



WP5. CAPACITY BUILDING AND EXCHANGE OF EXPERIENCES

Output 5.2 Compendium and recommendation papers

This document reports recommendations resulting from the discussion carried out during local meetings and the interregional roundtables held in Tunisia on June 12th, 2023. It incorporates principles, approaches and strategies highlighted by the relevant stakeholders and decision makers to manage and promote the use of TWW in agriculture

Responsible partner: ONAS

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1.BACKGROUND

This document has been written in the context of the MENAWARA project on Non-conventional Water Re-use in Agriculture in Mediterranean countries.

The joint challenges of the MENAWARA project consist in providing additional resources by recycling drainage and wastewater, rationalizing water use practices and setting operational governance models in line with national and international plans. The project is designed to enhance access to water through the treatment of wastewater to be re-used as complementary irrigation and to strengthen the capacity of governmental institutions, non- state actors operating in the sector, technicians, and farmers.

The document reports the activities carried out in the fifth Work Package (WP5) of the MENAWARA project and, in particular, is related to the **Output 5.2 “Compendium and Recommendation papers”** and **Activity 5.2.1 “Stakeholders dialogue and water governance improvement”** as described in infographic below (Figure 1).

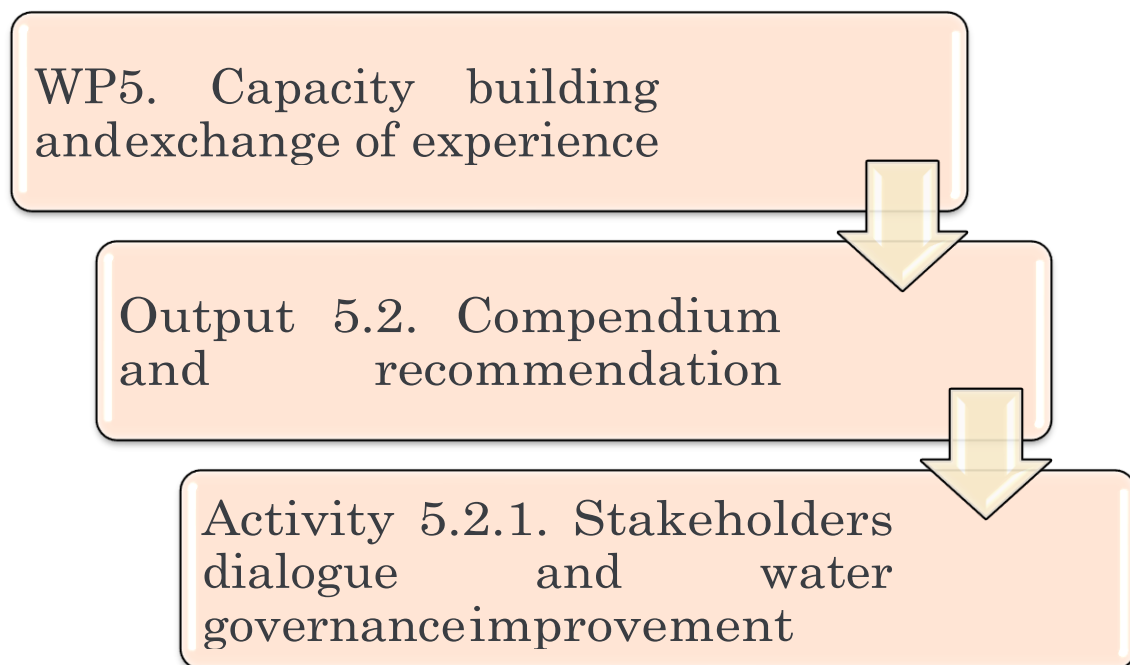


Figure 1. Infographic on the context of this technical report

2. INTRODUCTION

The valorisation of nonconventional water has been at the core of the MENAWARA project and, in particular, of the International Roundtable organized by L' Office National de l'Assainissement (ONAS, Tunis) on June 12th, 2023 in Tunis and the Interchange experience held in Tunisia from June 12th to 14th, 2023. Other experiences have been carried out along the project to gather local and international stakeholders, starting from the KoM held in Tunis on November 27th – 29th 2019 and continuing with the infoday organized by ONAS in March 2nd, 2023 which laid the foundation for the creation of a consortium around treated wastewater to leverage the added value of shared goals.

During all meetings, challenges of working with limited water resources has been debated, highlighting the critical situation of water scarcity in the country and the need to prepare for a range of different scenarios, including working on non-conventional water sources.

This document reports the main recommendations coming from the international roundtable, as well as discussed during previous stakeholders' meetings.

3. VALORIZATION OF THE TREATED WASTEWATER IN AGRICULTURE – INTERNATIONAL ROUNDTABLE

The International Conference on the valorisation of treated wastewater in agriculture was held in Tunis on June 12th. Supported by the Minister of the Environment, Leila Chikhaoui Mahdaoui, and the Minister of Agriculture, Water Resources and Fishing, Abdel Moneim Al-Baati, it gathered important stakeholders coming from Tunisian academia, business companies, MENAWARA project partners and associated partners, farmers and farmers' associations from Tunisia,



Palestine and Jordan.

During the conference, results of the MENAWARA project in Choutrana II, Sidi Amour and Beni Hassen in Monastir have been highlighted including the finding of the thesis researches carried out in the different experimental sites by 3 University students.

The MENAWARA project contributed to an integrated behavior aimed at strengthening the use of non-conventional water among different stakeholders as follows:

- I. Among the consortium: scientific research institutions (AMAYA, Spain and CIHEAM Bari, Italy) has designed low cost pre and post treatments and irrigation trains according to the real needs of the beneficiary according to the "fit for purpose" approach used during the whole project;
- II. Between non traditional water providers and water consumers, especially farmers;
- III. Between non-conventional water saving institutions, associations active in the field of environmental development and existing projects working for the optimal use of non-conventional water, in order to contribute to achieving the desired goals of valorisation and re-use of non-conventional water.

In Tunisia, training courses addressed to farmers and technicians have been carried out and workshops have been held hosting institutions active in the field. Discussions raised during the different events as well as during the exchange of experiences carried out in Jordan in May and in Tunisia following the International conference, contributed to strengthening cooperation between Mediterranean institutions, spreading social awareness on the importance of water resources thus creating a first nucleus for a network around non-conventional water.

The cross-border exchange of experiences showed to be an added value, contributing to the development of technologies and methods that would enable institutions to work efficiently in the water sector as well as the establishment of a living lab in Choutrana II, that, by allocating a green area for scientific experiments, will allow the fertilization of ideas in the field of environmental education for the benefit of young people, and adults.

The conference addressed several important topics, such as the potential impact of networking to secure funding for scientific research in treated wastewater, the circular economy approach in Treated Wastewater (TWW) management, the crucial role of renewable energies in valorizing TWW and mechanisms to encourage farmers to reuse TWW. Recommendations arising from these discussions and two workshops on



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“the mechanisms for joint actions between institutions, private sector and civil society to valorize TWW” and on the “farmers' concerns regarding the use of TWW and mechanisms for awareness-raising” concluded the event.

Following the conference, a knowledge-sharing event was organized for farmers, technicians, and officials from Palestine and Jordan over the following two days, showcasing MENAWARA results in pilot areas and other best practices related to treated wastewater reuse. The experience was highly successful, fostering partnerships, friendships, and knowledge exchange in irrigation techniques with treated wastewater. Participants returned home enriched after participating in a such important occasion of collaboration.



4. RECOMMENDATIONS

The International Roundtable and Interchange experience held in Tunisia from June 12th to 14th, 2023, as well as further experiences carried out during the project such as the infoday carried out on March 2nd, 2023 where more than 15 research Institutes, public organizations and NGOs gathered to promote the use of non-conventional water towards the creation of a consortium to leverage the added value of shared goals provided a valuable platform for stakeholders to discuss and share the need of promoting the use of non-conventional water in agriculture.

Although several research projects and different experiences have been conducted on the quality of water, the valorisation rate is only 20 percent, which is still very scarce. Out of the 291 million cubic meters of treated wastewater, only 53 million are re-used, 15 of which for agriculture, and the rest in other sectors.



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Below the key recommendations deriving from all discussions:

- i) Capitalizing the results of the MENAWARA project by carrying out similar projects or agricultural development programs focusing on 1) the improvement of treated wastewater quality, 2) the monitoring of the quality carrying out analysis for various physicochemical and bacteriological parameters, support for operators of wastewater treatment plants, extension workers and farmers through training sessions and awareness-raising actions for the sustainability of the use of TWW;
- ii) Keep on carrying out the actions carried out by MENAWARA with further actions to ensure sustainability;
- iii) Strengthening partnerships with research institutes to promote the use of TWW;
- iv) Strengthening the legislative and regulatory framework in order to facilitate procedures for the reuse of TWW in the agricultural sector;
- v) Encouraging the TWW storage among farmers by installing storage basins at the field level;
- vi) Promoting the creation of Agricultural development groups (GDA) in order to strengthen farmers' positions,
- vii) Strengthening the policy of the circular economy and the implementation of integrated projects based on the reuse of TWW in the agricultural sector;
- viii) Keeping and strengthen the link between the different partners involved in the MENAWARA project in the form of a consortium that could bring together other organizations, NGOs and establishments.