

Conceptual Framework for Understanding Water Security in the Arab Region

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Economic and Social Commission for Western Asia

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UNITED NATIONS

الاسكوا
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WATER
ACTION DECADE
2018-2028

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Introduction: Water Resources in the Arab Region, Challenges and Opportunities



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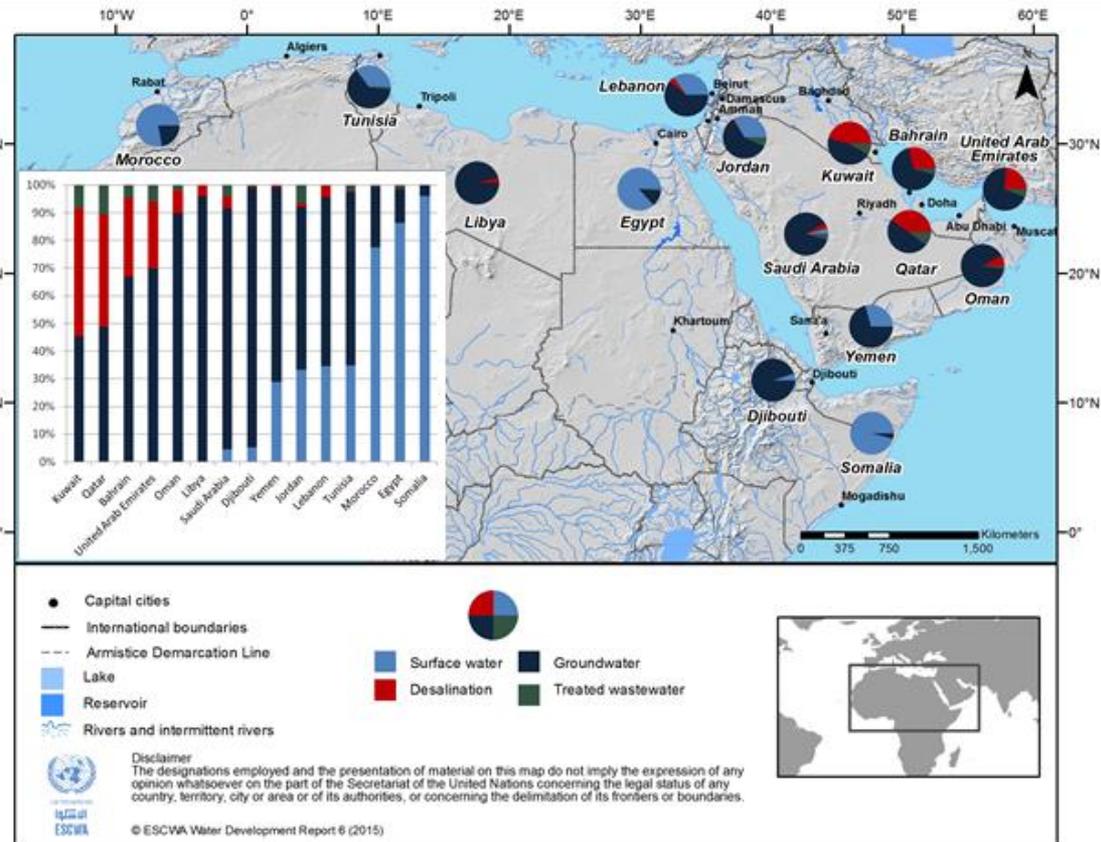
Major Water Resources Challenges in the Arab Region

- Relatively water scarce region
- Shared water resources
- Climate change effects
- Agricultural sector consumes more than 80% of region's freshwater resources (Water-Food Nexus)
- Accessibility constraints due to occupation and conflict,
- High population growth rates coupled with increased urbanization
- Non-renewable “fossil aquifers”
- Declining water quality
- Unaccounted for water losses

Water Resources in the Arab Region

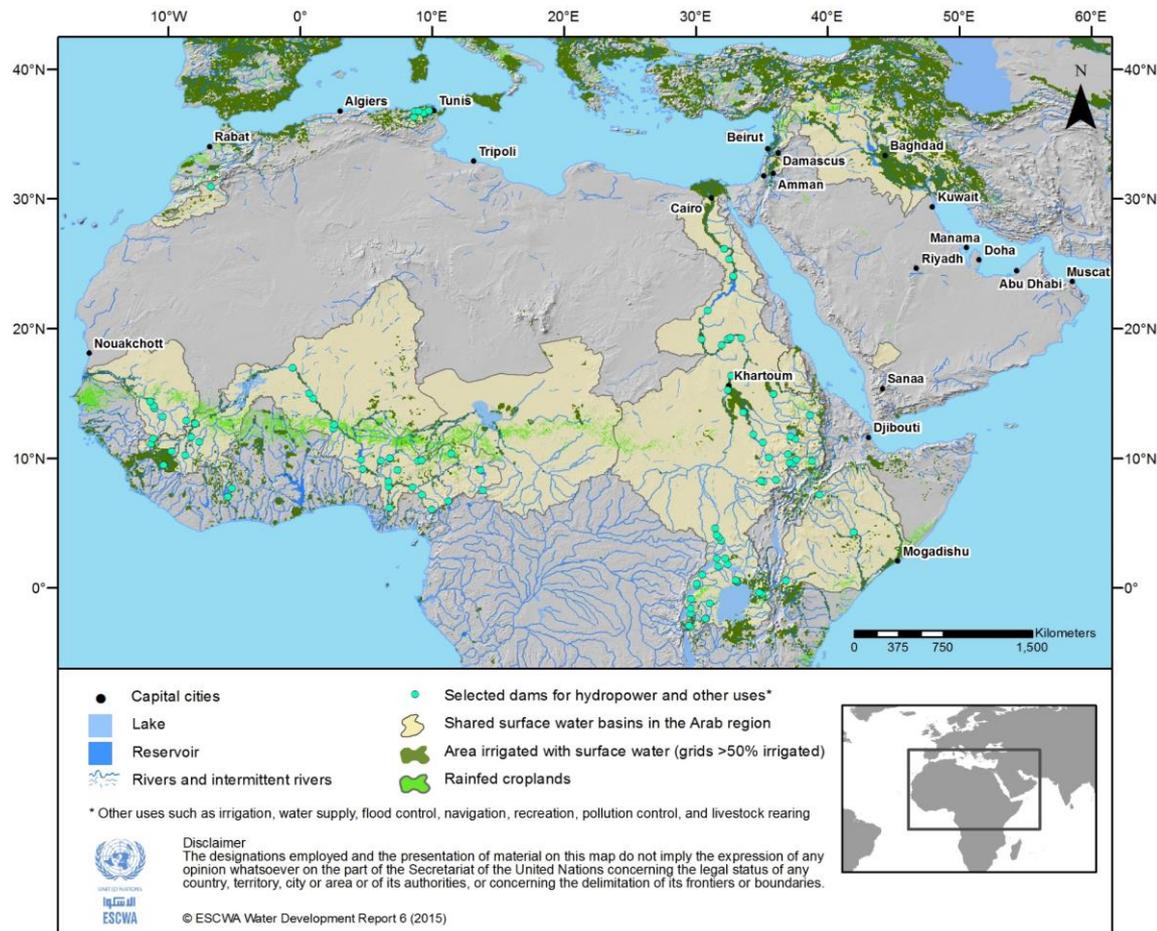
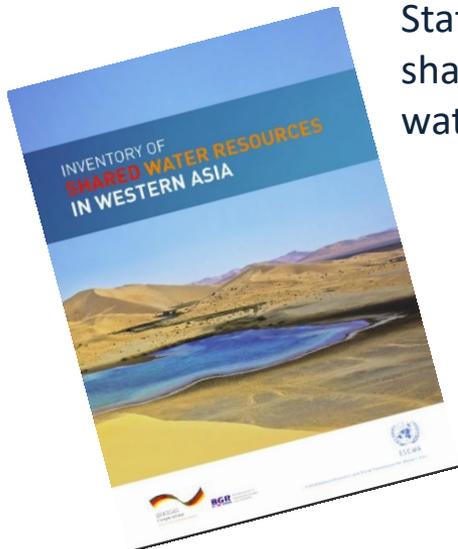
- Groundwater is the major source of water in most Arab countries
- Very few countries have an abundance of surface water and are even shifting to rely more on groundwater
- Gulf countries largely depend on groundwater both renewable and **non-renewable/fossil** followed by desalination
- High energy demand for water resources (Water-Energy Nexus)

Sources of Water in Selected Arab Countries



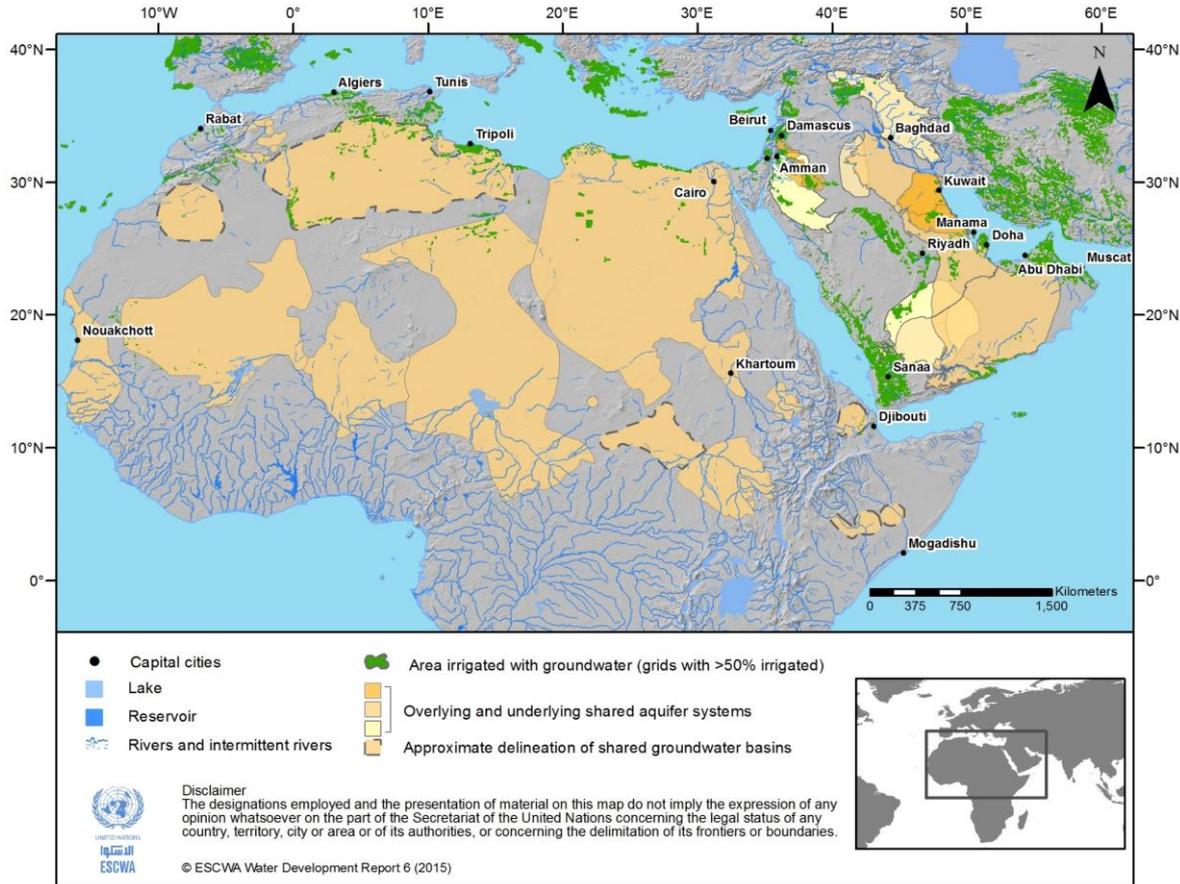
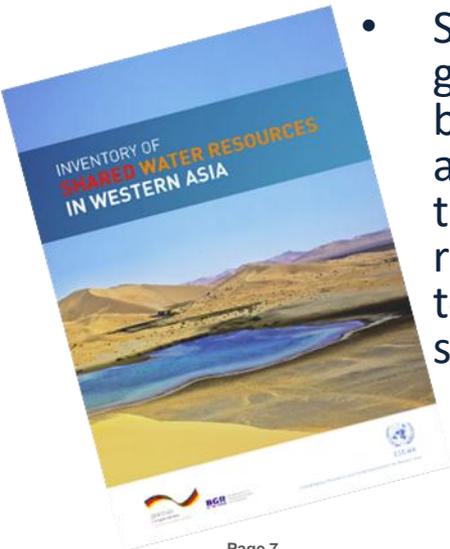
Shared Surface Water Resources in the Arab Region

- Shared water resources represent two-thirds of fresh water resources in the Arab region.
- 27 shared Surface water basins with 14 of 22 Arab countries are riparian States with a shared waterbody



Shared Groundwater Resources in the Arab Region

- All Arab countries, with the exception of the Comoros, share one or more of 40 plus aquifers.
- Shared groundwater basins cover almost 58% of the Arab region in terms of surface area.

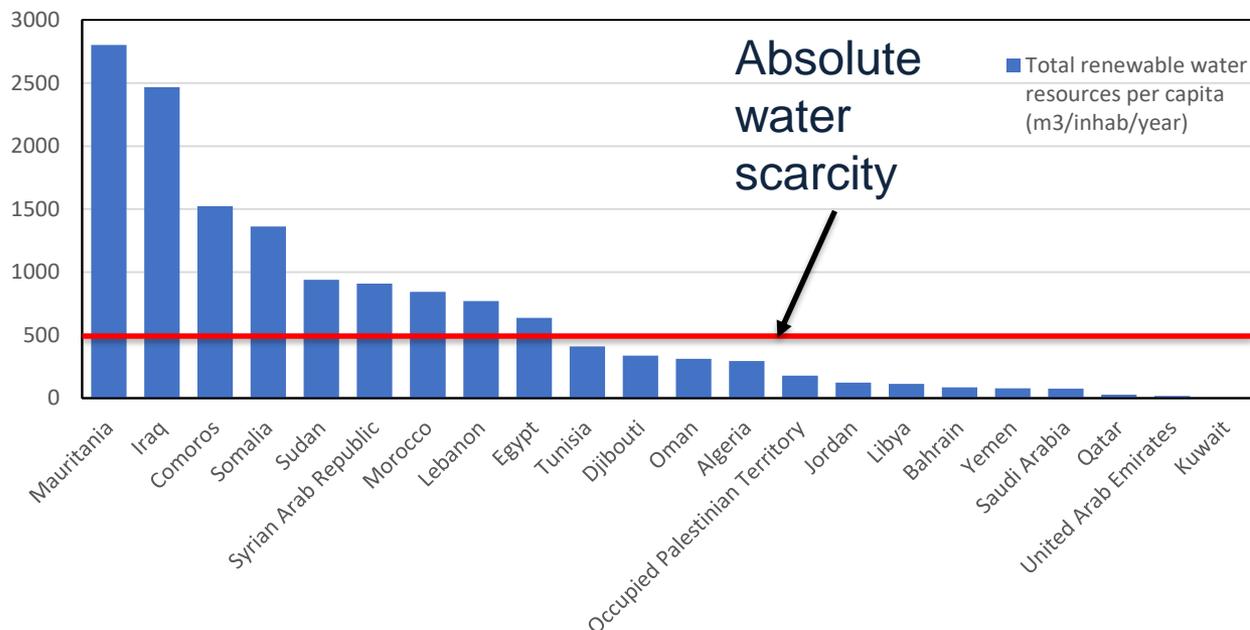


Water Scarcity in the Arab Region

Arab Countries are among the most water scarce with 18 out of 22 Arab states falling below the water scarcity annual threshold of 1,000m³/capita.

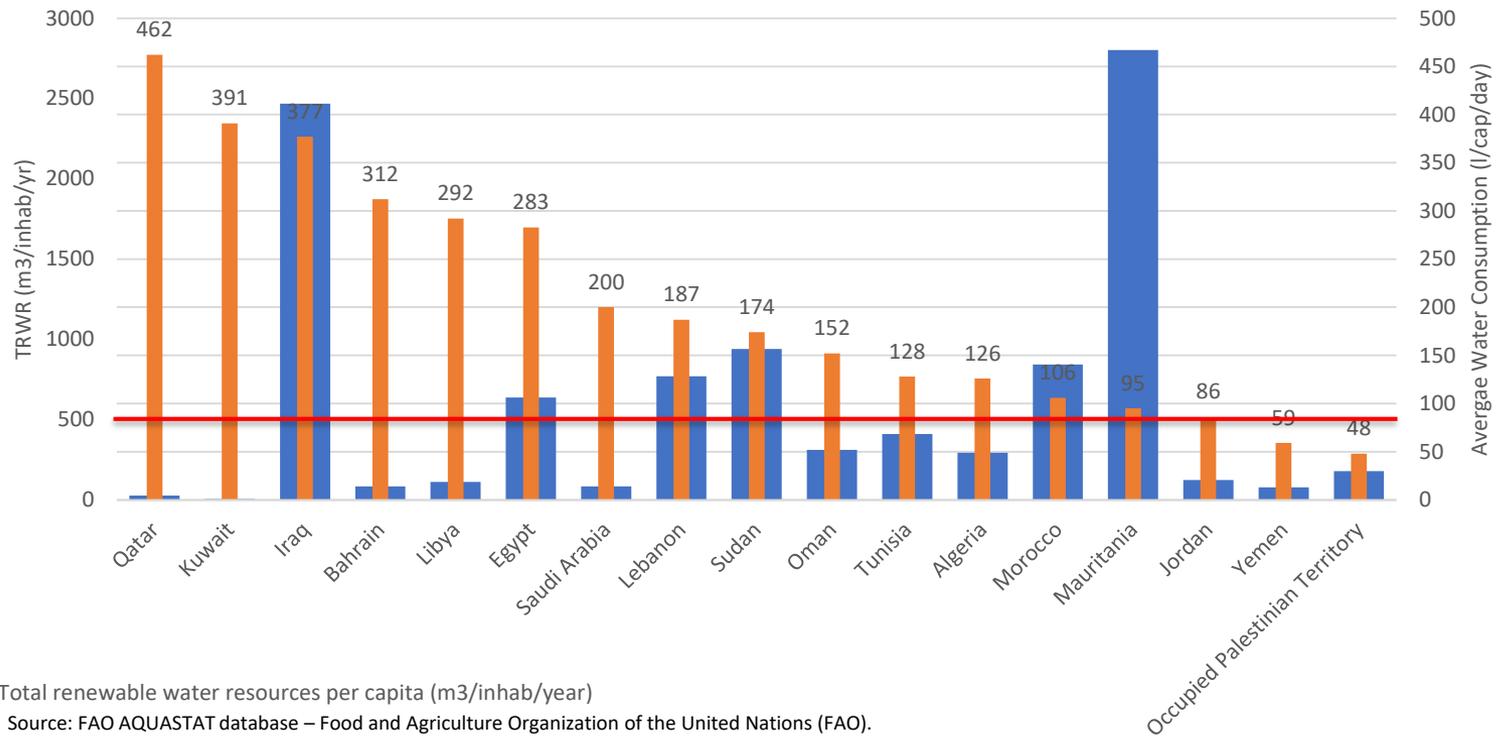
At least 13 of these countries suffer 'absolute' water scarcity

Total Annual Renewable Fresh Water Resources per Capita
(m³/inhab/year)



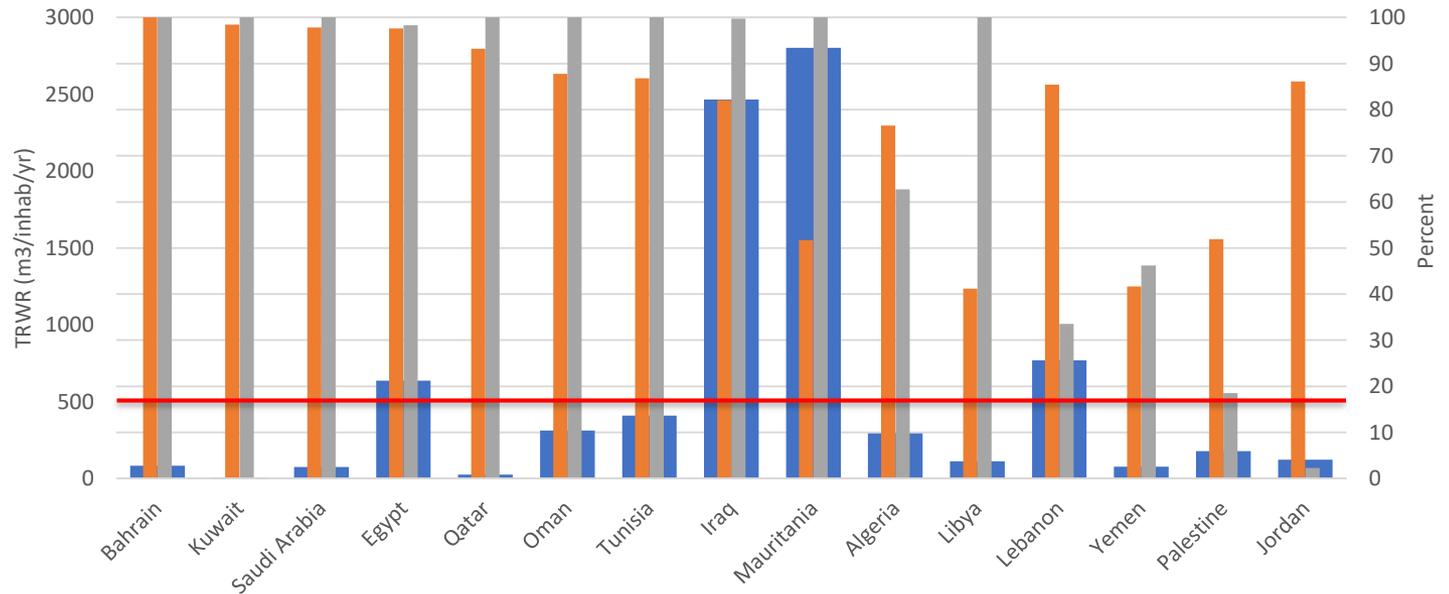
Water Scarcity and Water Security: Available Water and Supply

Total Annual Renewable Fresh Water Resources per Capita and Average Water Consumption



Water Scarcity and Water Security: Access to Water and Intermittency

Total Annual Renewable Fresh Water Resources per Capita and Accessibility and Continuity of Water Supply



■ Total renewable water resources per capita (m³/inhab/year)

Source: FAO AQUASTAT database – Food and Agriculture Organization of the United Nations (FAO). Last accessed March 2016.

■ Proportion of population connected to piped water network (per cent) - Latest Available Year

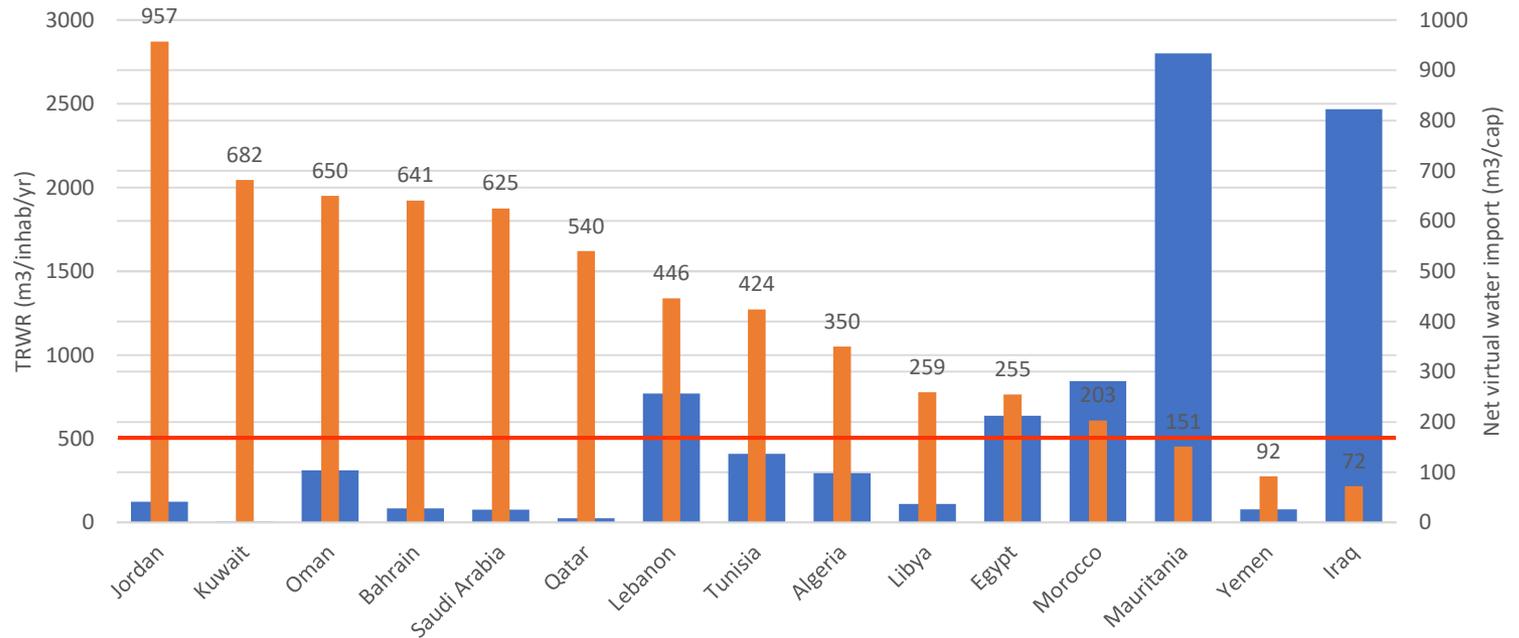
Source: WHO – UNICEF JMP Wash Data. Available from <https://washdata.org/data>. Last accessed March 2016.

■ Proportion of population connected to piped water network receiving water daily (per cent) - 2013

Source: LAS, ESCWA, ACWUA, 2016 Report of the MDG+ Initiative, 2016.

Water Scarcity and Water Security: Virtual Water

Total Annual Renewable Fresh Water Resources per Capita and Net Virtual Water Import

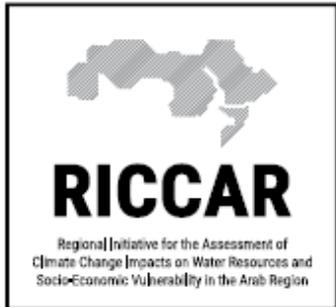


■ Total renewable water resources per capita (m³/inhab/year)
Source: FAO AQUASTAT database – Food and Agriculture Organization of the United Nations (FAO).

■ Net virtual water import: crop and livestock (m³/capita) 1995-1999
Source: Hoekstra, 2003.

Climate Change and Water Resources in the Arab Region

- Based on the ESCWA coordinated Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), climate change will in general negatively impact water resources in the Arab region.

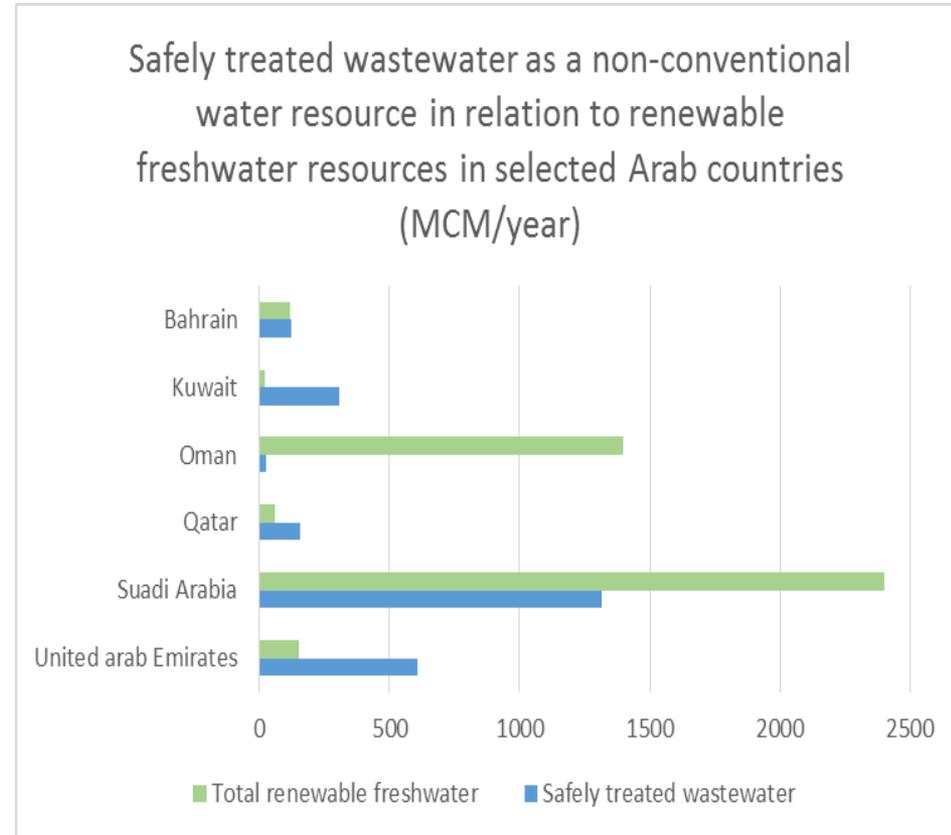


<https://www.unescwa.org/climate-change-water-resources-arab-region-riccar>

- The temperature in the Arab region is increasing and is expected to continue to increase until the end of the century.
- Precipitation trends are largely decreasing across the Arab region until the end of the century, although some limited areas are expected to exhibit an increase in the intensity and volume of precipitation.

Water Resources in the Arab Region: Opportunities

- Limited freshwater resources in the region have led to increased reliance on **non-conventional water resources**, including:
 - **Wastewater treatment and reuse**,
 - Gulf countries use a good portion of their safely treated wastewater
 - Jordan is a champion country in terms of reuse of all of its treated waste water
 - **Desalination**
 - MENA Region has more than 50% of the global desalination capacity



Source: LAS/UNESCWA/ACWUA, 2016, MDG+ Initiative Report 2016; FAO 2016, Aquastat data for 2014. Available from <http://www.fao.org/nr/water/aquastat/main/index.stm>.

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Introduction

Water Security

- **NO** universal definition has been agreed upon
- Up to 1990's: Water Security largely used to express a condition of having sufficient water supply to satisfy the demands of a state's population
- Water Scarcity perceived as tantamount to water insecurity
- Dependency on external flows viewed as a key security risk (Water Independence)
- Sufficient and safe Supply
- Several attempts at defining water security include various factors such as:
 - Basic household needs
 - Food production
 - Environmental flows
 - Risk management and independence
 - Access to improved drinking water and sanitation
 - Availability of renewable water and reliance on external supplies
 - Relationship between available water and supply
 - Water dependency of economy

Water Security Definitions

- More recent shift in definitions towards a multidisciplinary definition that addresses: **Human security**, sustainable development in its three pillars, health, non-military threats,...
- The Hague Ministerial Declaration (2000)
“ensuring that freshwater, coastal and related ecosystems are protected and improved; that sustainable development and political stability are promoted, that every person has access to enough safe water at an affordable cost to lead a healthy and productive life and that the vulnerable are protected from the risks of water-related hazards”
- Grey and Sadoff (2007)
“The availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies”
- UN Water (2013)
“The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability”



Sustainable Development Considerations in Water Security

The need for the integration of the three pillars:

- Economic development
- Social equity and inclusion
- Environmental management and protection

6**CLEAN WATER
AND SANITATION**

SDG 6 Clean Water and Sanitation: Targets and Means of Implementation

SDG 6: Ensure availability & sustainable management of water & sanitation for all

Targets:

- **6.1** By 2030, achieve universal & equitable access to safe & affordable drinking water for all
- **6.2** By 2030, achieve access to adequate & equitable sanitation & hygiene for all & end open defecation, paying special attention to the needs of women & girls & those in vulnerable situations
- **6.3** By 2030, improve water quality by reducing pollution, eliminating dumping & minimizing release of hazardous chemicals & materials, halving the proportion of untreated wastewater & substantially increasing recycling & safe reuse globally
- **6.4** By 2030, substantially increase water-use efficiency across all sectors & ensure sustainable withdrawals & supply of freshwater to address water scarcity & substantially reduce the number of people suffering from water scarcity
- **6.5** By 2030, implement IWRM at all levels, including through transboundary cooperation as appropriate
- **6.6** By 2020, protect & restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers & lakes

Means of Implementation:

- **6.a** By 2030, expand international cooperation & capacity-building support to developing countries in water- & sanitation-related activities & programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling & reuse technologies
- **6.b** Support & strengthen the participation of local communities in improving water & sanitation management

Water Security Definitions from the Lens of Agenda 2030

- The Hague Ministerial Declaration (2000)
“ensuring that freshwater, coastal and related ecosystems are protected (SDG 6.6, 14, 15) and improved; that sustainable development and political stability are promoted (SDG6.5, 16,17), that every person has access to enough safe water at an affordable cost (SDG 6.1, 6.2, 6.3, 6.4, 6.4.3, 7) to lead a healthy and productive life (SDG 2, 3) and that the vulnerable are protected from the risks of water-related hazards (SDG 6.5, 13, 13.1, 16)”
- Grey and Sadoff (2007)
“The availability of an acceptable quantity and quality of water (SDG 6.1, 6.2, 6.3, 6.4, 6.4.3, 7) for health (SDG 2, 3), livelihoods (SDGs 1, 2, 11, 12, 15), ecosystems (SDG6.6, 14, 15) and production (SDGs 9, 12), coupled with an acceptable level of water-related risks to people(SDG 6.5, 13, 13.1, 16), environments (SDG 12, 13, 14, 15) and economies (SDGs 8, 9)”
- UN Water (2013)
*“The capacity of a population to safeguard **sustainable access** to adequate quantities of acceptable quality water (SDG 6.1, 6.2, 6.3, 6.4, 6.4.3, 7) for sustaining livelihoods (SDGs 1, 2, 11, 12, 15), human well-being (SDG 1,2, 3), and socio-economic development (SDG 1, 2, 3, 4, 5, 7, 8, 9, 10, 12), for ensuring protection against water-borne pollution(SDG 3.3, 3.9, 6.1, 6.2, 6.3) and water-related disasters (SDG 6.5, 13, 13.1), and for preserving ecosystems (SDG 6.6, 15) in a climate of peace and political stability (SDG6.5, 16,17)”*

Human Rights Considerations in Water Security

- The United Nations Water Conference (Mar del Plata, Argentina, 1977) was the first world conference to declare that:
 - “all peoples, whatever their stage of development and social and economic conditions, have the **right to** have access to **drinking water** in quantities and of a quality equal to their basic needs”

—

- United Nations General Assembly resolution 64/292 (July 2010):
 - “Recognizes the right to **safe and clean drinking water and sanitation** as a **human right** that is essential for the full enjoyment of life and all human rights”
- United Nations Human Rights Council resolution 15/9 (October 2010):
 - “Affirms that the **human right to safe drinking water and sanitation** is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity”

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Water Security Considerations : The Arab Region

- Systemic Conditions
 - Water Scarcity and Stress
 - Shared Water Resources
 - Climate Change
- Sustainable Development
- Human Rights
- Enabling Environment / Means of Implementation

Water Security in Arab Region

- The Arab Ministerial Water Council (AMWC) in the League of Arab States adopted in 2011 the *Arab Strategy for **Water Security** in the Arab Region to Meet the Challenges and Future Needs for **Sustainable Development** 2010-2030.*
- The Gulf Cooperation Council (GCC) Unified Water Sector strategy which has “a vision by 2035 for the GCC countries to have established **sustainable**, efficient, **equitable**, and **secure water** resources management systems contributing to their **sustainable socio-economic development.**”

Human Rights Considerations : The Arab Region

- The Arab Charter on Human Rights entered into force in 2008. The Charter refers to the rights to water in the following article:
 - Article 39 in parts 2.e and 2.f: “The measures taken by States shall include the following: **Provision of** basic nutrition and **safe drinking water for all**” and “Combating environmental pollution and providing **proper sanitation systems**”

Human Rights Considerations : The National level

- Several Arab countries have recognized the right to water and food in their constitutions
- **Morocco** (2011), article 31:
 - “The State, the public establishments and the territorial collectivities work for the mobilization of all the means available to facilitate the **equal access** of the **citizens** to conditions that permit their enjoyment of **the right**: – **to the access to water** and to a healthy environment”
- **Tunisia** (2014), article 44:
 - “The **right to water** shall be guaranteed”
- **Egypt** (2014), article 79:
 - “Each citizen has the **right to** healthy, **sufficient amounts of** food and **clean water**”

