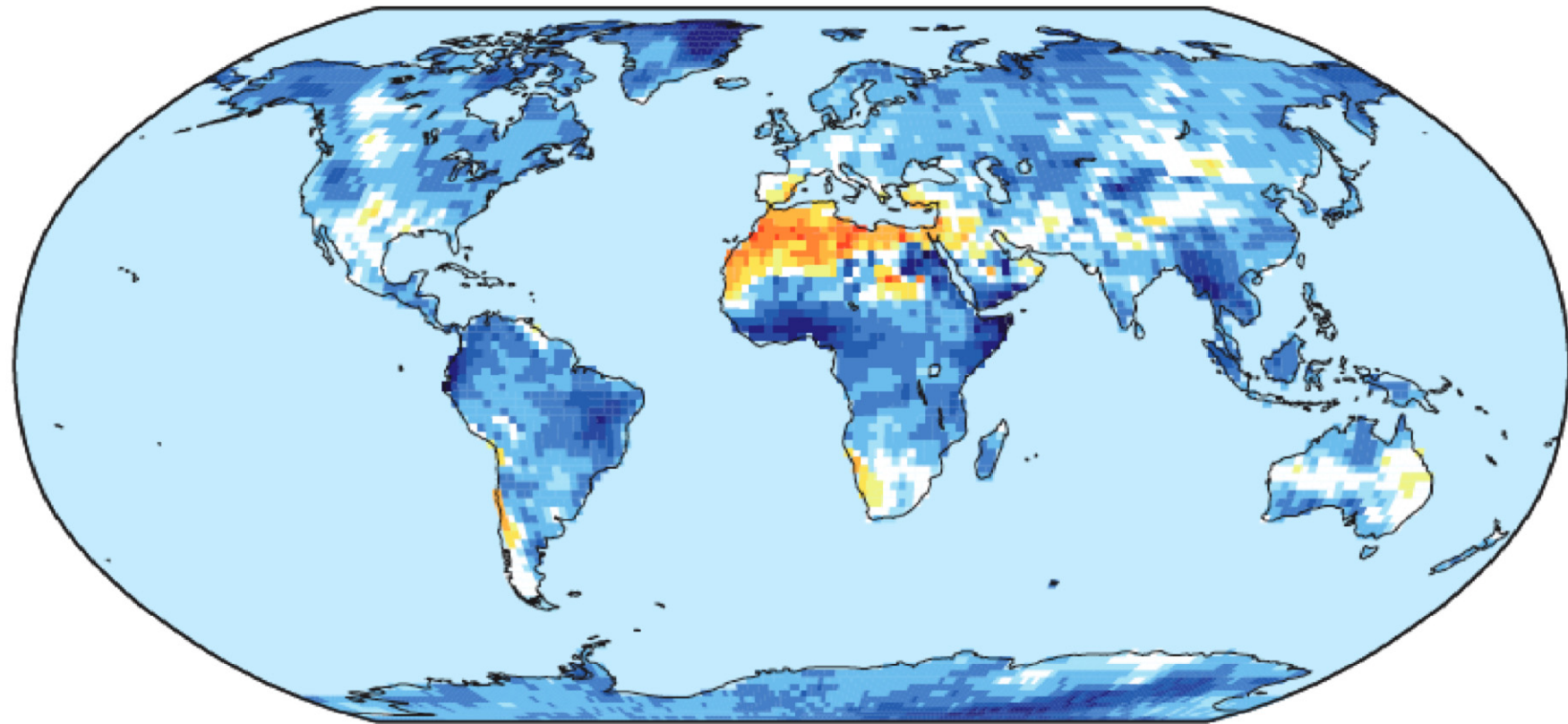


Framing the climate change challenge

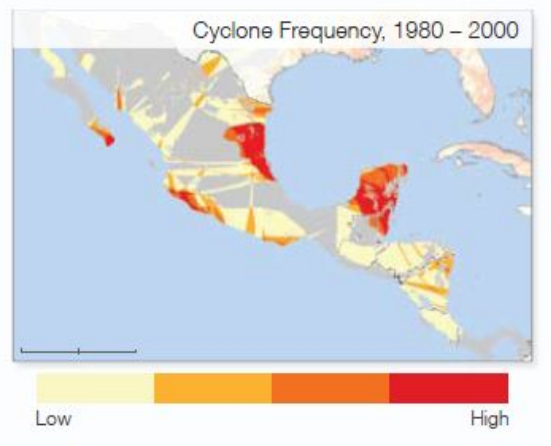
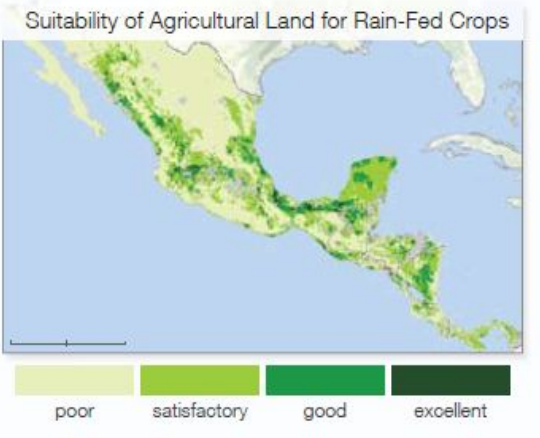
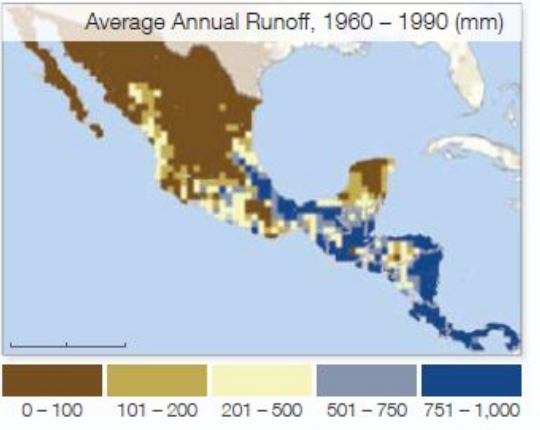
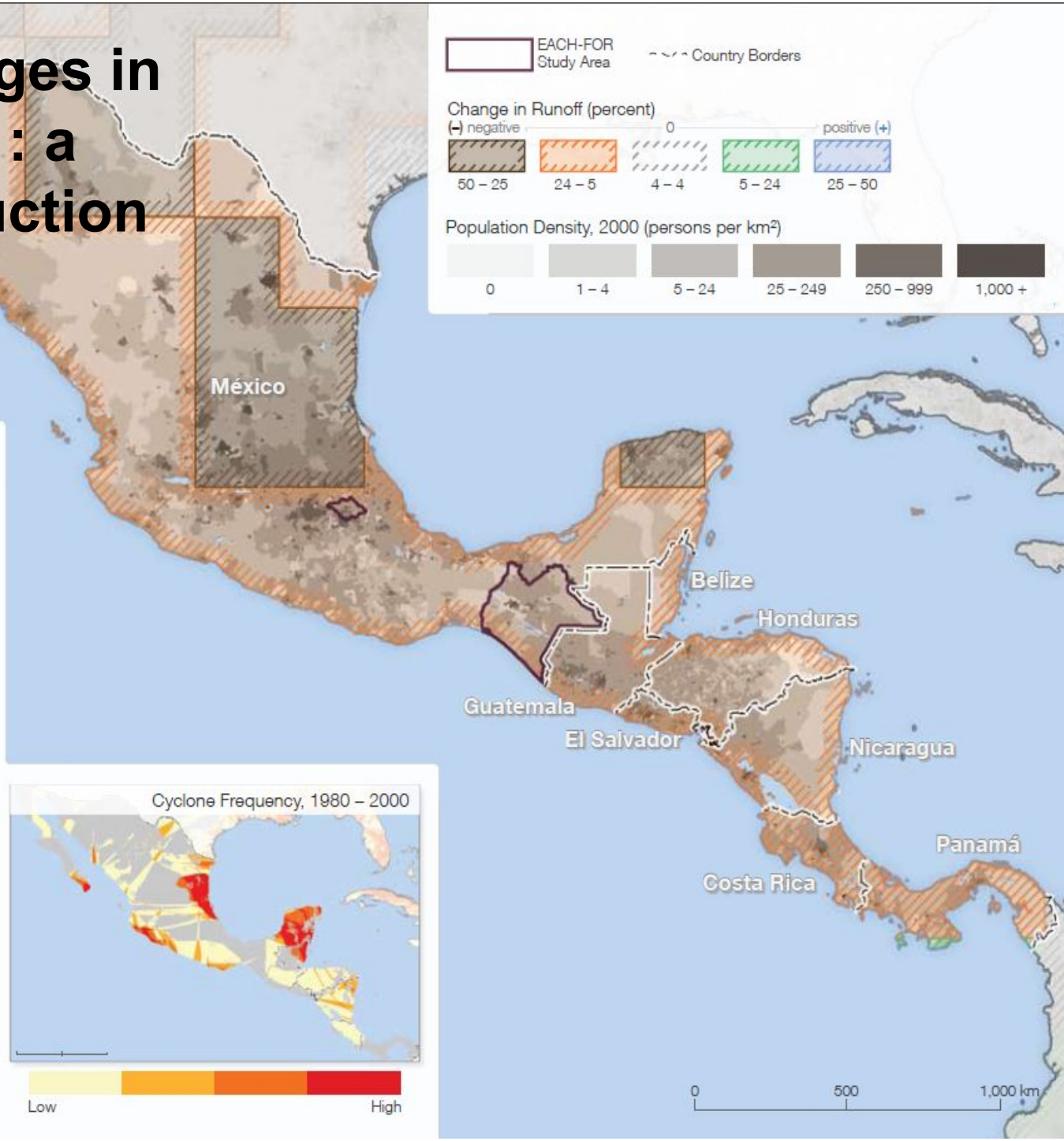
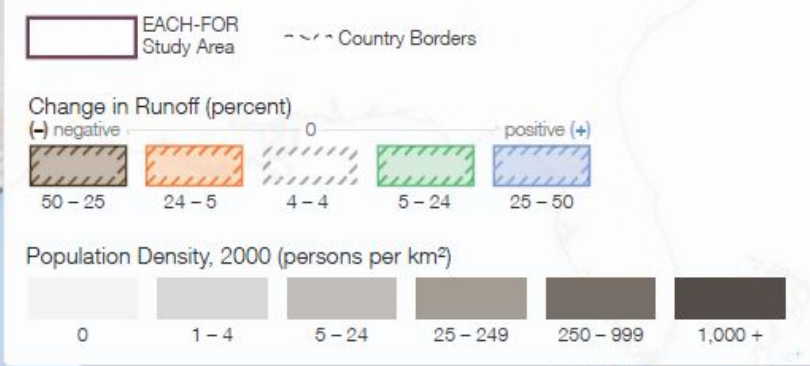
- Overall impacts of climate change on freshwater resources expected to be negative
- Intensifying existing challenges to water security
- Droughts, floods, more intense and more frequent storms
- But there is much that is not yet well understood
 - Beyond increased temperatures : rainfall changes, effects on river flows and groundwater recharge
 - Specific challenges of snow and glacier melt
 - Interseasonal and interannual variability
- Enhanced capacity to respond to these dynamics enables better water resources management.

Risk hotspots over a 100-year period (Scenario A1B)

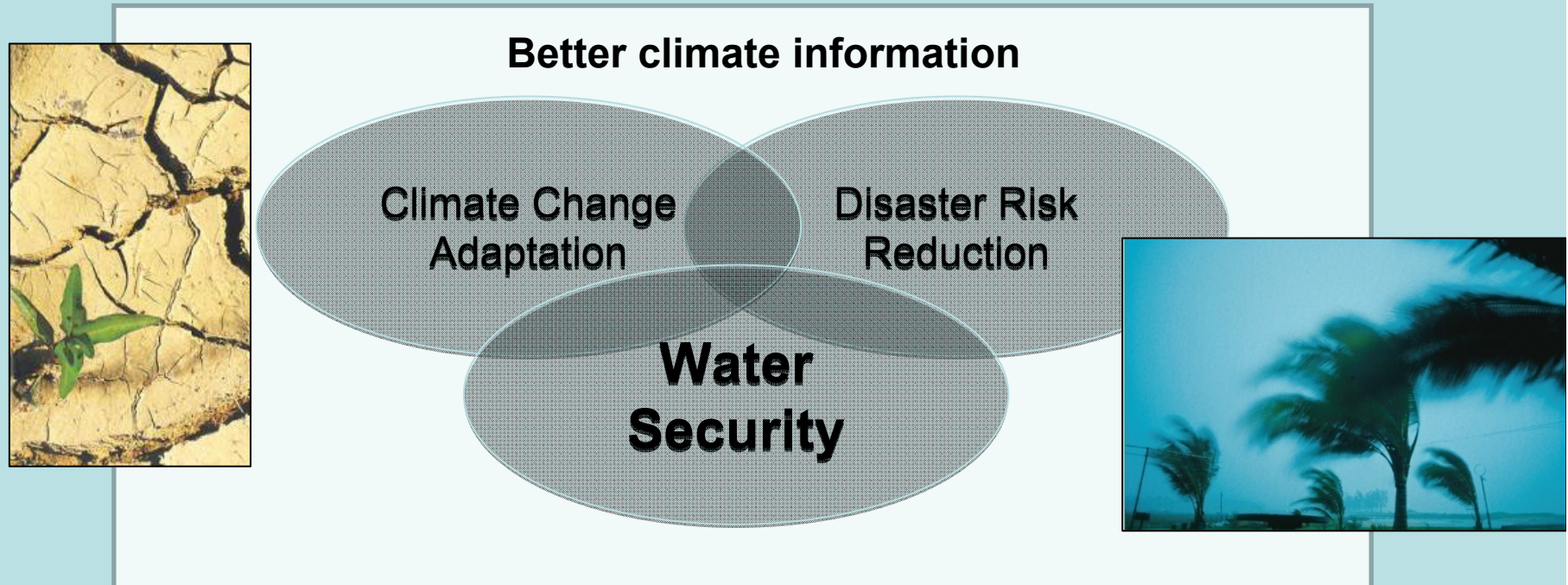
Percentage changes in annual extreme precipitation



Projected changes in run-off by 2080 : a significant reduction



A “no-regrets” strategy for climate change adaptation : Building resilience through water security



- **Better climate information** : more detailed, more timely (WCC-3)
- **Exchange of information**, development of harmonised approaches and partnerships among the communities working on climate change adaptation, disaster management, water management
- **Innovative and cross-sectoral** approaches to floods, droughts and chronic water scarcity

Key messages:

- **Water is the primary medium through which climate change will impact upon people, ecosystems and economies**
- **Water resources management should therefore be an early focus for adaptation to climate change**
- **It does not hold all of the answers to adaptation; a broad range of responses will be needed**
- **But water security is both part of the problem and an important part of the solution**
- **It is a good place to start**