

# MENA World Café 2017 Issue Papers

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## Introduction

The MENA Water World Cafe 2017 at World Water Week (WWW) brings together representatives of central and local governments, regional bodies, NGOs, academia and businesses from the region for lively discussions in a pleasant atmosphere related to the overarching theme of the WWW, namely: “Water and waste: Reduce and reuse”. Using a modified World Cafe Method ([www.theworldcafe.com/method.html](http://www.theworldcafe.com/method.html)), this event (<https://programme.worldwaterweek.org/event/7018-mena-focus-mena-water-world-cafe-2017>) will kick off with a brief plenary session, during which discussion topics will be outlined and participants divided into three working groups.

The present issue papers aim to introduce briefly the topics and to guide the working group discussions. Expected discussion outputs among others are: list of barriers and constraints related to the reuse and recycling of wastewater, identified good practices and case studies, list of challenges and needs related to water quality at all levels, draft recommendations for improved water quality management in the MENA region and discussion on practical responses and adaptation measures to climate change from the water-waste cycle perspective.

## Issue Paper - Rethink before use (Group 1)

### Brief problem description

As countries in the MENA region occupy one of the most water-scarce regions in the world, they need to rely on all possible sources of water, including the non-conventional source of treated wastewater. While in many other parts of the world the effluent from wastewater treatment plants is simply discharged into nature, within the MENA region the value of water is so high that a notable share of wastewater is used again. Country-specific reuse values, however, vary widely: Jordan utilises 40 percent of its wastewater, but this figure is lower elsewhere: 14 percent in Tunisia, 12 percent in Egypt, 11 percent in Lebanon and a mere 1 percent in Morocco (Jeuland, 2015).

There are several barriers and constraints to higher utilisation of wastewater:

- The biggest reason is lack of infrastructure for wastewater collection, treatment and distribution of treated wastewater.
- Assets and infrastructure are in place in some locations, but are mostly inadequate. Old, poorly maintained wastewater treatment plants cannot treat sewerage sufficiently to deliver a water quality suitable for further utilisation.
- Transferring treated wastewater to the location of use is frequently made difficult by the distance between cities (where sewerage is generated) and farms (where wastewater could be used for irrigation).
- Another barrier is the availability of fresh water to blend with treated wastewater when blending is necessary to reach established quality standards for wastewater reuse.
- Even when an appropriate quality of treated wastewater is readily available, farmers may be reluctant to use the wastewater for irrigation, as they are afraid that the practice will result in soil degradation (e.g. salinization), a decline in the quality of the crops they produce, or health risk to farm workers or the consumers. So long as farmers can access enough cheap—usually subsidised—fresh water, their attitude towards treated wastewater is unlikely to change.

Obviously, a multifaceted approach is needed to increase the ratio of reused wastewater, consisting of investments into assets, their professional operation, educating farmers and providing incentives to increase the share of treated wastewater in the irrigation water input of farms and other land uses.

While agriculture is the main user of treated wastewater, urban parks, wetlands, golf courses, forests, fish farms and industrial sites are also potential beneficiaries. Direct domestic use of treated wastewater is possible only when the water is treated to the extremely high standard of drinking water, which is an expensive technology that is only applied in a few parts of the world, and most extensively in Singapore. Wastewater reuse, however, contributes indirectly to the enhanced supply of domestic customers, since it replaces some of the fresh water use of agriculture, making the saved water available for higher value domestic uses. Aquifer recharge, indirectly and on a longer time frame, also contributes to improved water sources for urban water uses.

## Objectives

Discuss water governance and management in the context of considering wastewater as a resource to be reused and recycled for irrigation and domestic use. In particular:

- discuss the barriers and constraints to the reuse and recycling of wastewater that are described in the background paper, identify additional barriers and constraints (if any), and point out the most critical items;
- identify good practices from the MENA region, in addition to those detailed in the background paper; and
- prioritise measures and economic instruments that can help the enhanced reuse and recycling of wastewater.

## Expected outcomes

- Draw up a list of barriers and constraints related to the reuse and recycling of wastewater.
- Develop a list of related good practices and case studies.
- Gather recommendations on measures and economic instruments.

## Key messages

- Both large-scale, national and small-scale, local measures are available and should be evaluated and pursued.
- When farms do not use all their available treated wastewater, consider alternative uses, such as afforestation, sustaining wetlands or groundwater recharge.
- Learn from each other! Each MENA country has good practices to share.
- There are a lot of mature technologies for wastewater utilisation. The challenge lies in securing the initial funds for investments, injecting wastewater reuse into the larger water management context, and creating mechanisms that facilitate the proper utilisation of treated wastewater.
- Price signals are powerful instruments. Raising the price of fresh water for irrigation will increase the demand for treated wastewater.

## Issue Paper - Climate change and the water-waste cycle (Group 2)

### Brief problem description

Climate change effects on the MENA region countries will be very severe. In fact, the region is particularly vulnerable given already scarce water resources, high levels of aridity, and a long coastal stretch threatened by the rising sea levels. Natural and physical systems in the region are already facing heavy pressures, and these will only be intensified as temperatures in the region get higher and/or precipitation gets lower. Impacts of climate change and variability on water resources are evident in the MENA region, and increasing floods and droughts present a steep challenge to water and waste managers in all MENA countries.

Climate change is likely to exacerbate water stress and shortages in some parts of the MENA region and to cause increased flooding in other parts. Changes in the intensity and amount of precipitation, increased temperatures and related evapotranspiration rates, changes in water demands, and changes in the intensity and timing of storm runoff—all of these factors will affect water and wastewater treatment systems in cities. With expected changes in the frequency and timing of precipitation events, the MENA region is expected to have more intense precipitation events. More intense rainfall will lead to flood events that will lead in turn to more untreated sewer overflows, meaning more raw sewage will be dumped into receiving bodies of water. Accordingly, overflow infrastructure will need to be adapted. A greater number of storm events brings increased flooding, which can be harmful to infrastructure because most wastewater treatment plants are in low, coastal areas. Due to declining water resources, wastewater reuse will become more necessary as climate change accelerates, and effluent will need to be of higher quality, putting additional stress on current processes. Previous studies indicate that climate change is expected to significantly affect infrastructure across the region.

There is a need to prioritise, develop and implement adaptation measures to cope with the impacts of climate change on water and wastewater systems. These measures should then be integrated with other development plans and policies. Specific measures should be considered to reduce water stress and scarcity by improving water availability through different adaptation measures, such water harvesting, wastewater reuse, desalination and demand management programmes. Urban water drainage and wastewater treatment systems should be improved and upgraded to meet the projected challenges associated with extremes (floods and droughts) and sea level rise. In addition, local governments' capacities should be developed and strengthened. These issues will be discussed during the World Café 2016 roundtable discussion “Water-related mitigation and adaptation measures to climate change for sustainable growth” (Group 2).

### Objective

Discuss climate change effects on the water-waste cycle (considering both water extremes and their impacts).

### Expected outcomes

1. Identification of extreme weather threats to the water-waste cycle
2. Discussion on practical responses and adaptation measures to climate change from the water-waste cycle perspective to generate new ideas

### Key messages

- Climate change is expected to significantly affect water and wastewater infrastructure across the MENA region.
- Reliability of water supply systems will be impacted by decreasing precipitation and higher average temperatures. Also, wastewater networks are particularly vulnerable to excessive rainfall events and sea level rise.
- Gaining an understanding of the vulnerability of water and wastewater systems in the MENA region is crucial to sustainable water resource management.
- Additional effort is needed for improving water use efficiency and wastewater reuse in most MENA countries.
- There is an urgent need for mitigation and adaptation plans to be adopted by all the countries of the region to reduce the impacts of extremes due to climate change on water and wastewater infrastructures.
- Social and technical barriers limit the implementation of adaptation and mitigation practices in the MENA Region.



## Issue paper - Water quality management (Group 3)

### Brief problem description

Water quality issues in the Middle East and North Africa (MENA) region are driven by population growth, urbanisation, industry development and intensifying agriculture, but also are closely related to specific climate and hydrological conditions. The deterioration of water quality due to pollution and overexploitation of water resources has high social, economic and environmental costs, particularly in the context of water scarcity.

UN Sustainable Development Goal (SDG) 6 on water and sanitation aims to improve water quality by reducing pollution, eliminating dumping and minimising the release of hazardous chemicals and materials in waterbodies, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse by 2030. All of these problems are highly relevant to MENA region.

The latest national water policies in most of the MENA countries acknowledge the importance of water resources protection and promote the wastewater treatment and reuse, pollution prevention and control. At the same time, numerous studies point out that further investment is needed for wastewater treatment facilities, capacity building, technology transfer, and legal and institutional reforms.

Considering the large proportion of shared river basins and aquifers between the countries in the MENA region, coordination at both transboundary and regional levels is essential for the protection and sustainable use of these resources. In many cases, however, the political context poses significant challenges to coordination efforts. At present, regional harmonisation between national water policies has not been achieved.

### Objective

Define needs and priorities for water quality management in the MENA region.

### Expected outcomes

1. Draw up a list of challenges and needs related to water quality at all levels.
2. Draft recommendations for improved water quality management in the MENA region, taking into consideration investment, legislation, capacity building, monitoring and data exchange.
3. Create a list of ideas on how MENA countries can contribute towards meeting the water quality targets elaborated in UN SDG 6.

### Key messages – Towards improved protection of water resources

1. MENA countries can, despite facing steep challenges, contribute towards meeting the targets of UN SDG 6—namely, to improve water quality by reducing pollution and halving the proportion of untreated wastewater by 2030.
2. Regional investments in wastewater treatment and pollution prevention should be paid off, thus reducing the future costs for drinking water supply, healthcare and environmental degradation.
3. Regional cooperation is essential for the protection of shared river basins and aquifers.
4. There is a need to build technical and human capacities for water quality monitoring and analysis, and to engage in continuous efforts to raise public awareness.