arwadex 2017

تحت رعاية معالي رئيس مجلس الوزراء المصري المهندس شريف إسماعيل
مؤتمر تحلية المياه الحادي عشر في البلدان العربية
UNDER THE PATRONAGE OF THE EGYPTIAN PRIME MINISTER ENGINEER SHERIF ISMAIL
11TH WATER DISALINATION CONFERENCE IN THE ARAB COUNTRIES
18-19 APRIL 2017 • INTERCONTINENTAL CITY STARS - CAIRO - EGYPT

Water Scarcity in the Arab countries: opportunities and future prospective

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بالتعاون مع
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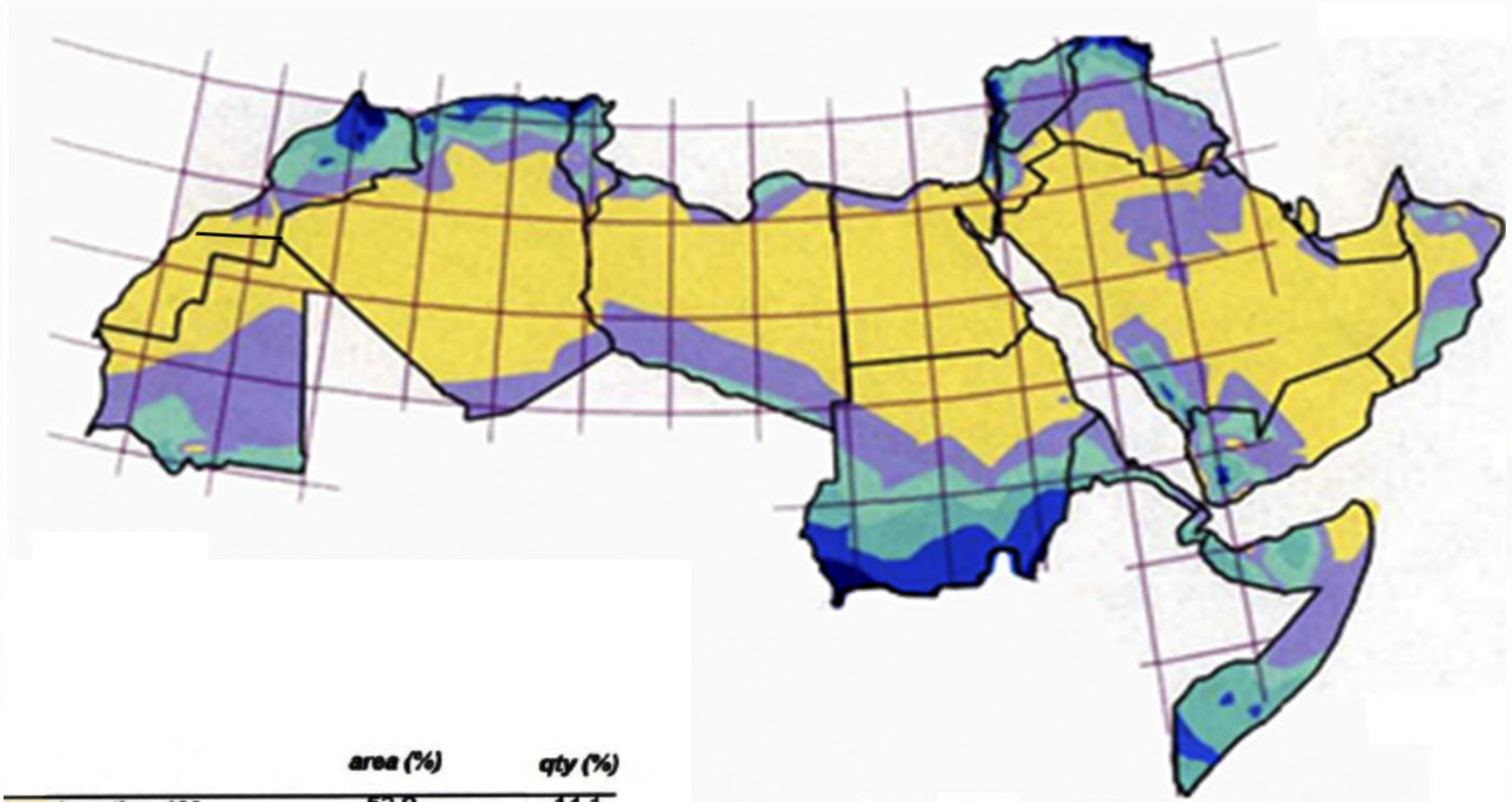
5. Main solution is non-conventional water resources :

- ***Reuse***
- ***Desalination***

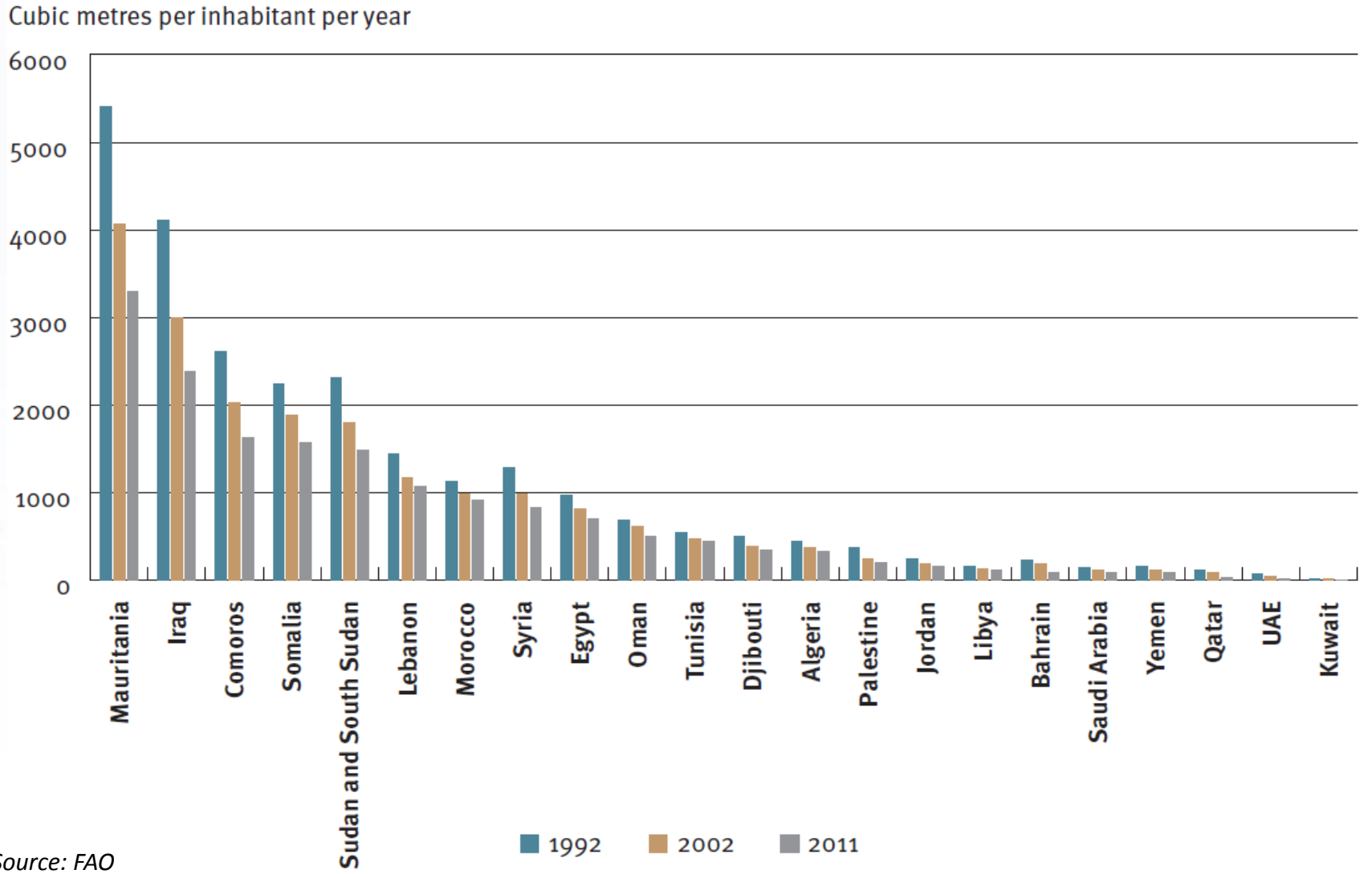
1. Geo-climatic context and specificity of the Arab region

Rainfall distribution in the Arab region



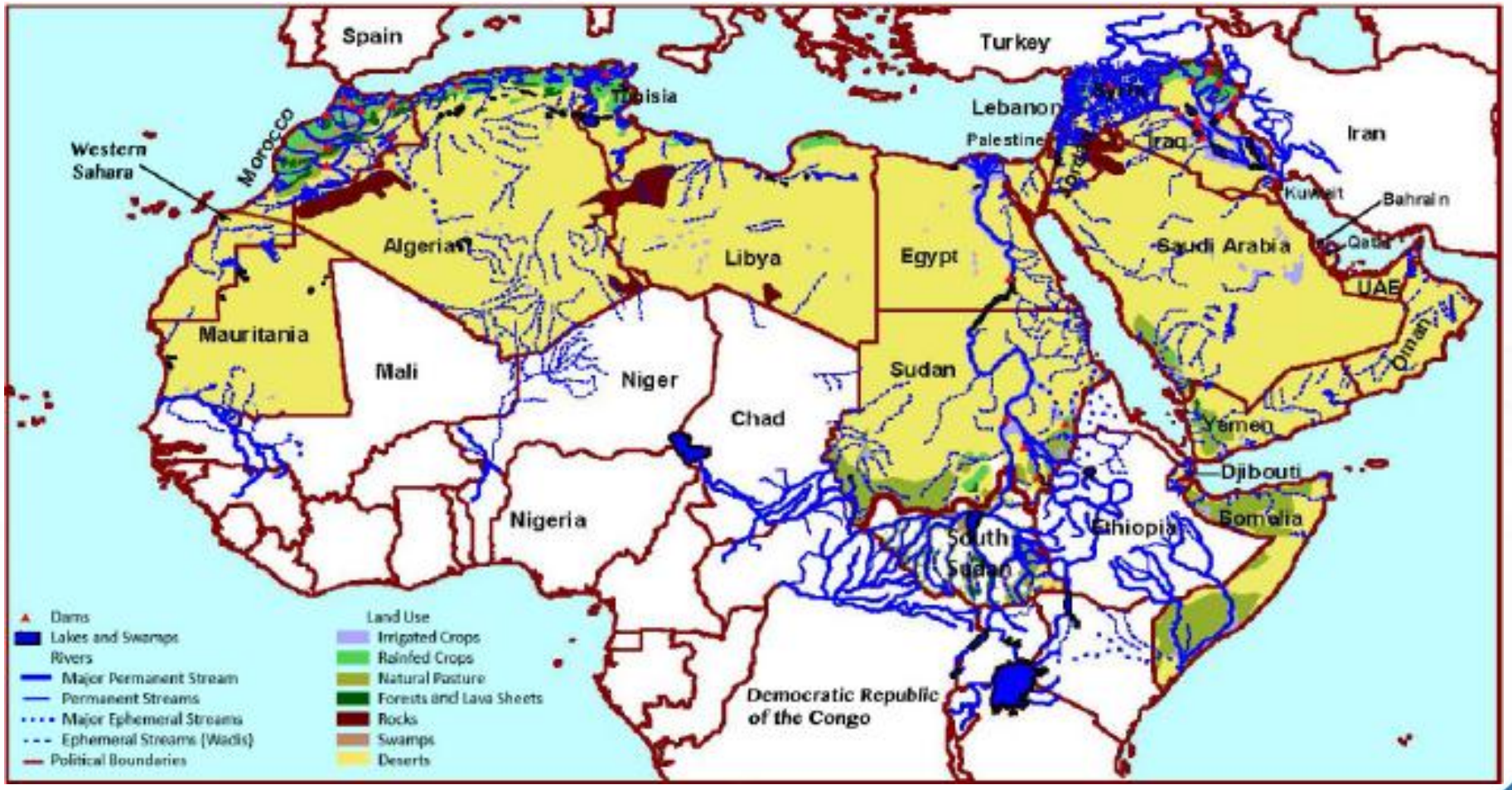
Source: Adapted from Droubi, Jnad and Al Sibaii

Total renewable water resources per capita, 1992, 2002 and 2011



Source: FAO

Major drainage basins in the Arab region



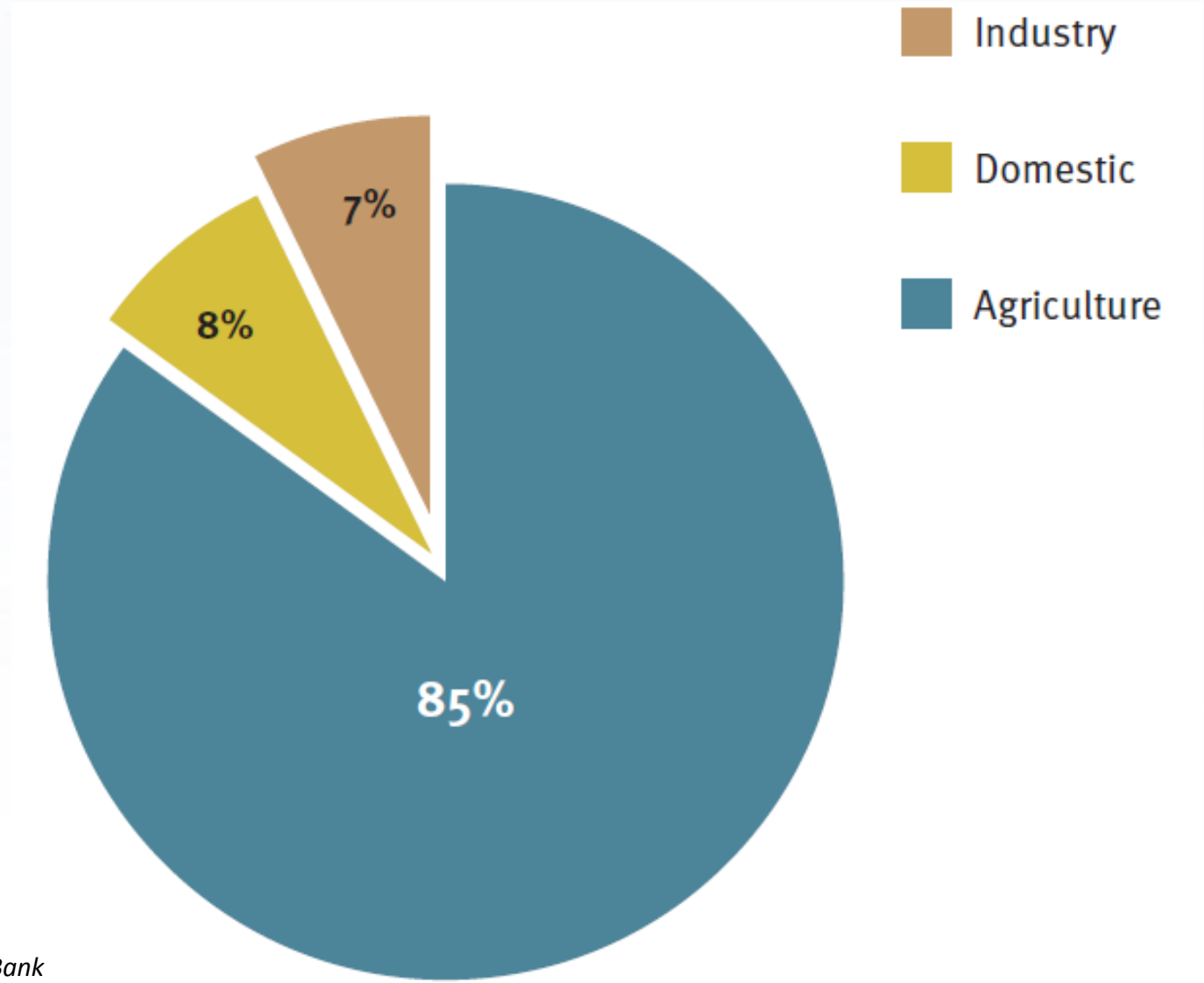
Source: CEDARE

Total and per capita dam capacity and share of individual countries in the Arab region

Country	Estimated total dam capacity (cubic kilometres)	Share of total dam capacity in the Arab region (%)	Per capita dam capacity (cubic metres per inhabitant)
Algeria	5.68	1.56	157.80
Egypt	168.20	46.30	2038.00
Iraq	151.80	41.79	4647.00
Jordan	0.27	0.07	43.43
Lebanon	0.23	0.06	53.53
Libya	0.40	0.11	59.89
Morocco	16.90	4.65	523.70
Oman	0.09	0.02	31.06
Saudi Arabia	1.00	0.28	35.75
Syria	15.90	4.38	893.00
Tunisia	2.50	0.69	237.10
UAE	0.06	0.02	7.74
Yemen	0.20	0.06	10.00
Total dam capacity	**363.27**	**100**	**672.1541** (average)

Source: FAO / World Bank

Water uses in the Arab region



Source: World Bank

2. Main measures to apply reducing water scarcity impact

Preparation to WS&D situations: supply side management measures

- Water transfers
- Desalination & waste water reuse

- New storage facilities
- Use of marginal resources (groundwater)
- Aquifer recharge
- Improved efficiency of water distribution networks
- Relaxing environmental constraints

Demand side management measures

- **Reduction of irrigation consumption**
- **Remote control**
- **Water recycling in the industry**

- Water metering
- Mandatory rationing
- Restriction on municipal use
- Water markets (tariffs) and full cost recovery
- Water saving campaigns for voluntary actions
- Awareness campaign to adapt to minimize drought
- Increase in the regulation capacity for urban supply

Minimizing Water Scarcity and Drought Impacts

- Quality based reallocation of resources
- Others

- Contingency plan
- Insurance and economic
- Public and tax relief
- Rehabilitation programmes

3. What policy options have been identified?

- Putting the right price tag on water
- Allocating water and water-related funding more efficiently
- Improving drought risk management
- Considering additional water supply infrastructures
- Fostering water efficient technologies and practices
- Fostering the emergence of a water-saving culture in the Mediterranean
- Improve knowledge and data collection

4. Importance of data and indicators

- Data gaps (some countries not covered, major lacks of information) → **fortify the process of data collection**, as well as the validation and QA, since reliable information is the basis for all assessments

- Indicators are a powerful and easy to communicate tool yet, for holistic and rounded assessments of WS&D a **combination of indicators** is needed

- Socio-economic indicators are proven very important from a water management and policy aspect as they allow for clear identification of drivers and pressures, they demonstrate strong links between socio-economic trends and water abstraction behavior, they are valuable in the evaluation of the **efficiency and performance** of the system as well as in assessing **vulnerability** and future trends

- Integrate **more pilots** → Develop stakeholder-tailored indices, on the basis of common descriptive indicators. Develop index "products" in stages as diagnostic and forecasting tools.

- WS&D monitoring is an essential element in the decision making process for planning proper measures of prevention & mitigation of the impacts
- Today, most of South & East Mediterranean countries use indicators such as rainfall (compared to long term average), water levels in reservoirs and groundwater, associated with thresholds to assess the level of drought and the application of mitigation measures.
- It is still too early to reach an agreement on common indicators between all the countries, as further exploration is necessary through pilot exercises. But the necessity to use indicators is recognised, as well as the fact that different types of indicators are necessary to respond to the needs of stakeholders‘ categories, e.g. politicians, managers, famers.

NON CONVENTIONAL WATER RESOURCES :

One of the solutions to reducing water scarcity impact

➔ **REUSE**

➔ **DESALINATION**

DESALINATION :

- is a whole share of the Integrated Water Resources Management (IWRM)
- does not concern only security of urban drinking water
- is a paramount application of the Nexus Water / Energy / Climate / Food Security

Thank you very much for your kind attention !

For further information, please visit our website:

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