ACWUA
Arab Countries Water Utilities Association

Exchange Platform for Water & Waste Water Utilities in the Arab World

UNDA Project on Developing the Capacities of the Arab Countries for Climate Change Adaptation by Applying IWRM Tools (Human Settlements Sector)

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The effect of Climate Change on water and wastewater utilities

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Director of Programs and Technical Services

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Activities and Services:

ACWUA offers its members, cooperative partners and donors a strong networking platform by providing a wide range of activities and services:

- Arab Water Week International Conference and Trade Fair
- Best Practice Conferences
- Technical Working Groups
- Training and Certification
- Best Practice manuals and Operational Guides
- ACWUA website and ACWUA Wiki (e-platform for knowledge management)
- ACWUA newsletter
- Study tours and field visits to water and wastewater treatment plants
- Studies and Researches
- Workshops and Seminars





Technical Working Groups & Task Forces

ACWUA initiated interdisciplinary Technical Working Groups (TWG) comprising of qualified experts from ACWUA members to deal with specific issues in different high priority areas of the water sector. Seven main topics and related subtopics are covered by the following Technical Working Groups (TWG):

1. Management of Utilities

- Cost Recovery
  - Non Revenue Water
  - Water for the Poor
  - Energy Efficiency
- Asset Management

2. Capacity Building and Training

- Training Strategy
- Certification

3. Management of Water Resources

- Governance
- Master Planning
- Protection of Resources
- Adaption of Climate Changes
- Integrated Water Resources Management

4. Water and Health

- Domestic Water Supply
- Waste Water Treatment and Re-use

5. Utilities' Reform

- Autonomy/Commercialization
- Public-Public Partnership
- Private-Public Partnership

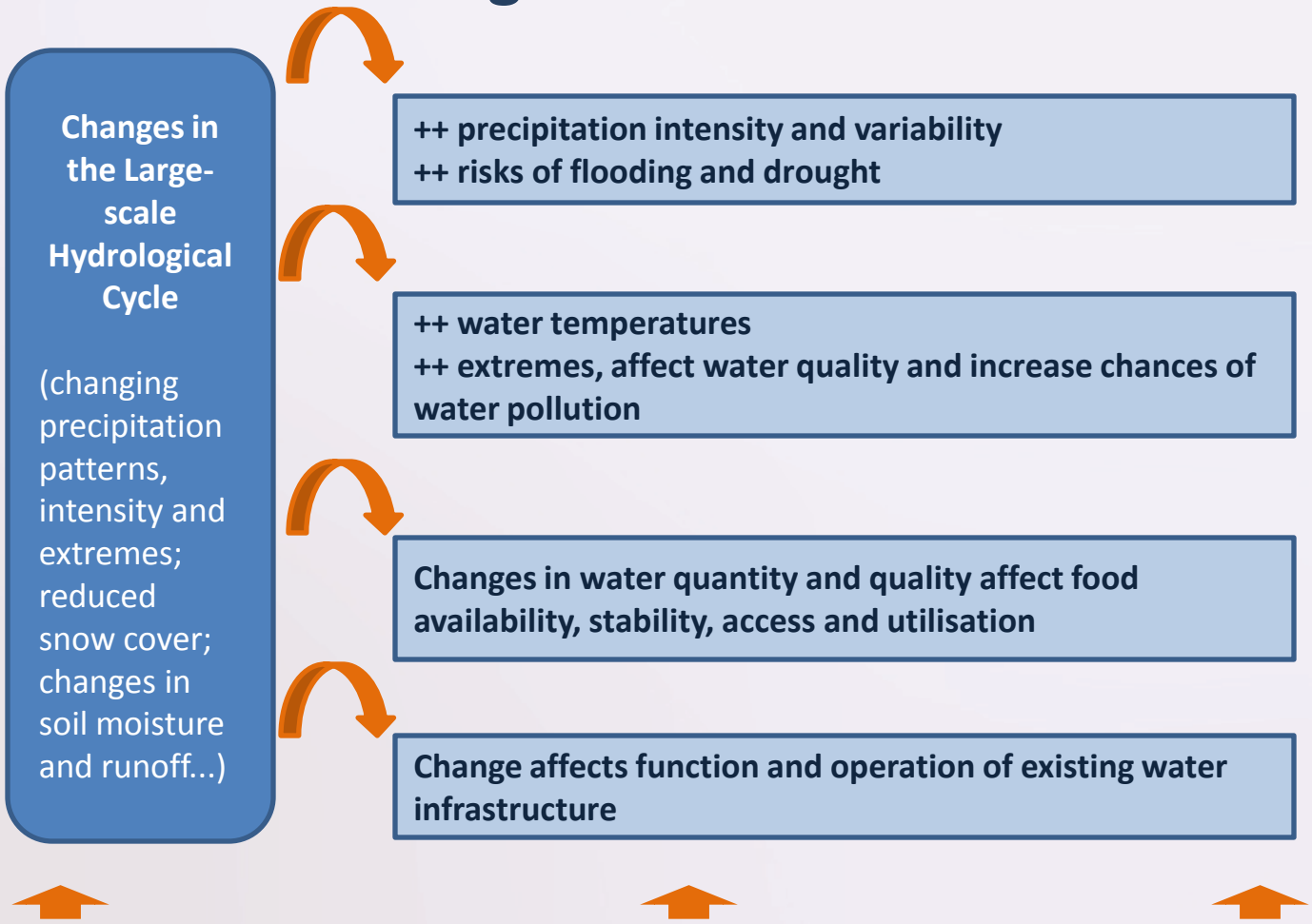
6. Benchmarking

7. Public Awareness

Quality Management Systems (QMS) Task Forces – Technical Sustainable Management (TSM Arab)



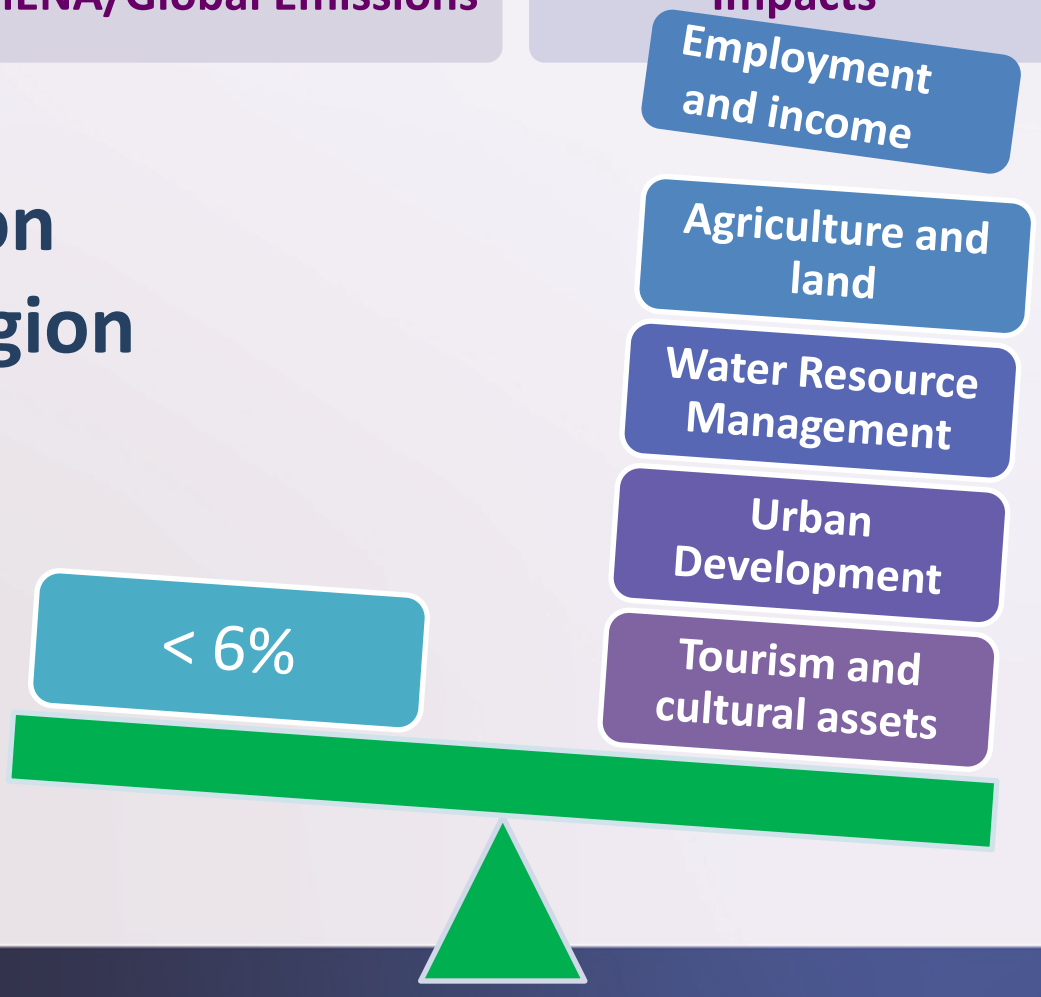

Water and Climate Change



Impacts on MENA region

MENA/Global Emissions

Impacts



Effects of Climate Change on MENA region by figures

- Temperatures will rise up to 2 degrees in the next 15-20 years and over 4 degrees by the end of the century
- Rising sea level could affect 43 port cities, 24 in the Middle East and 19 in North Africa (e.g. a 0.5 meter rise leaves >2 million people displaced, $35 billion losses in land and infrastructure, as well as, losses of cultural assets)
- Runoff will decrease by 20-30% in most of the region
- Increased the frequency of droughts, from one event every 10 years at the beginning of the 20th century to five or six events each decade now

Warmer and Drier with More Extreme Droughts and Heat Waves

- Reduced quantities of surface water available from local runoff
- Reduced quantities of water available to recharge groundwater aquifers
- Increased evaporative losses in inter-basin transfers of surface waters
- Changes in vegetation of watershed and aquifer recharge areas
  - ❑ Altered recharge of groundwater aquifers
  - ❑ Changes in quantity and quality (e.g., TOC, alkalinity) of runoff into surface waters
- Increased water temperature
  - ❑ Increased evaporation and eutrophication in surface sources
  - ❑ Water treatment and distribution challenges
- Increased water demand
  - ❑ Increased demand for irrigation, urban demand,
  - ❑ Increased groundwater drawdown

Implications for Water Utilities

Implications for Water Utilities

More Intense Rainfall Events

- Increased turbidity and sedimentation
  - ❑ Loss of reservoir storage
  - ❑ Water filtration or filtration/avoidance treatment challenges
- Increased risk of direct flood damage to water utility facilities

Implications for Water Utilities

Rising Sea Levels

- Increased saline intrusion into groundwater aquifers
- Increased salinity of brackish surface water sources
- Increased risk of direct storm and flood damage to water utility facilities

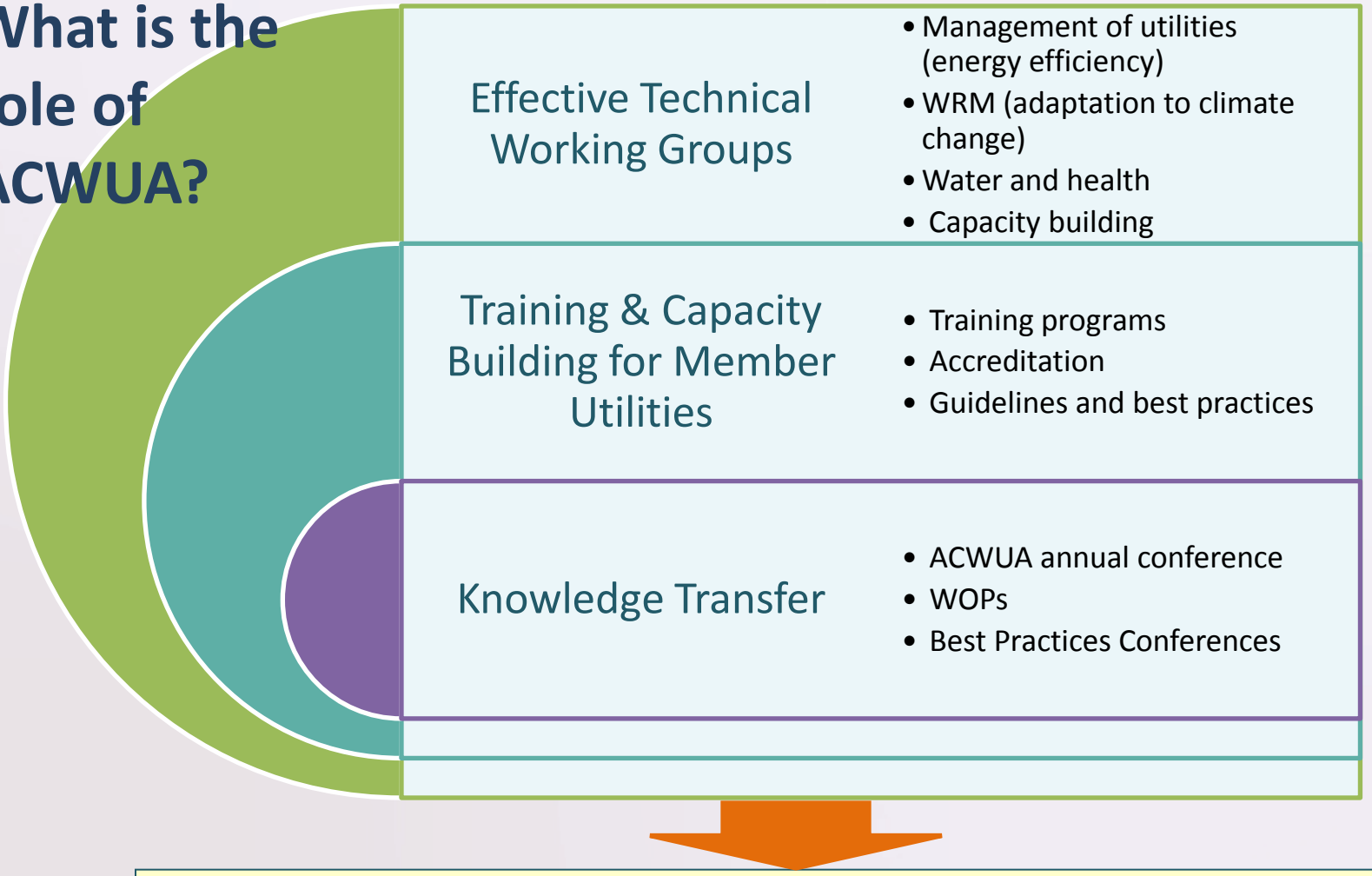
- **Water treatment challenges: increased bromide; need for desalination**
- **Water treatment challenges: increased bromide; need for desalination**

What is needed?

- Several gaps in knowledge exist in terms of observations and research needs related to climate change and water in the region
- Observational data and data access are prerequisites for adaptive management, yet many observational networks are shrinking
- There is a need to improve understanding and modelling of climate changes related to the hydrological cycle at scales relevant to decision making
- Information about the water-related impacts of climate change is inadequate – especially with respect to water quality, aquatic ecosystems and groundwater – including their socio-economic dimensions
- Current tools to facilitate integrated appraisals of adaptation and mitigation options across multiple water-dependent sectors are inadequate

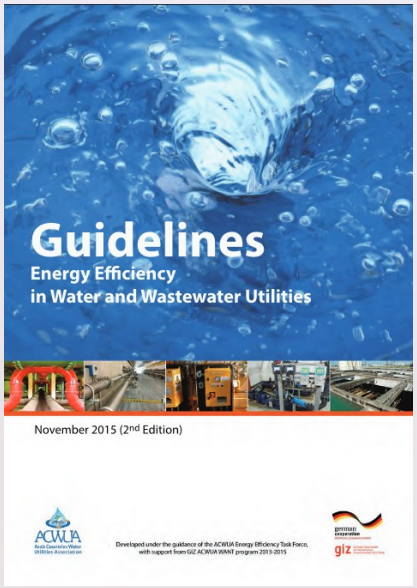
ACWUA

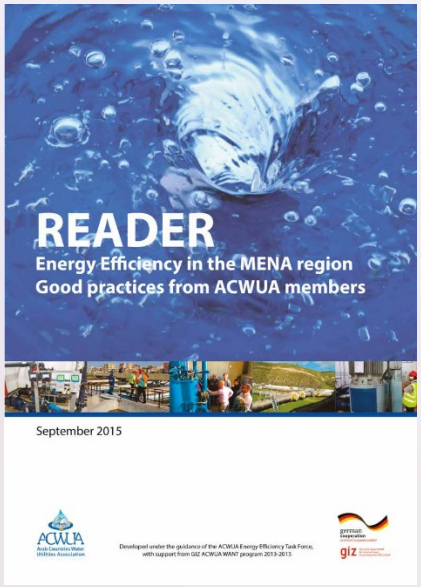
What is the role of ACWUA?

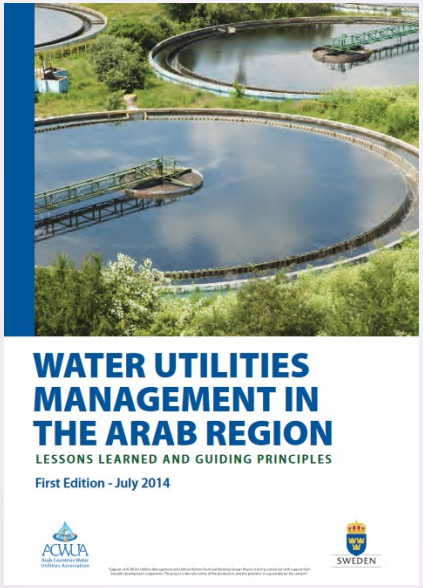


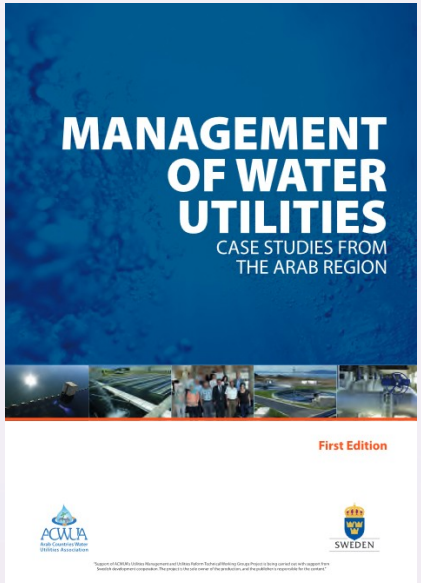
Understanding of regional climate change impacts, and identifying effective mitigation and adaptation measures

Guidelines and best practices









Thank You!

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