



EUROPE-INBO 2010

**8th International Conference
For the implementation of the European Water
Framework Directive**

**Adaptation to Water Scarcity and Regional
Cooperation in the Middle East**

Yehuda Shevah

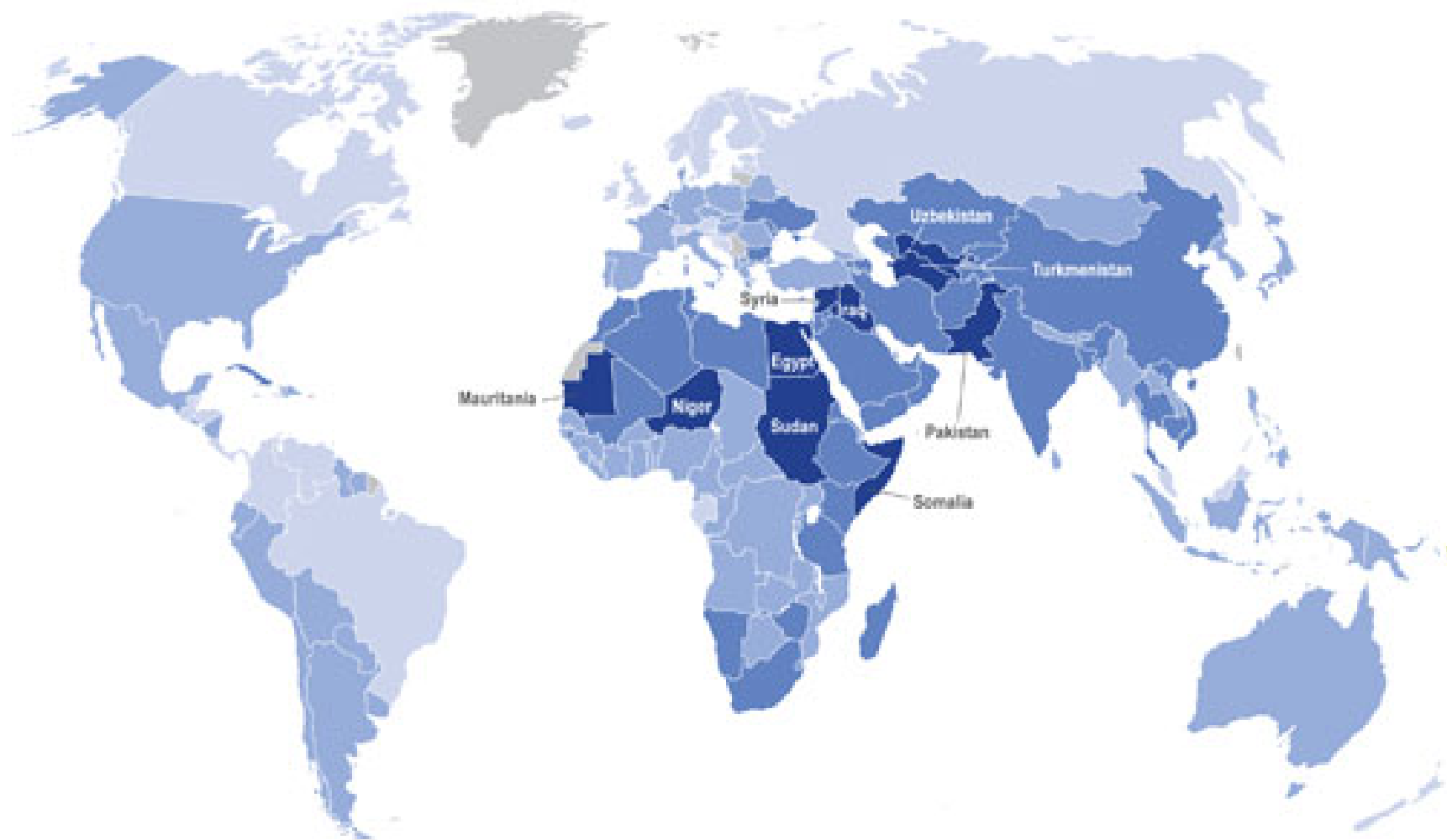
**MEGEVE (FRANCE)
22 - 24 SEPTEMBER 2010**

Middle East Water Scarcity

- Regions vulnerable to a lack of water security include the Middle East, where all appear in the high and extreme risk categories,
- Maplecroft Water Security Risk Index (2010) rates Syria and Egypt among nations facing “extreme” water security risks.
- The other neighboring countries are classified as High Risk having least secure supplies of water.

Water Security Risk Index 2010

© Maplecroft 2010



Water Security Risk Index 2010

The index measures four key parameters:

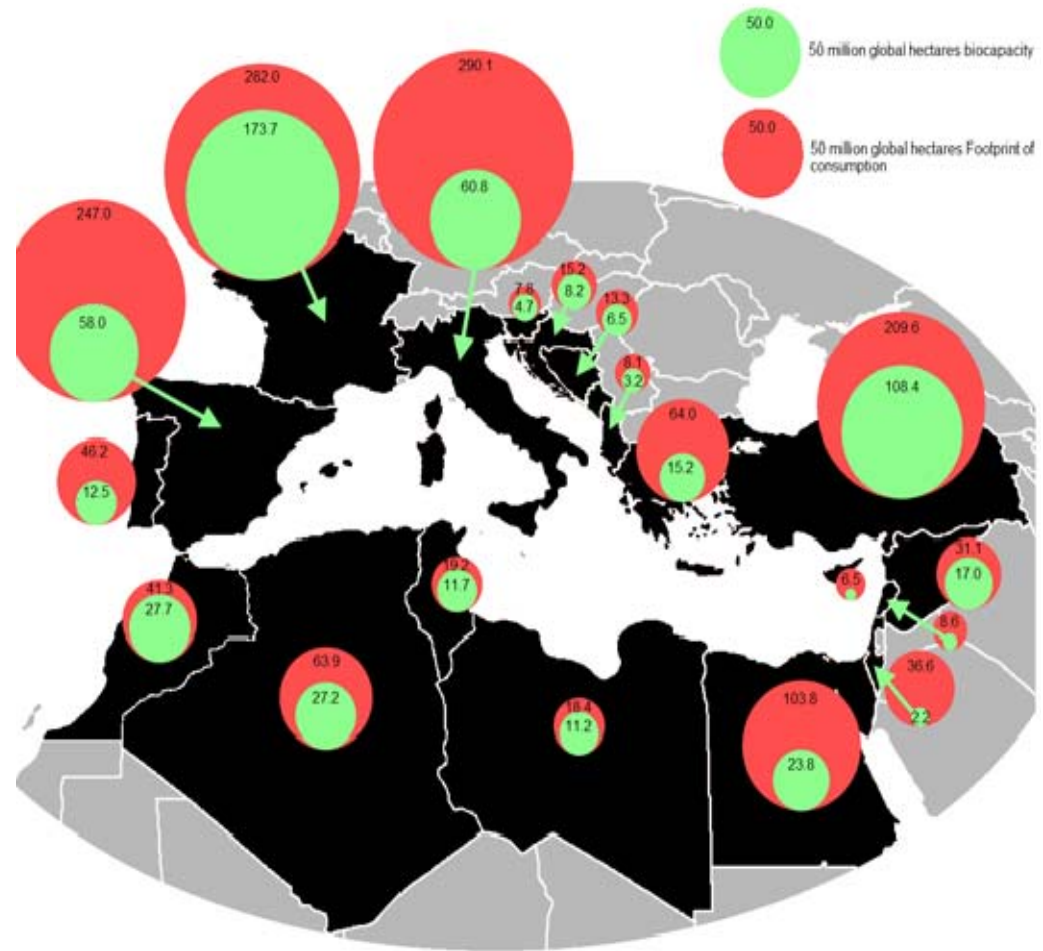
- access to improved drinking water and sanitation;
- availability of renewable water and the reliance on external supplies;
- the relationship between available water and demands; and
- water dependency on country's economy.

The constraints are being felt in the form of climate change, water scarcity, urban crowding, food crises, and soaring energy costs.

GLOBAL FOOTPRINT NETWORK - Mediterranean Region

Almost all the Mediterranean region pop. live in countries where biocapacity consumption is higher than available within their borders.

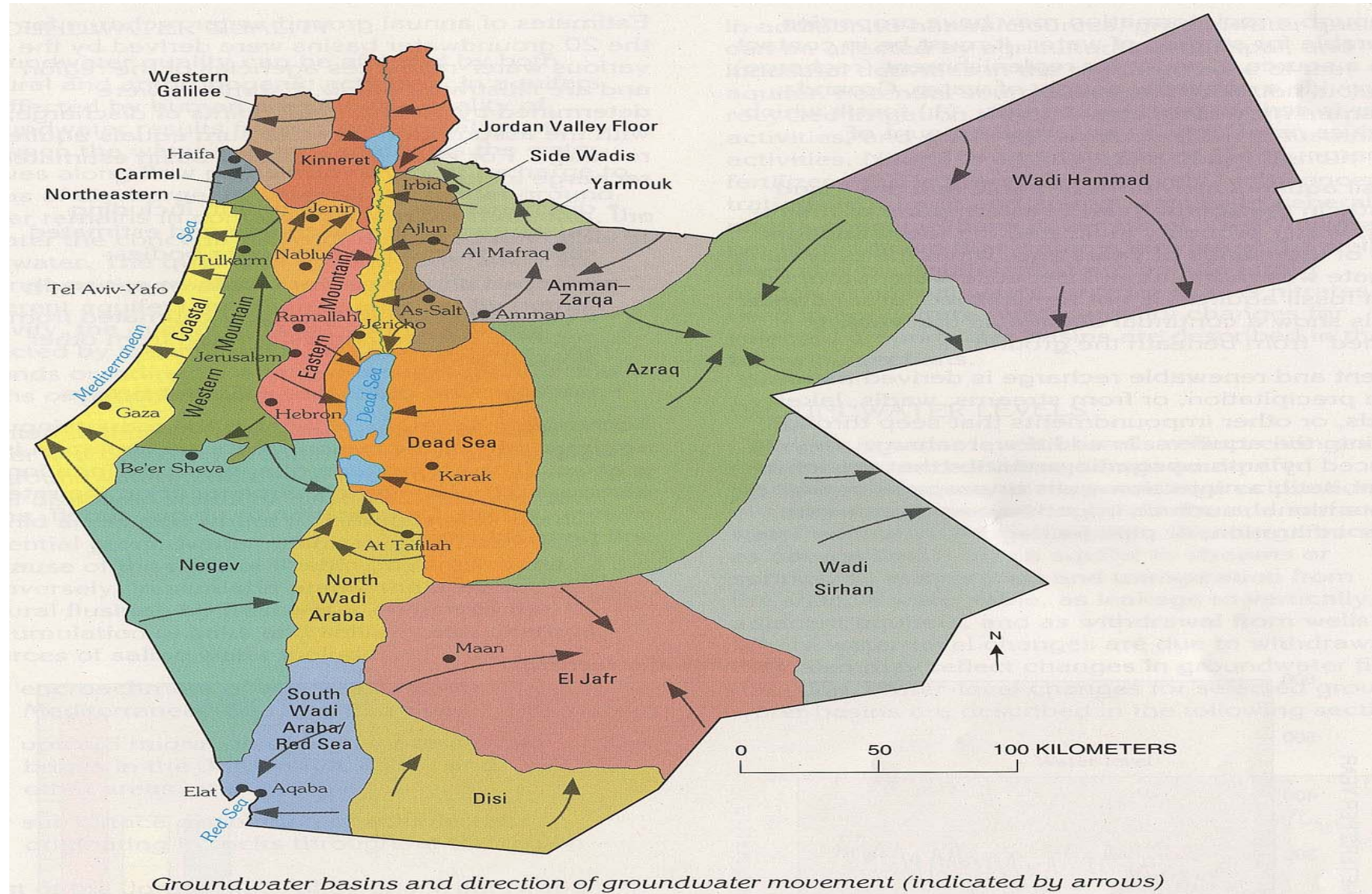
Global Footprint Network's
Mediterranean Initiative
([WWF's UNESCO, Plan Bleu](#) and [Tour Du Valat](#)) June 2010



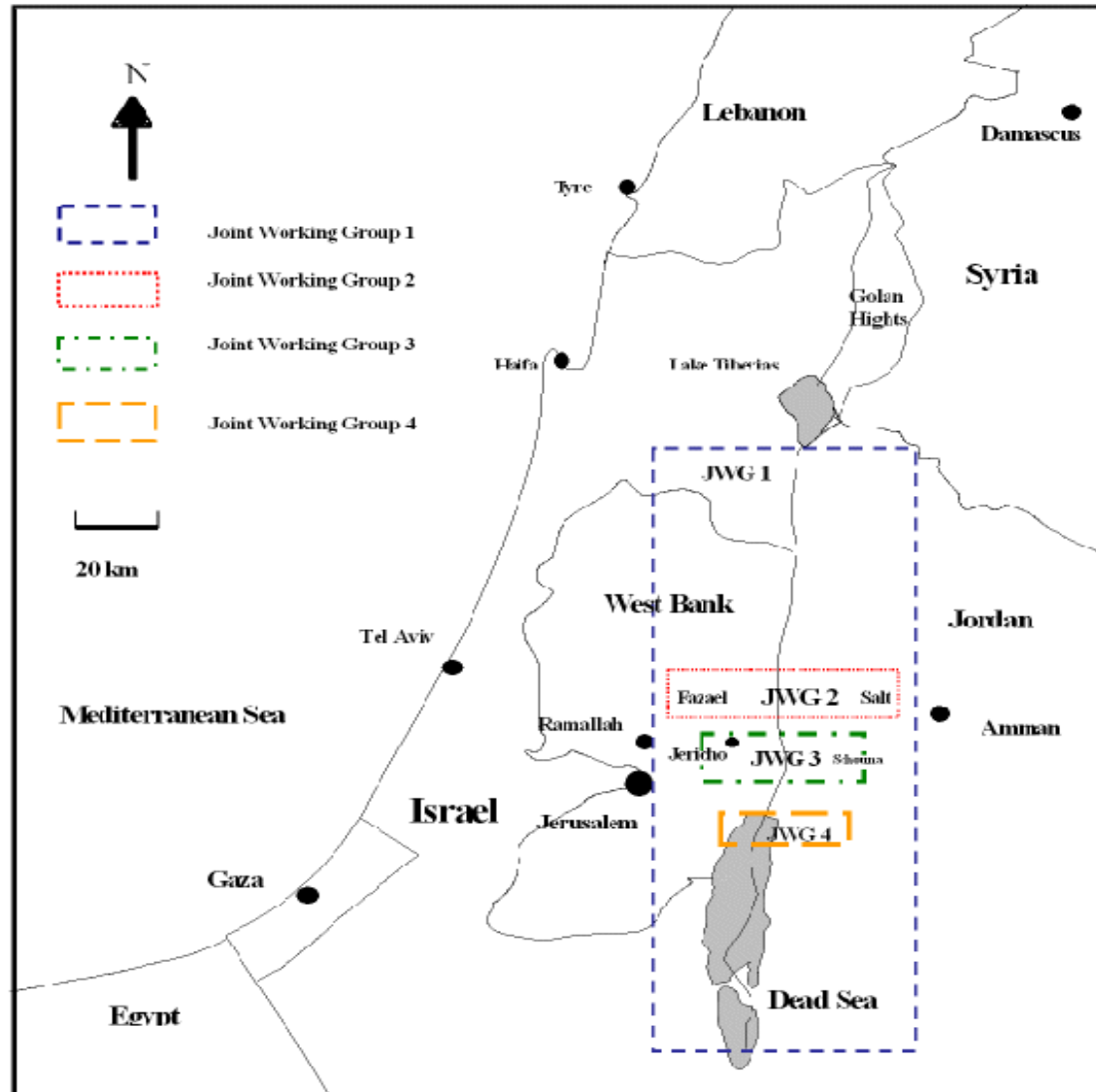
Water Conflicts and Cooperation

- Due to global climate changes, and increasing demands, water stress is more acute and has the potential to threaten stability.
- Several countries are already experiencing internal and cross-border tensions due to limited water resources.
 - **Egypt**, which is dependent on water from the Blue Nile, is considering legal action over the construction of the Gibe III dam in Ethiopia,
 - **Russia**, one of the world's major grain baskets, banned grain exports in order to guarantee their domestic food security.
 - **Ukraine**, one of the world's other major producers, is likely to follow.
- Water scarcity may however help foster cooperation instead, within and between states and up to regional levels, as presented herewith.

Regional Groundwater Basin in the Mid-East

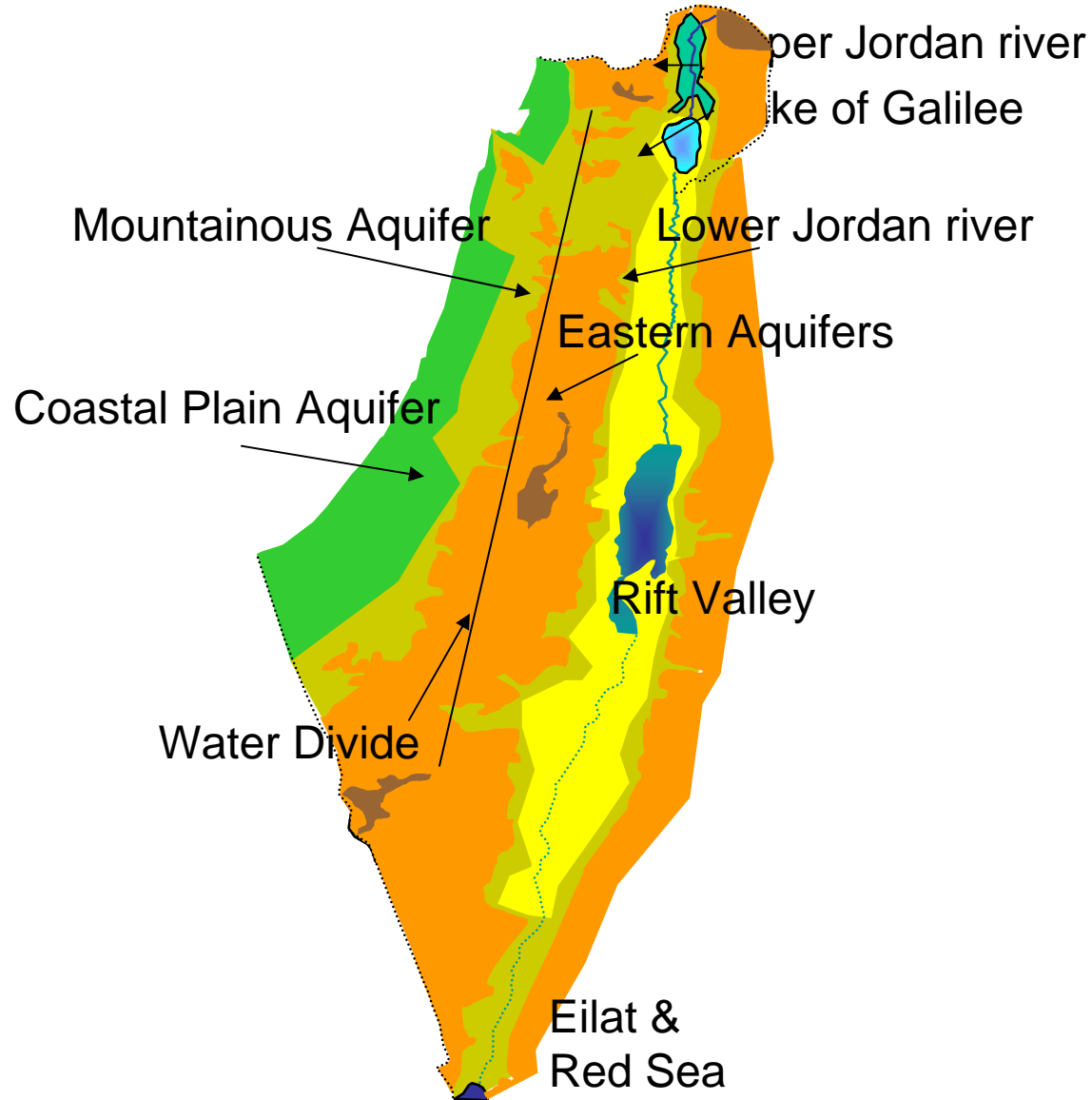


Regional Administrative Boundaries



Shared Water Resources

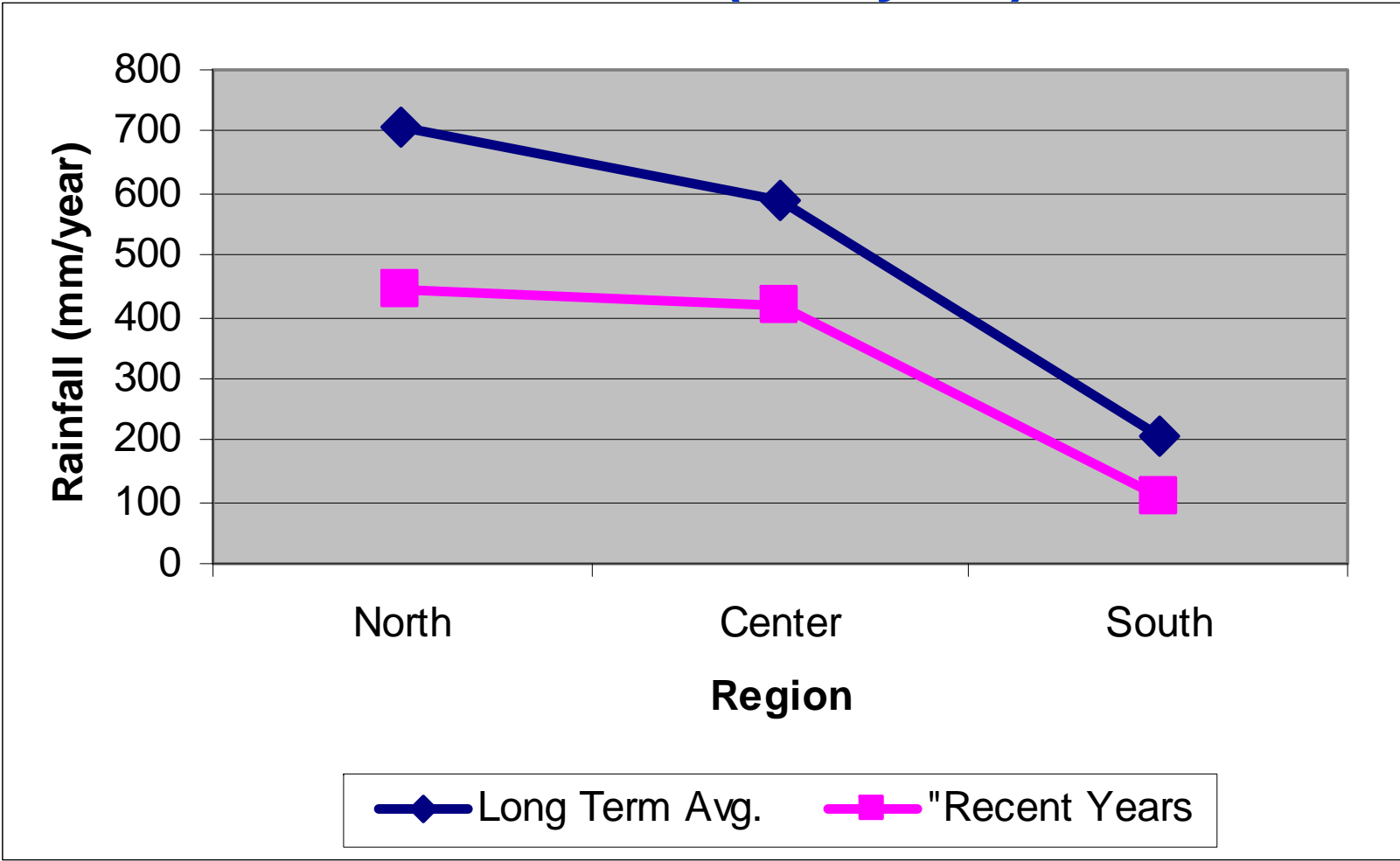
Lake of Galilee and Groundwater Aquifers



Global Warming Effect

Long Term and Recent Years

Rainfall (mm/year)



Global Warming and Impact on Water Availability, Water Quality & Ecology

The drastic drop in rainfall in the recent years caused:

- over exploitation of resources
- diminished water quality
- salt water intrusion into groundwater in coastal regions
- drying of rivers and lake ecosystems
- Drinking water quality and public health are severely affected.
- Harming, killing plants and animals.

Regional Water Scarcity and the Needs for Cooperation - 1

- Water consumption in the Region is on the increase, further burdening existing resources
- Available resources are therefore depleted and vulnerable to pollution.
- The conflicting views of water within the region reflect a genuine concern and necessity for the a secured safe and clean drinking water.

Needs for Cooperation - 2

The already depleted water resources face further degradation and increasing risks to the quality of water bodies due to:

- Rapid population increase and pressure on the scarce water resources
- Poor conservation of the environment and inadequate treatment of point and non point sources of pollution
- Trans-boundary movement of pollutants endangering water resources and the drinking water quality.
- The adverse water conditions called for a regional cooperation

Regional Cooperative Research Objectives

- Formation of a framework for regional and international co-operation.
- Conducting functional cooperative research as a cornerstone for sustainable development, through R&D
- Strengthening regional research to alleviate water crisis related to:
 - Equitable management of trans-boundary and shared water resources.
 - Safeguard of natural resources
 - Treatment and reuse of wastewater
 - Capacity Building

Regional Cooperative Research Strategy

- Coordination of regional research with the Mediterranean Water Network and other relevant programmes
- Developing mechanisms and models for optimal regional cooperation, sharing of know-how, information exchange and capacity building
- Addressing pressing watershed and transboundary problems affecting water and transboundary conflicts

Regional Cooperative Research Programme

Jordan, PA and Israel

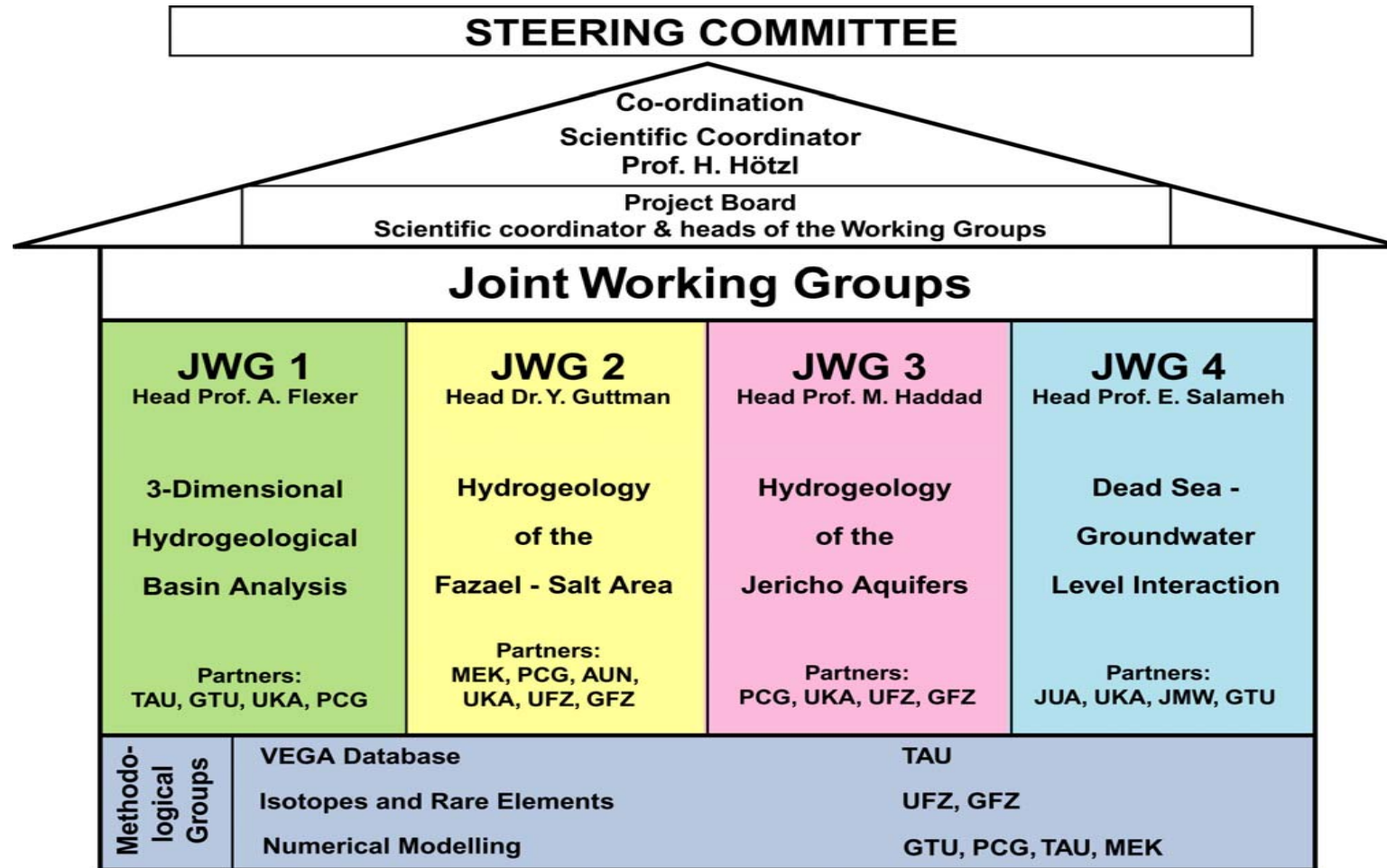
Major Projects

- Regional Water Data Banks Project - RWDBP,
- Middle East Desalination Research Center - MEDRC
- Effects of global climate change on natural ecosystems - SMART,
- Effects of global climate change on natural ecosystems - GLOWA,
- RED SEA –Dead Sea Canal
- Regional Drinking Water Quality Assessment - IUPAC Working Group

Major Research Areas:

- Data generation, data transfer and joint studies
- IWRM, and transboundary - shared water resources Management
- Hydro-geological studies
- Prevention of contamination of resources
- Development and use of marginal water resources (brackish water & effluents)

Working Group Structure - SMART



UKA: Karlsruhe University
GTU : University Group (Goettingen University, Tuebingen University)
UFZ: Environmental Research Center Leipzig-Halle
GFZ: Geo Research Center Potsdam
TAU: Tel Aviv University

MEK: Mekorot, The Israel National Water Company
JUA: Jordan University Amman
JMW: Jordan Ministry of Water
PCG: Palestinian Consultancy Group (An-Najah University Nablus, Palestinian Hydrology Group, Water Authority of the West Bank)

Regional Cooperation - Major Achievements

The Multi-lateral regional research has already yielded important findings and regional understanding, including:

- Well established Working Groups emphasizing topics of common interest facilitated by non-local researchers
- Accumulation of basic and baseline data supported by real time monitoring systems, forming an efficient platforms for sharing knowledge in the water sector
- Reaching a good understanding of shared water bodies
- Generate a catalyst for confidence building within the region and a cornerstone of sustainable development.

Lessons to EU

Addressing the Ecological Debt

Tracking the Ecological Trends. “We've gone into the ecological red”

([Andrew Simms](#), The [Guardian](#), Sunday 22 August 2010)

- Saturday 21 August, the world as a whole went into "[ecological debt](#)", meaning that for the rest of year, the whole world population is living beyond the planet's means.
- The humanity will be consuming more natural resources and producing more waste than the forests, fields and fisheries of the world can replace and absorb.

4th August: the day the UK starts eating someone else's fish

(The new economics foundation and OCEAN2012, July 2010).

- With 72% of fish stocks in European waters overfished, the impact of stock decline and rising consumption are of great concern.

Lessons to EU – New Water Policy

Policy

- Endorse a policy that will govern to maintain and restore water ecosystems
- Conserve and consume water sensibly; to guarantee the supply of safe water and food
- Ensure water resource viability as well as improve the environment

Immediate action

Reduce consumption to bring it in-line with available resources:

- Improving data collection,
- Transparent management and reporting; and
- Prioritising scientific research.

Make conservation profitable

- Making access to resources conditional on social and environmental criteria.
- Promote responsible consumption among all EU consumers
- implementing measures that are conducive to more responsible water resources management

Use public funds to deliver social and environmental goods

- Investing in environmentally constructive measures,
- stakeholder involvement,
- enforcing sustainable management and practices.

THANK YOU