



# *Sustainable Water Consumption in Arab Countries*

Waleed K Al-Zubari

Water Resources Management Program

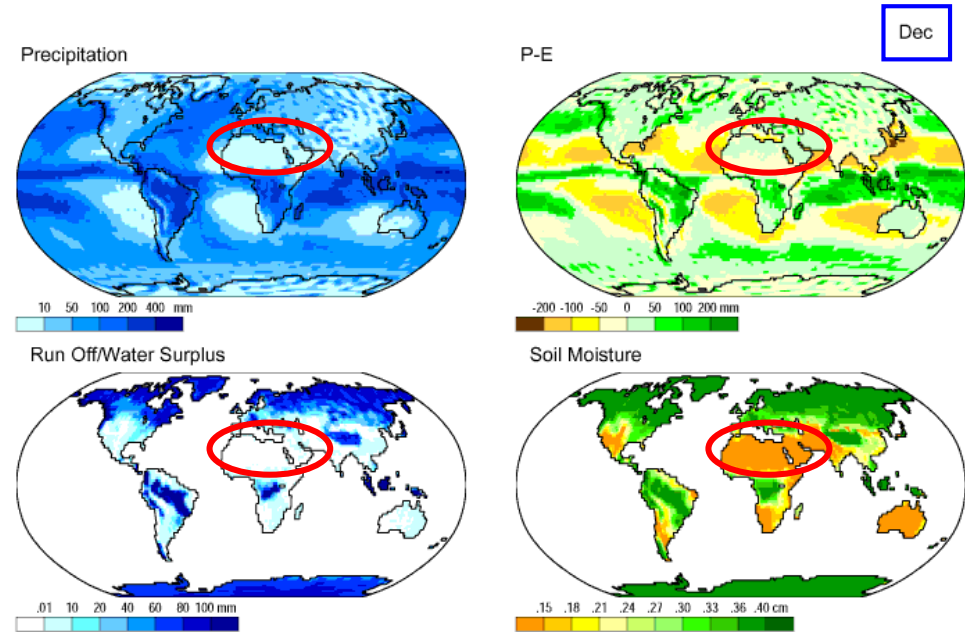
College of Graduate Studies

[www.waleedzubari.com](http://www.waleedzubari.com)

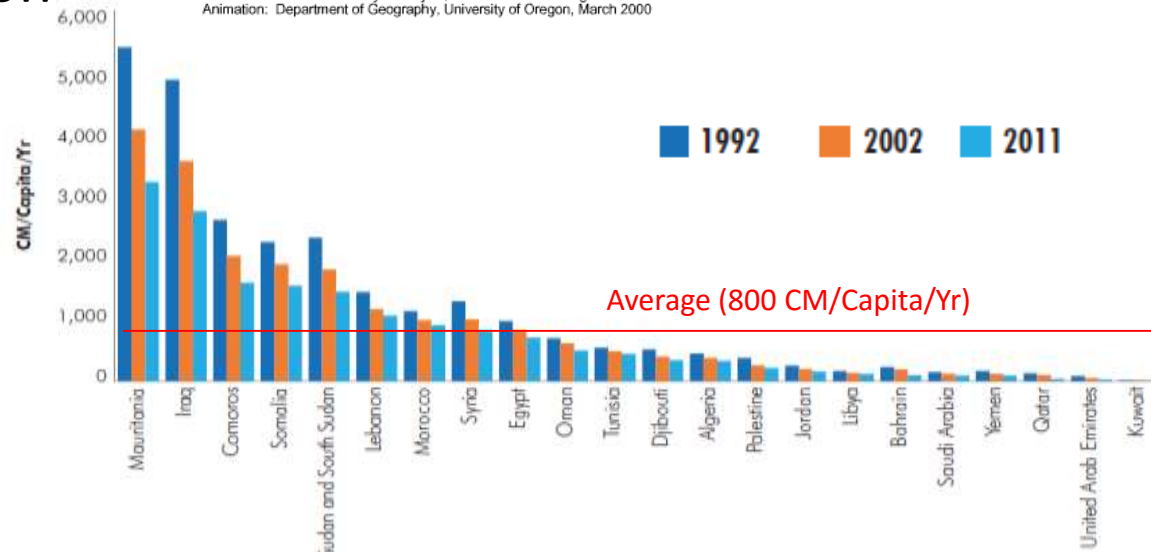
# Water Scarcity & Stress

- Poor endowment of water resources
- One of the world's most water-stressed regions
- Majority of countries are below "water poverty" line, rapidly declining due to escalating population growth

## Trends in per capita freshwater availability in Arab countries



Data: NCEP/NCAR Reanalysis Project, 1959-1997 Climatologies  
 Animation: Department of Geography, University of Oregon, March 2000



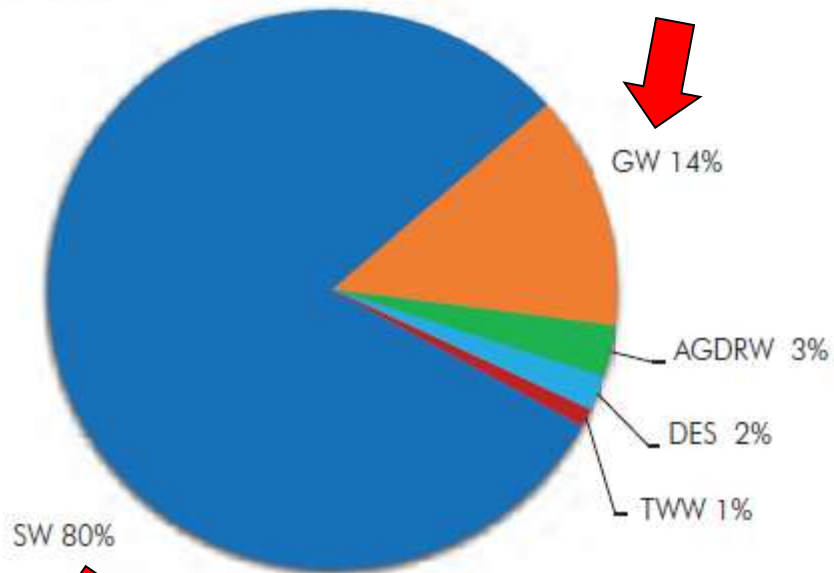
# *Water Resources Management*

- Last three decades: rapid population growth associated with substantial increase in water demands (main drivers: rapid urbanization, food security policies, and industrialization)
- Main focus on “supply management and augmentation”; inadequate attention to controlling demand and improving water efficiency (supply, use, recycle or reuse)
- “Excess demand” is created; emergence of many unsustainable consumption and production patterns
  - escalating water demands, increasing per capita water use, high network losses, increasing volumes of effluent discharges and pollution of limited surface water and groundwater, low irrigation efficiency and productivity, ...
- Water stress and scarcity expected to worsen due to: population growth, challenges of shared water resources and military occupation, and anticipated impacts of climate change

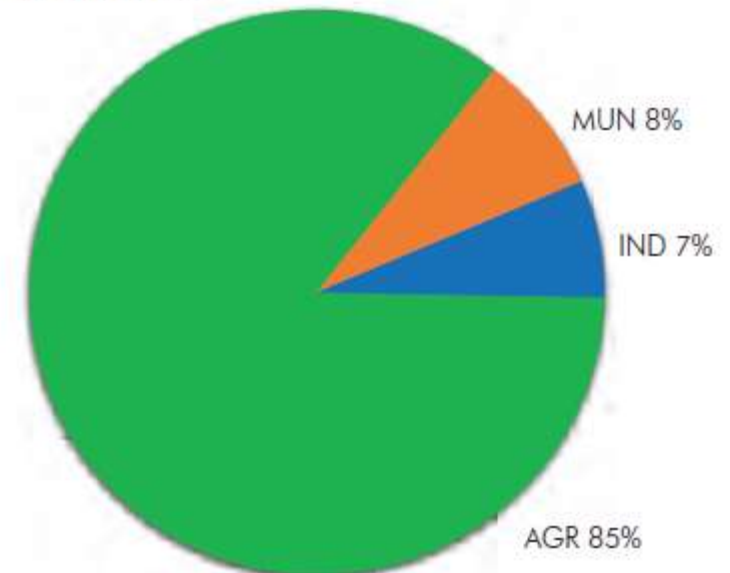
# Water Uses and Sources

## Water Resources and Uses in the Arab Region (2011)

a. Water Resources



b. Water Uses

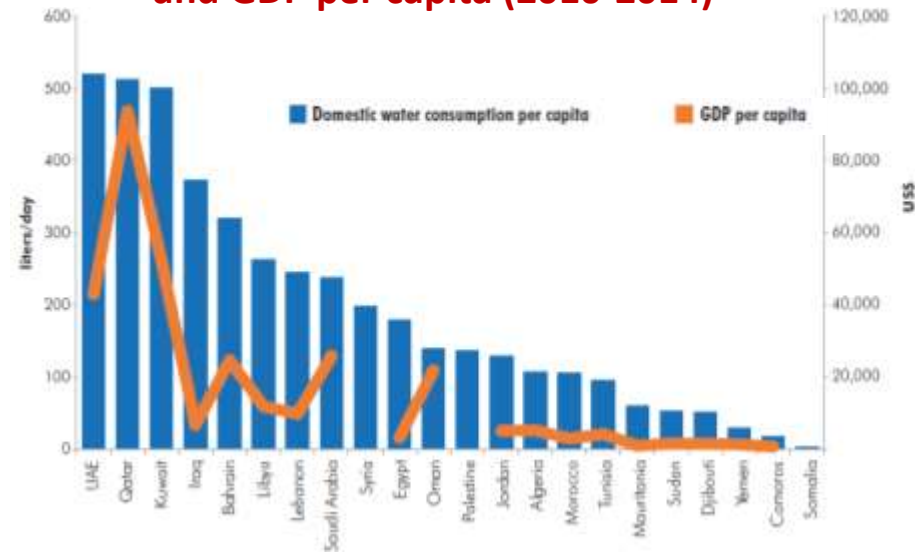


**Majority (>60%)  
originate from outside  
the Arab region**

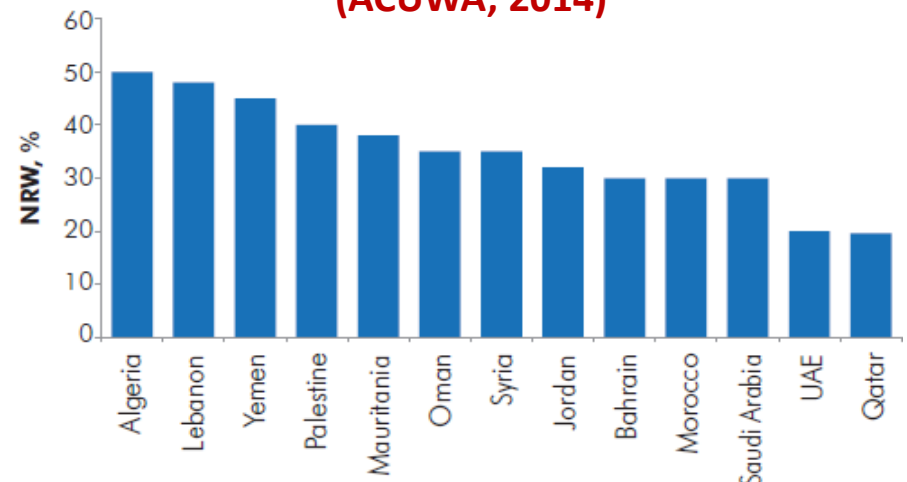
# Municipal Water Sector

- Rapidly increasing demands (20.4 BCM; 43% in 10 years)
- Main Drivers
  - Rapid population growth and urbanization (70%)
  - Very low water tariff in many countries with no incentive to save water (high per capita water consumption)
  - Large losses in the supply network in many countries (up to 50%)
  - Absence of recycling programs
- Variable performance in meeting MDG7; SDGs?
- Increase in “thirsty Cities”

**Per capita domestic water consumption and GDP per capita (2010-2014)**



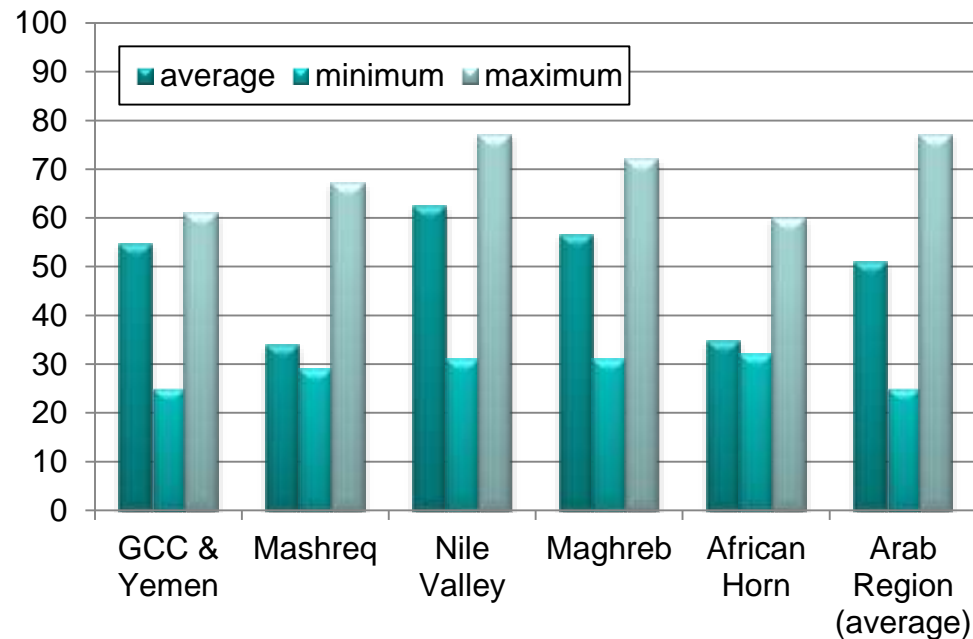
**Non revenue water in some Arab countries (ACUWA, 2014)**



# Agricultural Sector

- Continuous increase in water demands (218 BCM; 32% in 15 yrs)
- However, agricultural performance and food production failed to advance in many countries
- Main Drivers
  - National agricultural development & food policies
  - Predominance of traditional irrigation (IE = 51%)
  - Unrestricted water use
  - Absence of water tariff
  - Cultivating high water consuming crops
- Rapid over-exploitation & depletion of groundwater resources
- Very high potential for water savings more than any other sector (85% of total water use with 50% water wastage)

**Irrigation Efficiency in the Arab Region**



## *Policies and Measures to Shift to Water SCP*

- Imperative to move from “supply-side management” to “demand-side management”, improve “water efficiency” and “regulate water use”, in the consuming sectors, with emphasis on agricultural sector
- Establish a “water-oriented” society (or resource-oriented society) that value water (resources), participate in the decision making process and use water wisely
- Demand management and efficiency instruments (Economic, Structural, Legislative, Social) need to be combined to reinforce each other and be more effective
- Water efficiency measures will have a multitude of successive benefits that go beyond the water sector to other sectors (i.e., energy, environment, ...)
- Strong interdependence between water, energy, food, environment, and climate change; policy formulation need to be coordinated among these sectors (abandon “silos” decision making and planning)

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*Thank  
you*