Economic and Social Commission for Western Asia

Water-Energy-Food Interlinkages in the Arab Region

Access to Finance for Municipalities – Nexus Thinking and Decentralization of Subnational Governments

UNITED NATIONS
الاسكوا
ESCWA

Shared Prosperity **Dignified Life**

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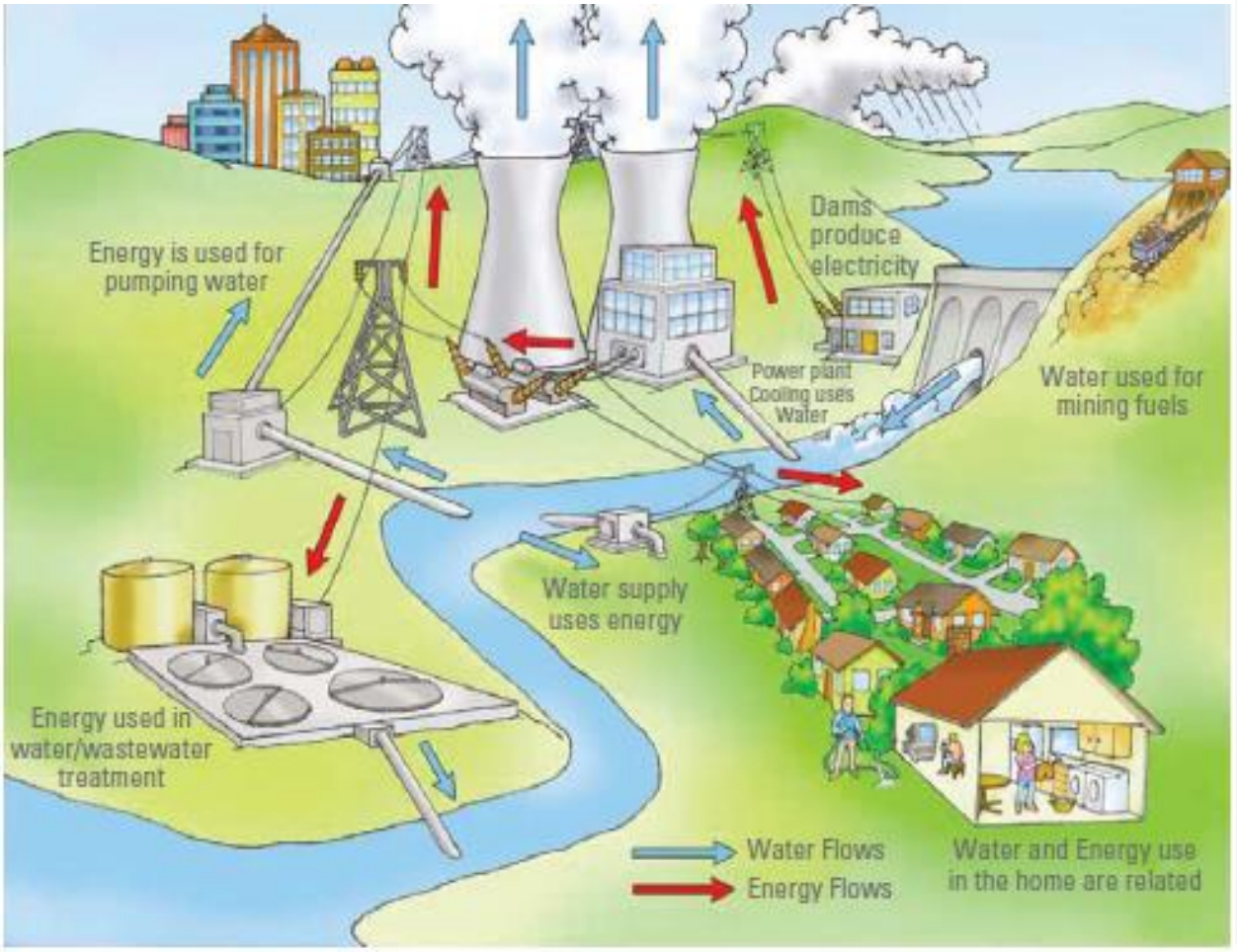
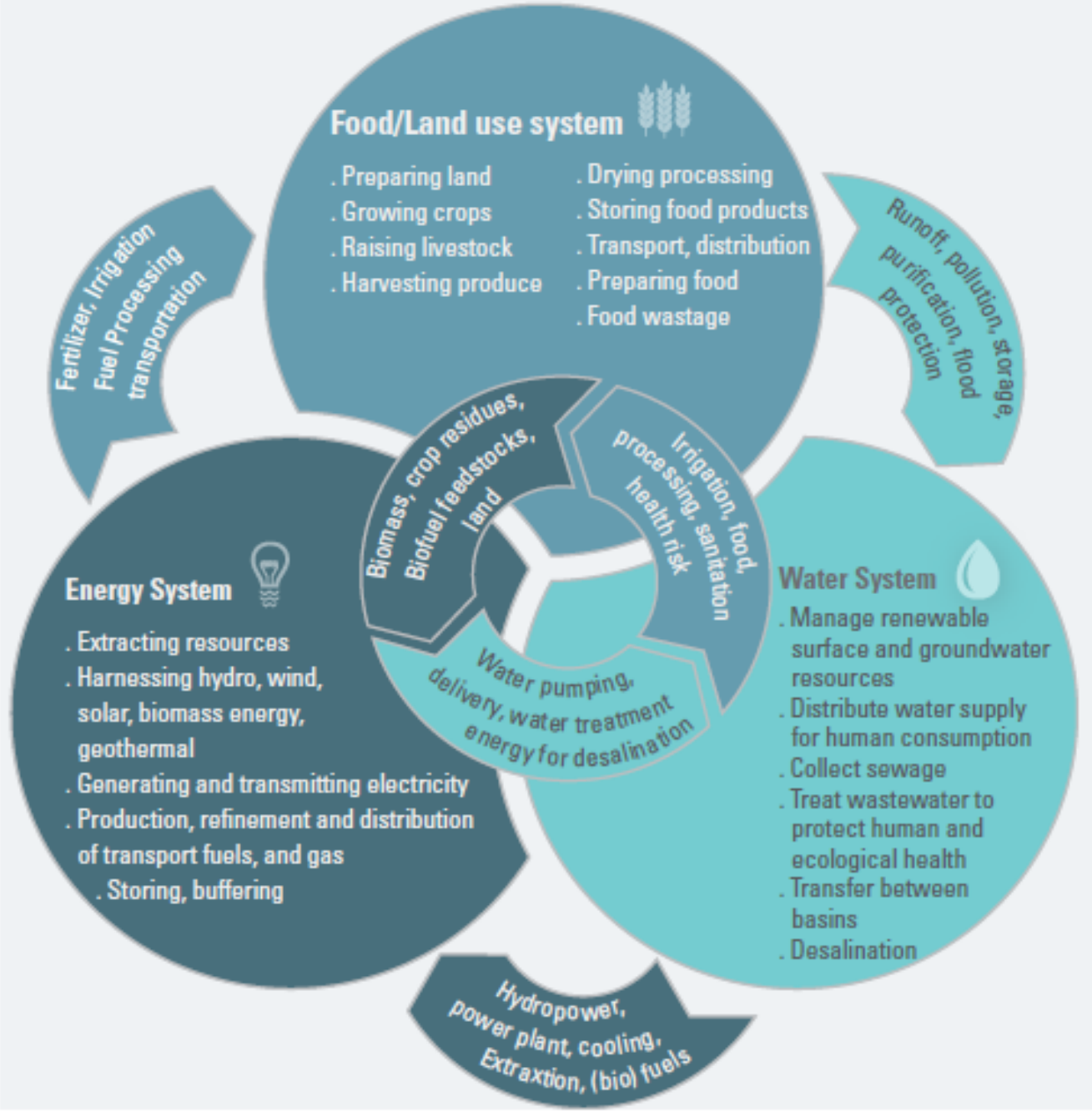
Table of Contents

The Water-Energy-Food Nexus

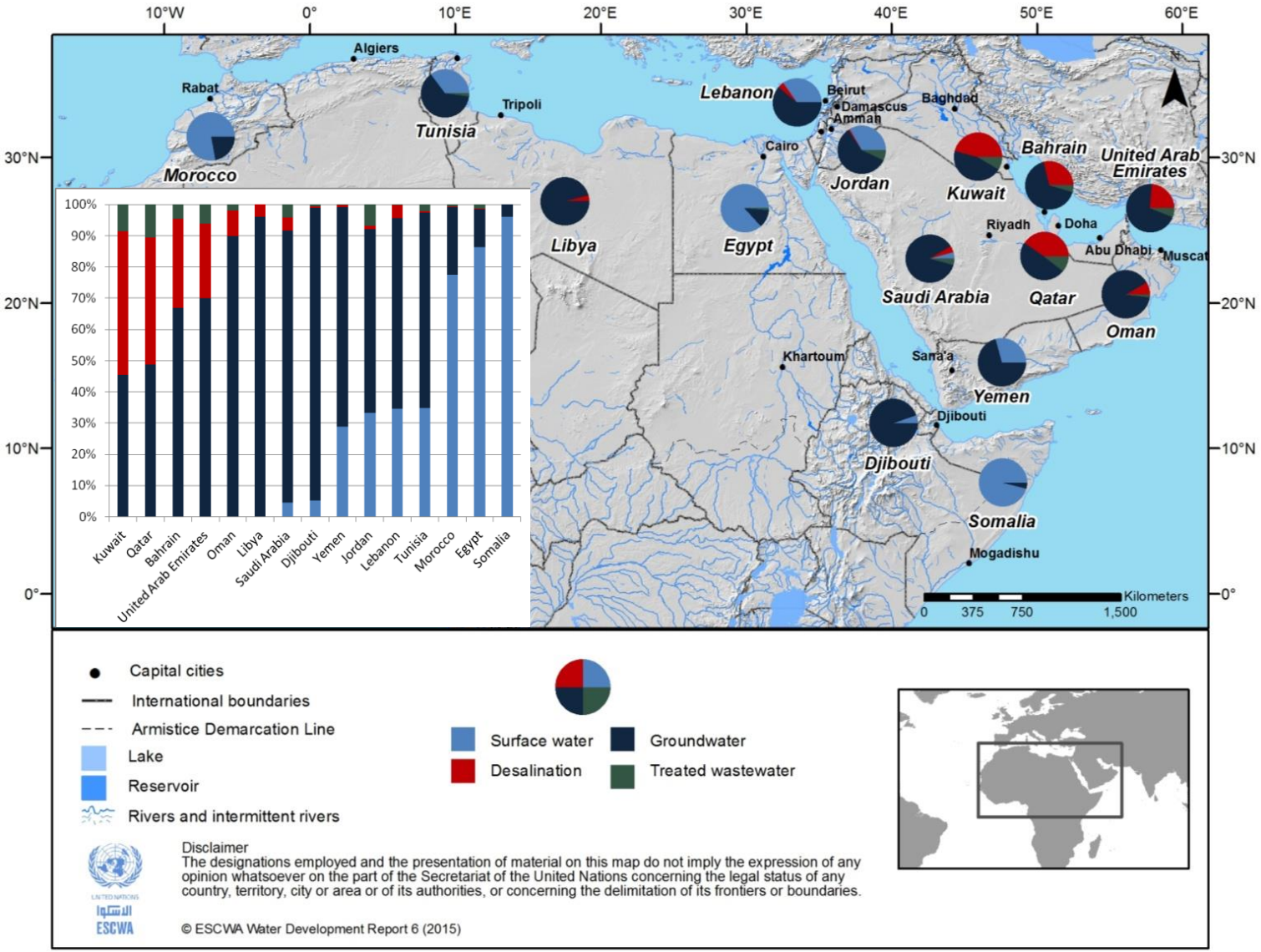


Source: United States Department of Energy, 2006.



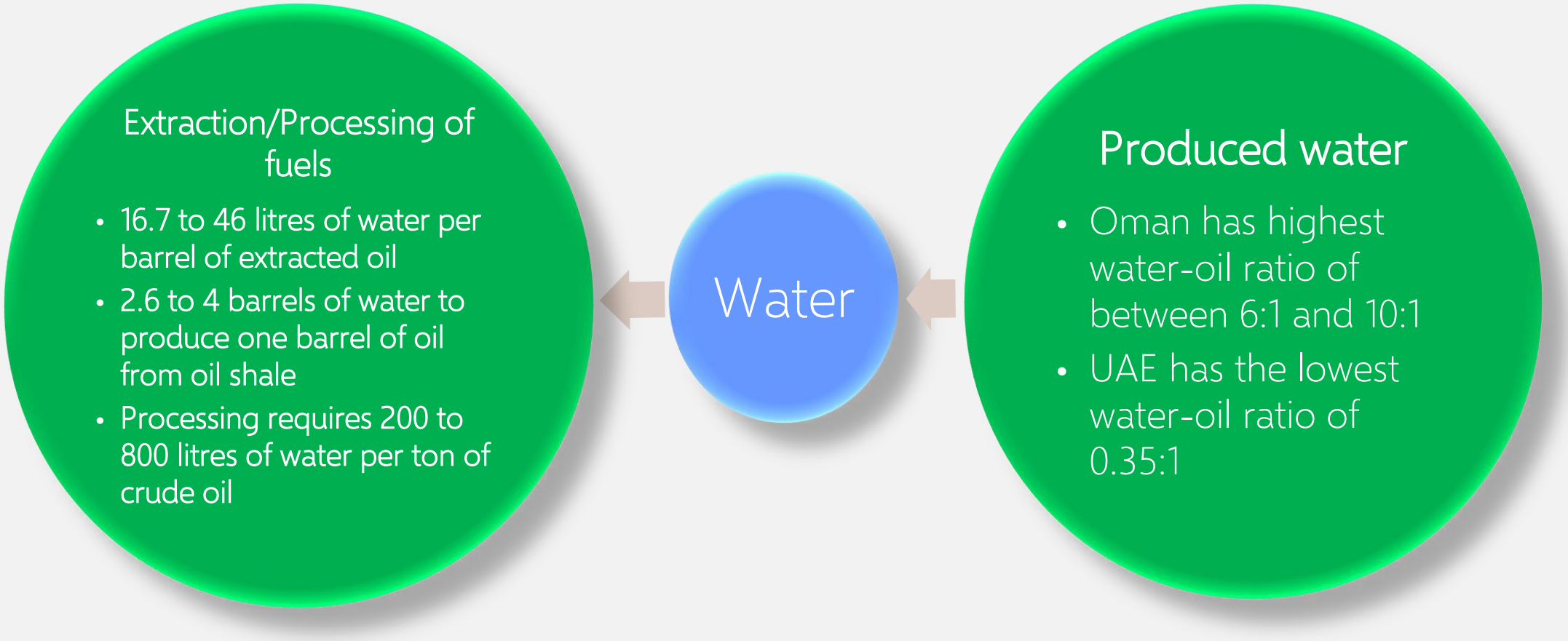
Source: SE4All, n.d.

Energy Demand of Water Sector in the Arab Region



- Jordanian water sector accounts for ~**15%** of total annual electricity generated
- Saudi Arabia: Groundwater pumping accounts for **10%** of total fuel consumption
- Libya: Groundwater pumping accounts for **14%** of total fuel consumption
- Bahrain: **30%** of total energy use is for desalination

Water for Energy (oil sector)



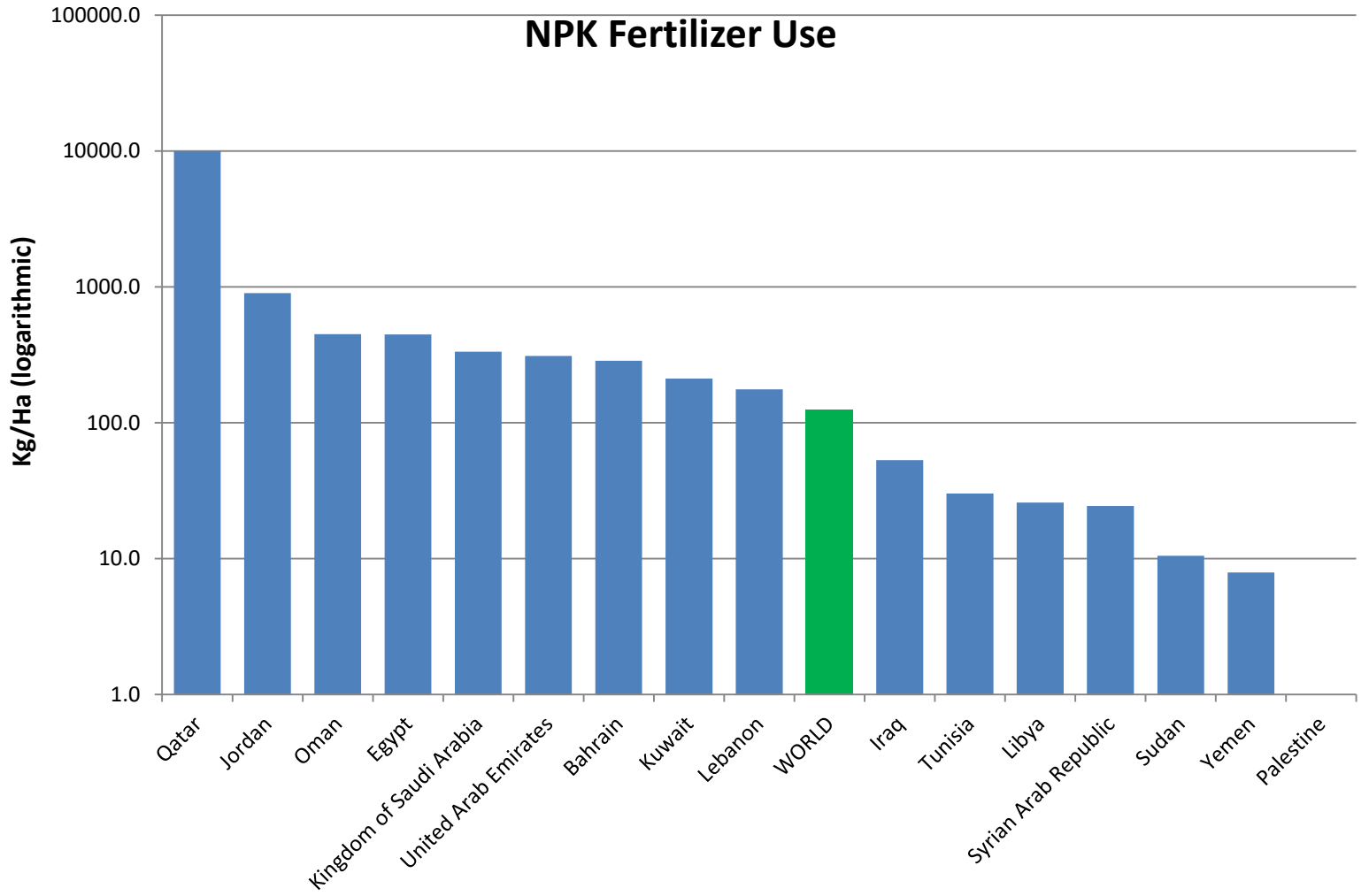
Water and Energy for Food

Direct

- Irrigation (W+E)
- **80% of water withdrawal** in Arab region used for **irrigation** with **50-60% efficiency** in irrigation systems
- Harvesting (E)
- Processing (W+E)
- Transportation (E)
- Storage (E)
- Retailing (E)

Indirect

- Fertilizers (W+E)
- Pesticides (W)
- Energy embedded in global **annual food loses** can reach up to 38% of the total energy used in the entire food value chain.



Source: Computed from FAO, FAOSTAT, Accessed February 2015 (http://faostat3.fao.org/home/E). Note: Data for the State of Palestine is not available.

Table of Contents

The Water-Energy-Food Security Nexus Framework in the Arab Region

https://www.unescwa.org/our-work/water

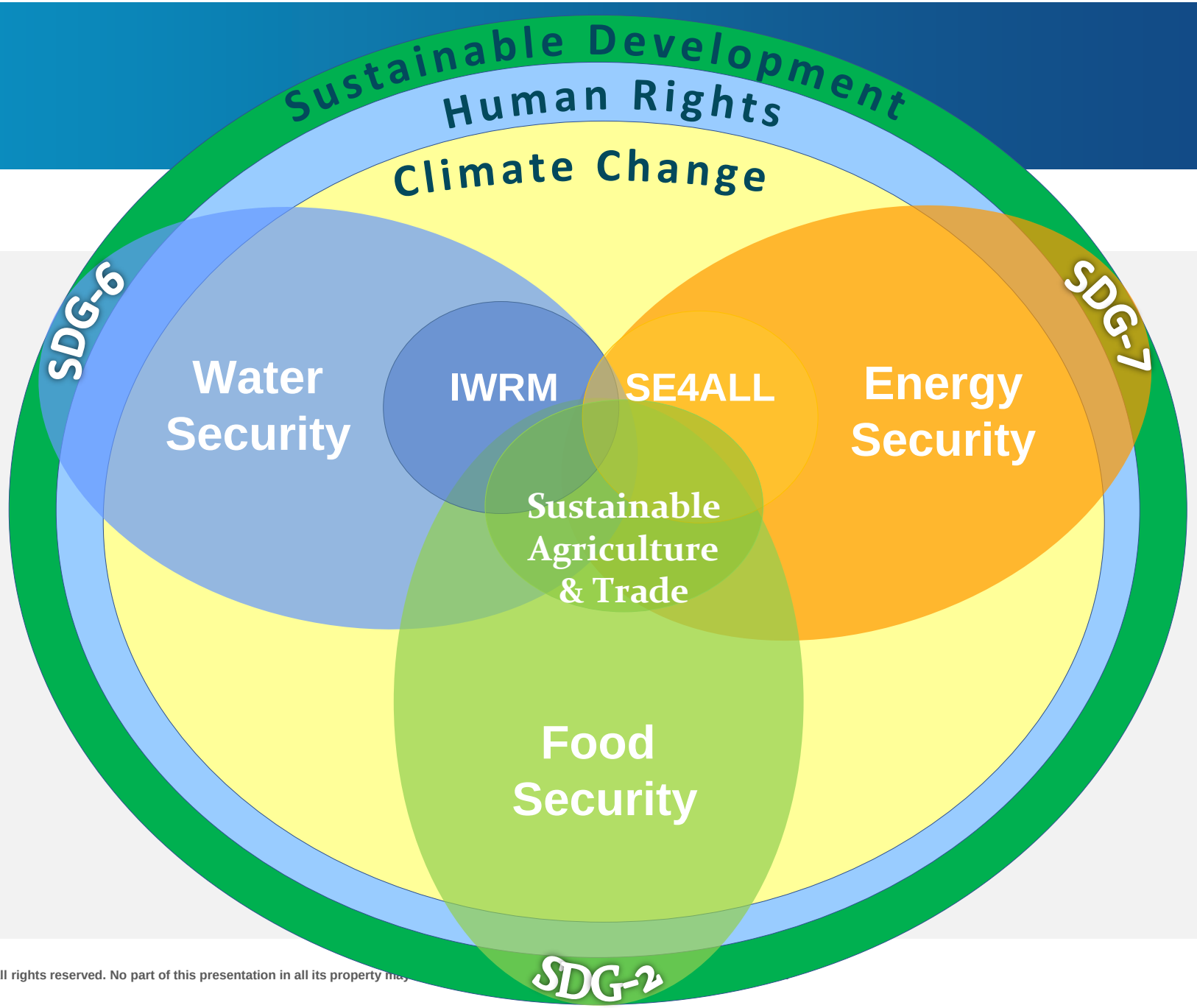


Table of Contents

Developing the capacity of ESCWA Member Countries to address the Water-Energy Nexus for achieving SDGs

The project aimed to:

- Build the capacity of ministries and public service providers who are responsible for water and energy in the region, so that they adopt the nexus approach and address water and energy issues in an integrated manner.

- Assist ESCWA member States in bringing the nexus approach to the sustainable development goals in the 2030 Agenda development framework

Regional Policy toolkit

Module 1	Knowledge and awareness raising on the nexus
Module 2	Policy coherence
Module 3	Examining the water-energy security nexus
Module 4	Improving efficiency
Module 5	Informing technology choices
Module 6	Promoting renewable energy
Module 7	Addressing climate change and natural disasters

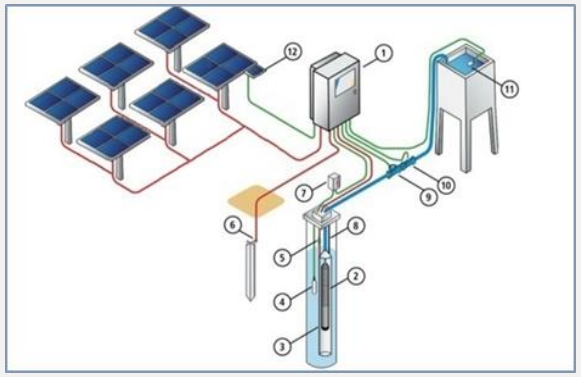
Developing the capacity of ESCWA Member Countries to address the Water-Energy Nexus for achieving SDGs

Three Operational Modules

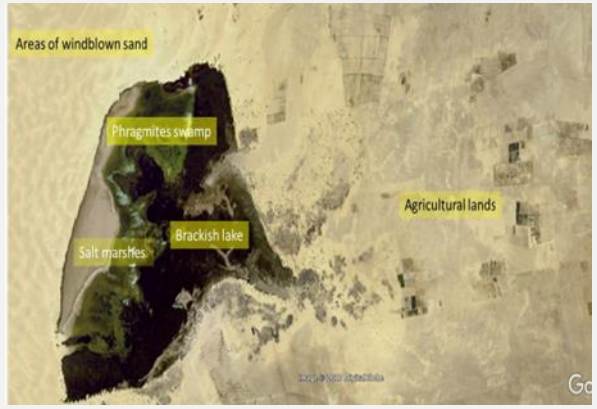
Developing the capacity of ESCWA Member Countries to address the Water-Energy Nexus for achieving SDGs

Three Pilot Initiatives

1. Generation of electricity from micro-hydro system in a water transmission system in Kairouan, Tunisia



2. Use of photovoltaic solar systems for groundwater pumping for potable uses in Suwayda, Syrian Arab Republic



3. Use of photovoltaic solar system for water pumping for agriculture uses in Moghra Oasis, Egypt

Promoting food and water security through cooperation and capacity development in the Arab region

- Within the context of the regional Arab initiative, ESCWA implemented the project entitled "**Promoting food and water security through cooperation and capacity development in the Arab region**" with regional partners and the financial support of the Swedish International Development Cooperation Agency (Sida)

- The project supported cross-sectoral dialogue among water and agricultural stakeholders

  i. Enhance national capacities of the agriculture and water sectors in the area of impact assessment of climate change on water and agricultural production
  ii. Support the development of an institutional mechanism to enhance coordination between the agriculture and water sectors at the regional level (AMWC and AOAD)
  iii. Support the development of an institutional framework for an Arab-GAP, with the aim to improve food production, safety, and trade
  iv. Support the development of a monitoring system for food security in the Arab countries, taking into account global processes, like the 2030 Agenda for Sustainable Development, and the SDGs

Regional Initiative to promote Small – Scale Renewable Energy applications in rural areas of the Arab region “REGEND”

Sweden
Sverige

By using appropriate small-scale renewable energy technologies for productive activities and entrepreneurial development, REGEND aims to

- improve the livelihood, economic benefits, social inclusion and gender equality of Arab rural communities particularly marginalized groups, by addressing energy poverty, water scarcity and vulnerability to climate change and other natural resources challenges in three targeted countries, namely: Jordan, Lebanon and Tunisia.

Partners in implementation include League of Arab States (LAS), line ministries, local authorities, various regional organizations and Arab Women associations, UN organisations, local and regional NGOs, Research institutions and Academia.

Table of Contents

Keys to an integrated and successful approach for the WEF Nexus

1. Political commitment and scientific backing
2. Clear institutional and policy framework
3. Improve governance models and financing incentives particularly for private sector
4. Develop unified and coherent agenda
5. Build common standards and understanding of priorities
6. Establish clear dialogue between sectors through a **Participatory approach**
7. Team-building with strong negotiation skills
8. Bridge the planning divide between sectors towards a national development agenda
9. Establish a data management plan/protocol to increase confidence between parties
10. Put in place monitoring and accountability measures with clear performance indicators
11. Involve the education sector and build the capacities at all levels
12. Raise awareness of the sectoral linkages

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Thank you