

Expert Group Meeting on “Enhancing capacity building addressing Water and Energy interlinkages for Sustainable Development in the Arab Region”

25-26 June 2019, UN House - Beirut, Lebanon

Session I: Integrated approaches to water, energy and other SDGs in the context of the 2030 Agenda for Sustainable Development

Economic and Social Commission for Western Asia

Water and energy interlinkages within the framework of the 2030 Agenda for Sustainable Development: ESCWA Conceptual Framework and Activities



UNITED NATIONS

الاسواق
ESCWA

Ms. Radia Sedaoui
Chief Energy Section
Sustainable Development Policies Division

The top 33 water-stressed countries in the world by 2040

Rank	Name	Score (all sectors)
1	Bahrain	5.00
1	Kuwait	5.00
1	Qatar	5.00
1	United Arab Emirates	5.00
1	Palestine	5.00
9	Saudi Arabia	4.99
10	Oman	4.97
11	Lebanon	4.97
14	Jordan	4.86
15	Libya	4.77
16	Yemen	4.74
19	Morocco	4.68
21	Iraq	4.66
25	Syrian Arab Republic	4.44
30	Algeria	4.17
33	Tunisia	4.06

Arab region includes some of the most water scarce countries in the world.

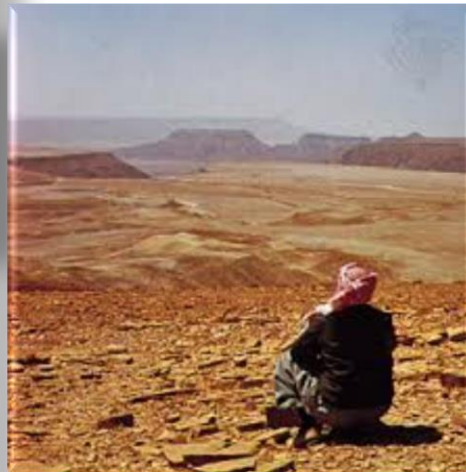
At least 13 of these countries suffer 'absolute' water scarcity

The Water Conundrum in Oil & Gas Sector

In the GCC region, we suffer from too little water and too much water at the same time!

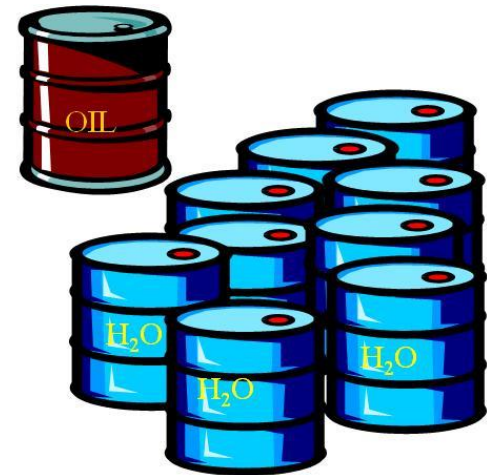


Too little water



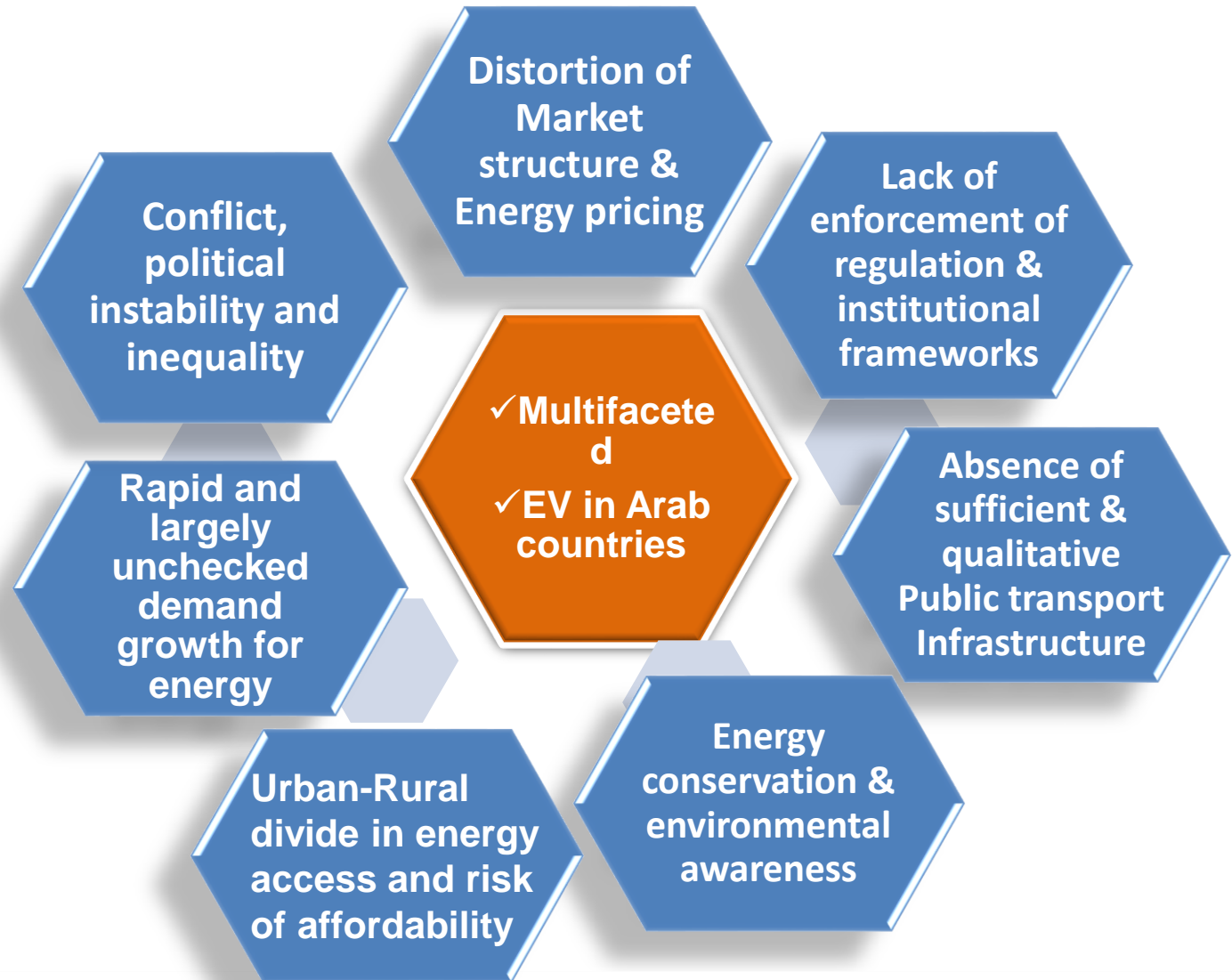
.... A very large area of the GCC is arid desert

Too much water



.... In the GCC countries, for every barrel of oil produced, up to 10 barrels of water are extracted at the same time. And it gets worse with time!

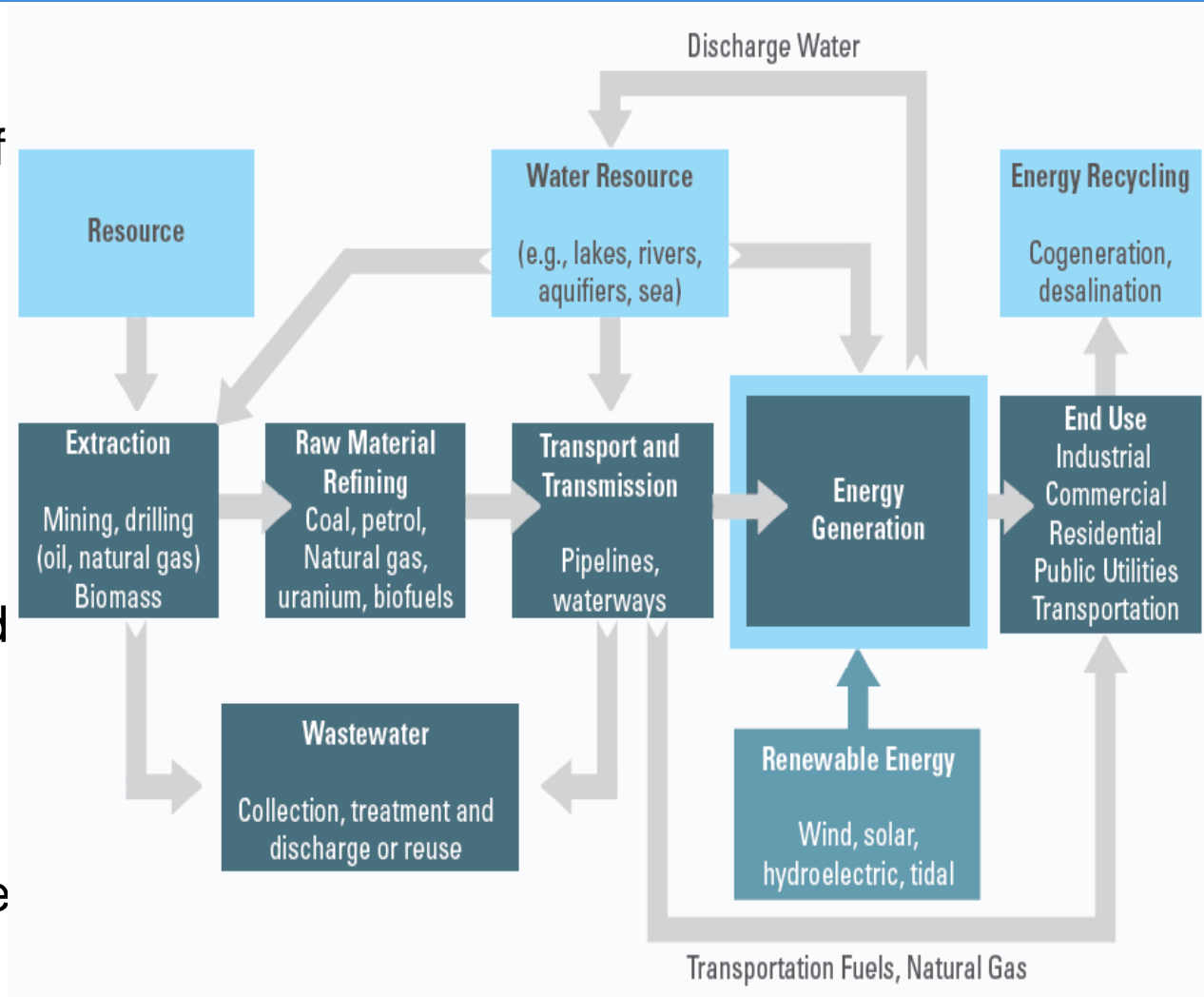
.....Business-as-usual in the areas of energy and wider natural-resource management in the Arab region is not anymore an option



Energy Vulnerability in the Arab Region results from the inability to safeguard the universal access to affordable, reliable and modern energy services for **current and future generations**.

Embedded water in energy

- Energy production is the **2nd largest** use of water (after agriculture).
- Globally, **90% of power** generation is water-intensive.
- **80%** of global electricity is produced by thermal power generation.
- **75%** of all industrial water withdrawals are

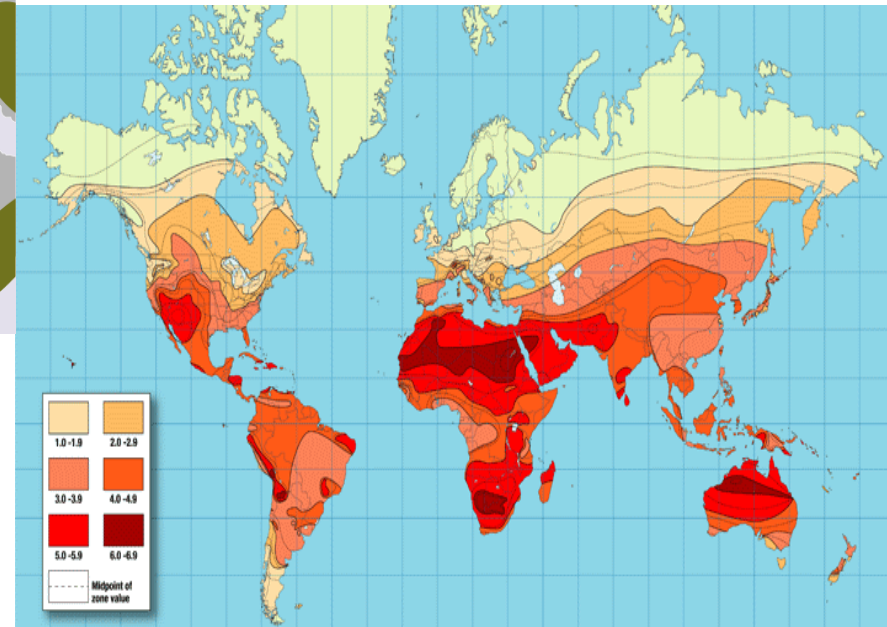


The Arab countries are well endowed with potential for developing renewable energy resources, if adequately used.....



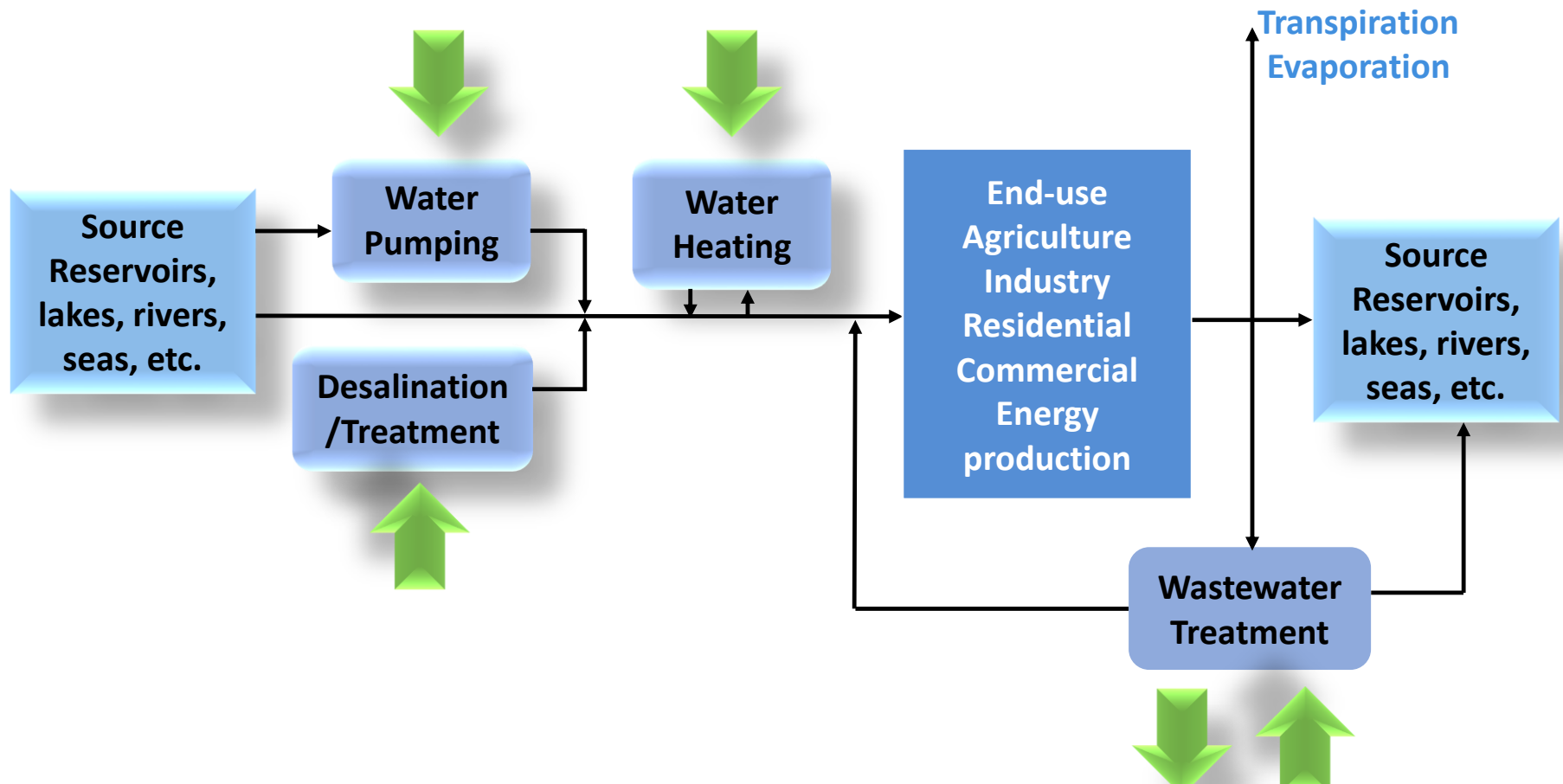
source: MAKE, MENA Wind Power Outlook, 2 April 2015, Joffery Dupuy, P. 8

- Wind speed suitable for the production of electricity in various locations of many countries
- High Solar Irradiance



- Vast desert lands, semi-flat, and mostly uninhabited.
- Pilot and commercial projects, industrial potential, Technical staff and available labor.
- Official interest in RE/ Plans and Policies to diversify the energy mix.
- Contribution to Energy Security.
- A tool to reduce emissions.

RE across the water supply chain



Green arrows indicate potential RE inputs.

RE in the oil & gas sector

Oil & Gas, Offshore Wind Joint Industry Project Leads to WIN WIN Situation

Most of the major oil companies power their special field applications using PV panels and Shell using combination of wind turbines and PV panels to help power some of its monotower platforms.

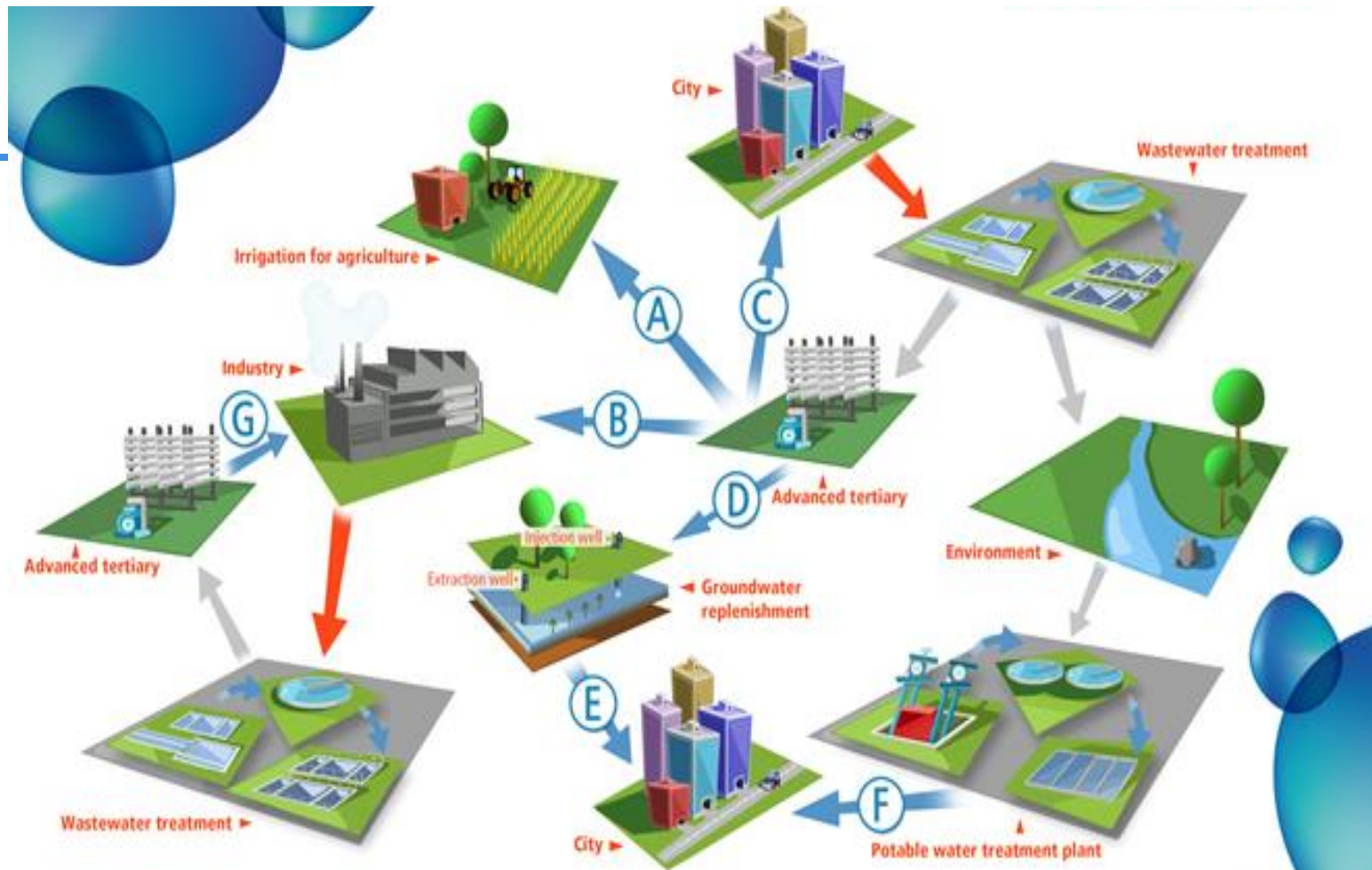


The DNV GL-led **WIN WIN** (WIND-powered Water INjection) project, which gathered industry players from oil & gas and offshore wind sectors, including ExxonMobil, ENI Norge, Nexen Petroleum UK Ltd., Statoil, VNG Norge, PG Flow Solutions and ORE Catapult, is on the right track to make the best use of both offshore energy industries in a single project.

(Courtesy of offshorewind.biz website)

Water reuse

Example:
minimum
estimate of
potential
savings from
increased
water
efficiency in
the industrial,
commercial
and
institutional
sectors of
California
would be
sufficient to
fulfil the
annual water
requirements
of the whole
city of Los



A - Reuse in agriculture
B - Reuse in industry
C - Urban reuse

D - Aquifer recharge
E - Indirect potable reuse of an aquifer
F - Indirect potable reuse of a river
G - Regeneration and reuse of industrial water

The integrated approach to water and energy security within the context of the 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development clearly states that the SDGs are **universal, indivisible, integrated and people-centered**

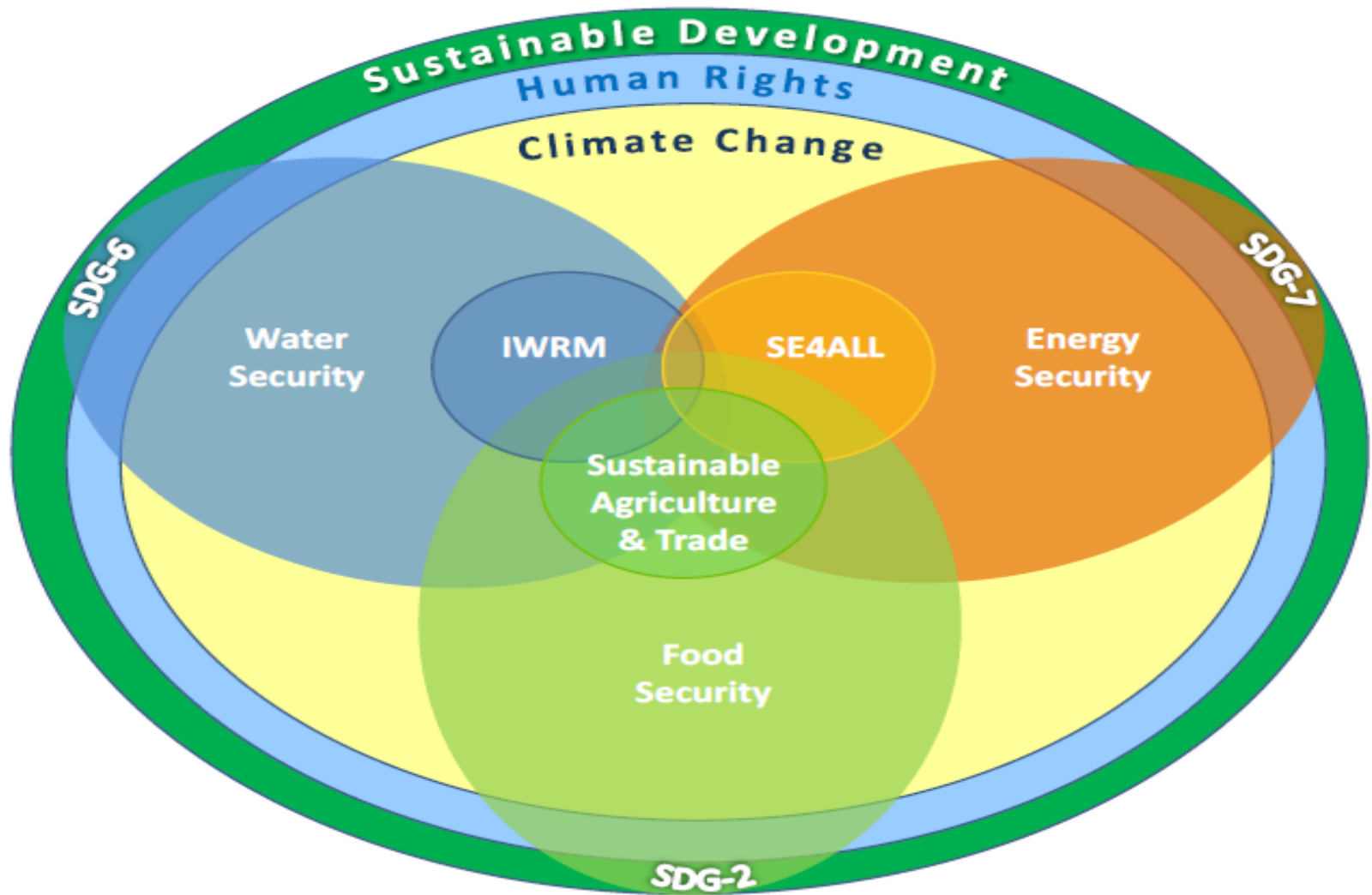
(in preamble & paras. 5, 18, 55, 71)

The 2030 Agenda affirms the **Human Right** to Water & Sanitation by aspiring for all:

“A world where we reaffirm our commitments regarding the **human right to safe drinking water and sanitation** and where there is improved hygiene; and where food is sufficient, safe, affordable and nutritious. A world where human habitats are safe, resilient and sustainable and where there is universal access to affordable, reliable and sustainable energy”.



ESCWA Framework for the Water-energy-food nexus within the context of the 2030 Agenda for sustainable development



Inclusive national development pursuing policies that embrace the principles of universality and inclusivity

Scale and scope of analysis to advance integrated approaches to managing water and energy sectors

Global level

Development Priorities,
SDGs

Climate Change

Trade flows, financial
regimes

Technology Transfer

Regional level

Regional specificities

Natural resource
endowments

Geopolitics, refuge flows

Arrangements to foster
regional integration
and inter-state
cooperation

National and local level

Balance between national
security imperatives and
policy dictates to satisfy
water and energy needs of
the citizens

Special attention to non
discrimination and ensuring
the right to water and
sustainable energy for
development across
communities

Regional strategies and initiatives and institutional and policy framework for operationalizing the nexus in the Arab Region

- In 2011, the Arab Ministerial Water Council (AMWC) of the LAS adopted the **Arab Strategy for Water Security** to Meet the Challenges and Future Needs for Sustainable Development 2010-2030;
- In 2007, the Riyadh Arab Summit approved the **Strategy for Sustainable Arab Agricultural Development** for (2005-2025), adopted by the ministers of agriculture with the support of the Arab Organization for Agricultural Development (AOAD);
- The third Arab Economic and Social Development Summit in Riyadh in January 2013 approved and ratified the **Pan-Arab Strategy for the Development of Renewable Energy Applications: 2010-2030**;
- The Arab Ministerial Water Council (AMWC) and the Arab Ministerial Council of Electricity (AMCE) inviting the LAS, GIZ and ESCWA to **solicit funding to implement nexus-related activities and studies** in support of the regional initiative.

ESCWA Water Development Report 6: The Water-Energy-Food Security Nexus in the Arab region

ESCWA Water Development Report 6 (2015), addresses:

- ESCWA's vision for a water-energy-food security nexus for the Arab region within the context of sustainable development
- The Nexus from a shared basin perspective
- Energy and water interdependencies for improved services
- Water and energy for food security
- Recommendations for improved integrated natural resources management



Available at:

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

Regional strategies and initiatives for operationalizing the nexus

Promote integrated water and energy approaches across different levels of government and across borders

In 2012, ESCWA organized an intergovernmental consultative meeting to initiate **intersectoral and intergovernmental dialogue** on the nexus in the **Arab region**

The
representatives of
both Committees
on **Energy & Water**
Resources
identified **7**
priority areas:

Knowledge and awareness raising on the nexus

Policy coherence

Examining the W-E security nexus

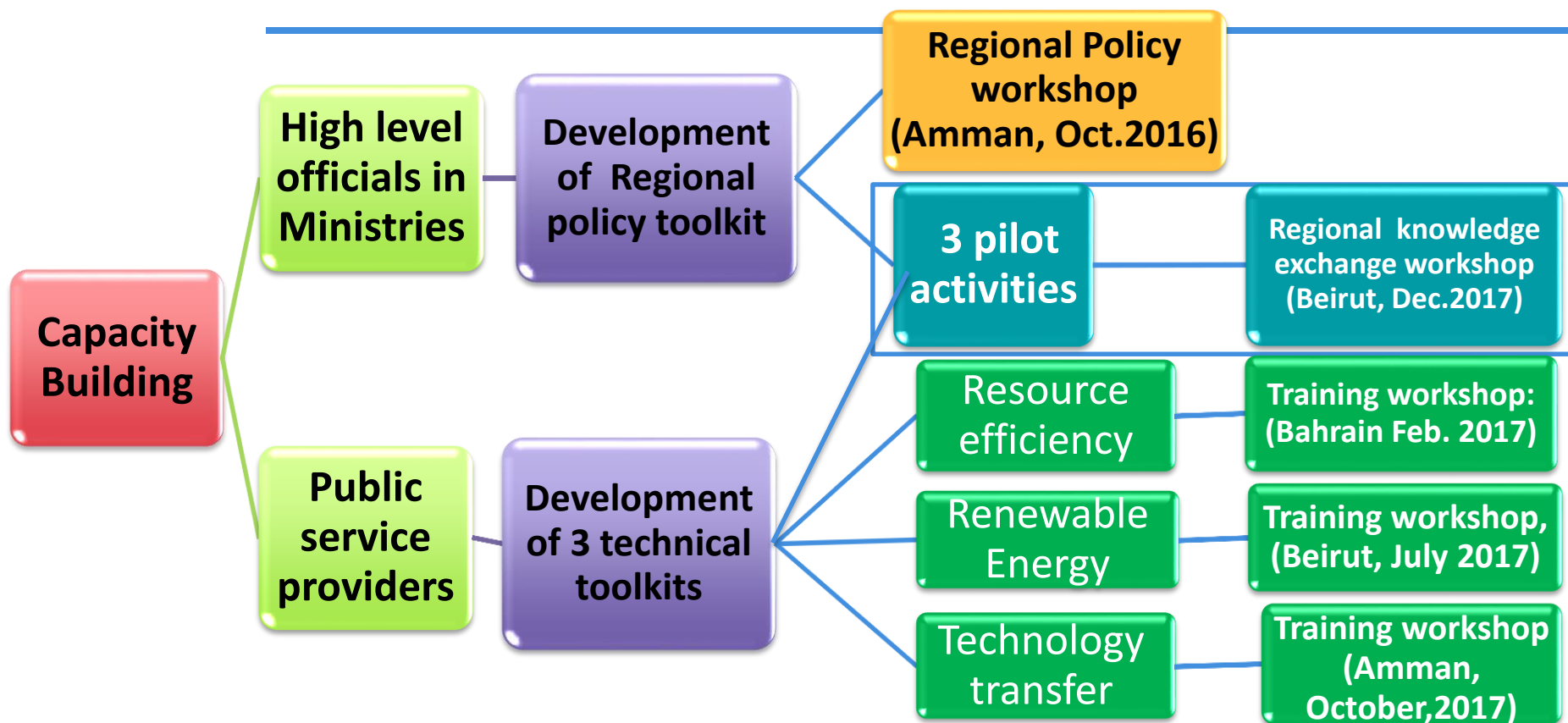
Improving efficiency

Informing technology choices

Promoting Renewable energy (RE)

Addressing climate change & natural disasters

Overview of the UN Development Account Project: Main activities



Pilot Projects:








- Photovoltaic Solar System for Water Pumping Moghra Oasis, Egypt
- Use of Photovoltaic Solar Systems for Groundwater Pumping Suwayda, Syrian Arab Republic
- Improving Energy Consumption in Hydraulic Systems, Kairouan, Tunisia

Regional strategies and initiatives for operationalizing the nexus

UN-DA Project: “Developing the Capacities of ESCWA Member Countries to Address the Water and Energy Nexus for Achieving Sustainable Development Goals”

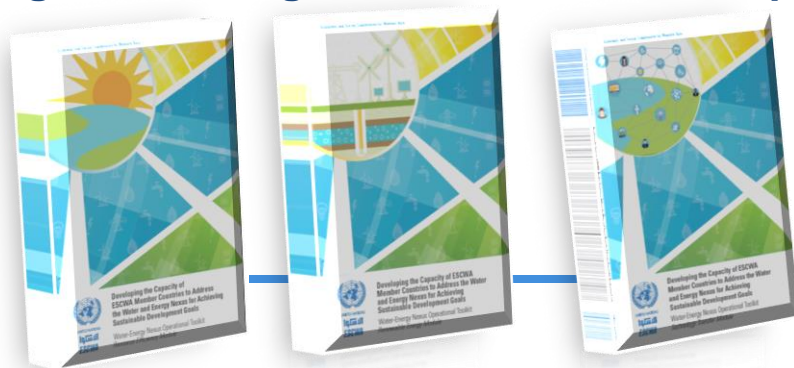
Regional Policy Toolkit: First Outcome



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

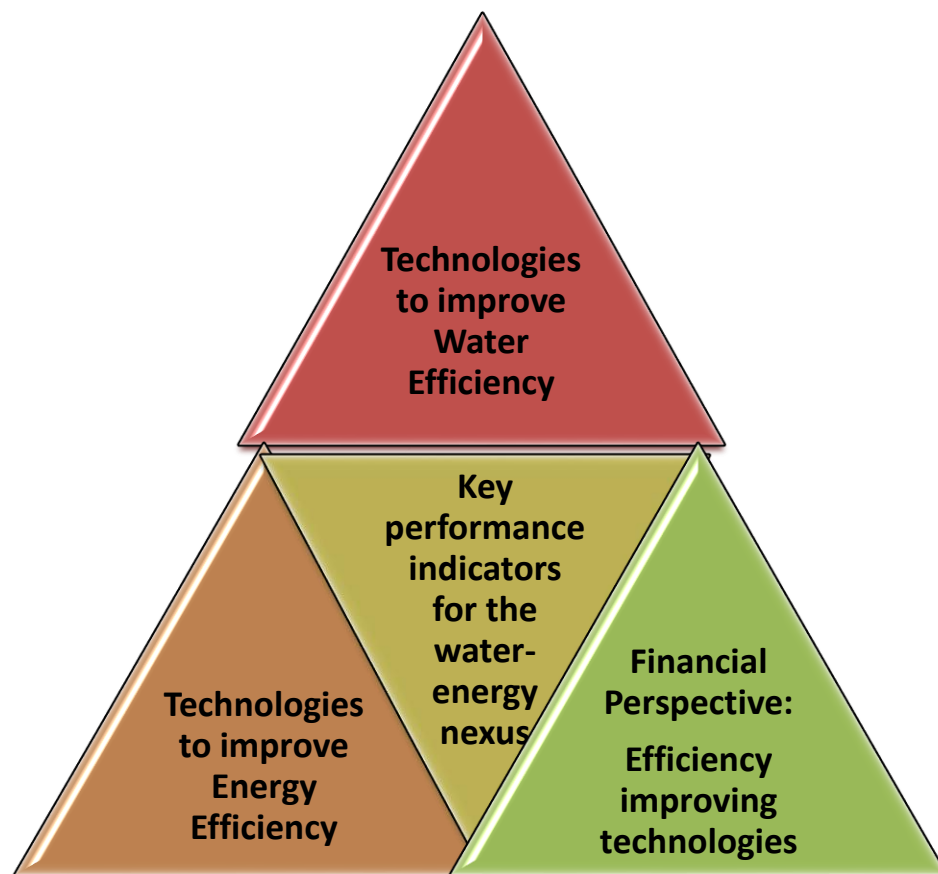
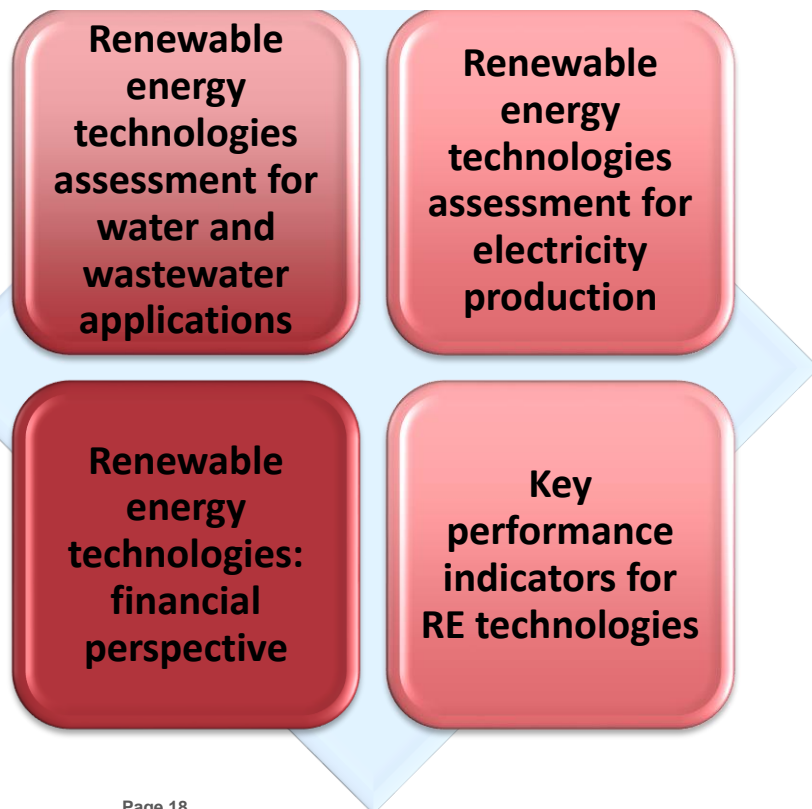
<https://www.unescwa.org/sites/www.unescwa.org/files/publications>

Regional strategies and initiatives for operationalizing the nexus



Water-Energy Nexus Operational Toolkit; Resource efficiency, Renewable energy, Technology transfer

<https://www.unescwa.org/sites/www.unescwa.org/files/publications>



Keys to an integrated and successful approach for the water and energy sectors

1. Political commitment and scientific backing
2. Raise awareness and Solid understanding of the sectoral linkages
3. Improve institutional and policy framework
4. Establish clear dialogue between sectors through Participatory approach
5. Build negotiation skills and team-building
6. Build common standards and understanding of priorities
7. Create synergies and trade-offs
8. Bridge the planning divide between sectors
9. Develop unified and coherent agenda
10. Improve governance models and financing incentives
11. Evaluate technology options to achieve efficiency improvements cross sectors
12. Establish a data management plan/protocol to increase confidence between parties
13. Put in place Monitoring and accountability measures
14. Involve the education sector and build the capacities at all levels
15. Ensure continues and strong commitment to the nexus paradigm at practice level

Economic and Social Commission for Western Asia



UNITED NATIONS

الأمم المتحدة
ESCWA

THANK YOU

Radia Sedaoui
Sedaoui@UN.org