

# Overcoming the Resistances and Mobilizing Support for Decentralized Wastewater Treatment and Reuse

Results summary by the Wastewater Treatment and Reuse Expert Group from the AGUASAN Workshop 2022

## The idea in a nutshell

### The Challenge Addressed

Overcoming the Resistances and Mobilizing Support for Decentralized Wastewater Treatment and Reuse

### The Vision

Wastewater in rural areas in Jordan, and Lebanon is treated in a decentralized cost-effective manner and considered as a valuable resource by the community

### The Potential Solution

Pilot-scale Demonstration Plants: Decentralized, cost-effective, and valued wastewater treatment in rural areas of Jordan and Lebanon

### Key target group

Stakeholders interested in wastewater reuse

### Countries

Lebanon, Jordan, and Iraq

The ideas and results presented have been co-created by one of the five water and climate experts groups during the [36<sup>th</sup> AGUASAN Workshop](#) “Water Management in Times of Climate Change - Finding Actionable Solutions for Fragile Contexts in the Middle East”, taking place in Jordan in June 2022. Through an innovative format, the 5-day workshop supported the five thematic working groups to co-develop potential actionable solutions for water-climate issues, highly relevant for the region.

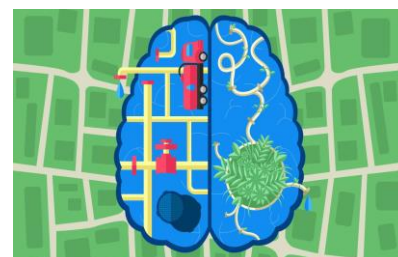
understanding of the water and sanitation situation in peri-urban and rural of the three countries. In this phase, vulnerable areas will be identified according to indicators specified by the relevant stakeholders. In the second phase, the performance of different existing pilot-scale wastewater treatment systems in Lebanon will be assessed. The third phase intends for upgrade selected pilot-scale systems to use treated effluent for irrigation purposes. These pilot systems will be used as demonstration sites for continuous improvement, acquiring lessons learned and exchanging them with stakeholders in the countries.

## The idea

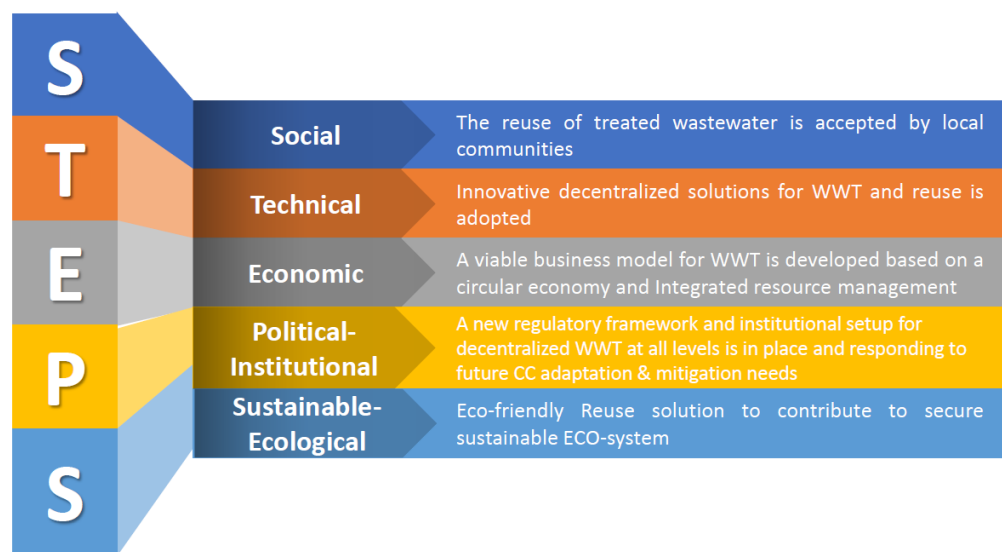
Wastewater treatment (WWT) has become one of the major environmental challenges worldwide and specifically for developing countries like Lebanon, Jordan, and Iraq. These cases are worth exploring as wastewater management and planning are facing difficulties to be implemented because of the reliance on centralized systems that require a large capital investment in infrastructure and significant yearly operation and maintenance. In this regard, the shift toward a decentralized sanitation strategy offers agility and relatively swift sanitation improvements in high-priority areas that communities and Small to Medium Enterprises can manage themselves. Our solution is divided into three phases and will be explored for the case of Lebanon, as a starting point for piloting sustainable solutions in Jordan and Iraq: The first phase will offer a concept-level

The proposed solution delivers crucial information that can be used to feed the development of an

assessment methodology intended to serve as a reference for the improvement of wastewater treatment strategies in Lebanon, Jordan, and Iraq. It will support decision-makers and stakeholders by providing preliminary data and lessons learned needed for the improvement of the daily living of people in the most critical areas in the selected countries. It will eventually improve the accuracy of the interpretation and the design of further solutions for decentralised wastewater treatment.



## Objectives



### Lines of activities considered

The lines of activities are considered along the dimensions of the 5 objectives:

#### Social

- Community profiling
- Stakeholder engagement (social scientists)
- Development & validation of a shared vision
- Awareness raising for WWT and reuse
- Community to community interaction and demonstration sites and field visits
- Trust building, ownership, and capacity building with all involved stakeholders

#### Technical

- Identification of circular and eco-friendly WW collection treatment and reuse systems
- Upgrade existing demonstration sites in Lebanon and piloting sustainable solutions in Jordan and Iraq
- Convincing demonstration and technical examples

#### Economic

- Conduct studies to evaluate the monetary value of environmental benefits (Cost/benefit analysis)
- Demonstrate multi-win-win economic benefits
- Sustained Circular Economy

#### Political/ Institutional

- Apply a combined participatory top-down and bottom-up approach including all stakeholders
- Develop & endorse regulatory framework at different level
- Establish a group committee for operation and maintenance (O&M)
- Establish a national steering committee for upscaling with the help of a task force
- Sustaining O&M, organized upscaling and ownership

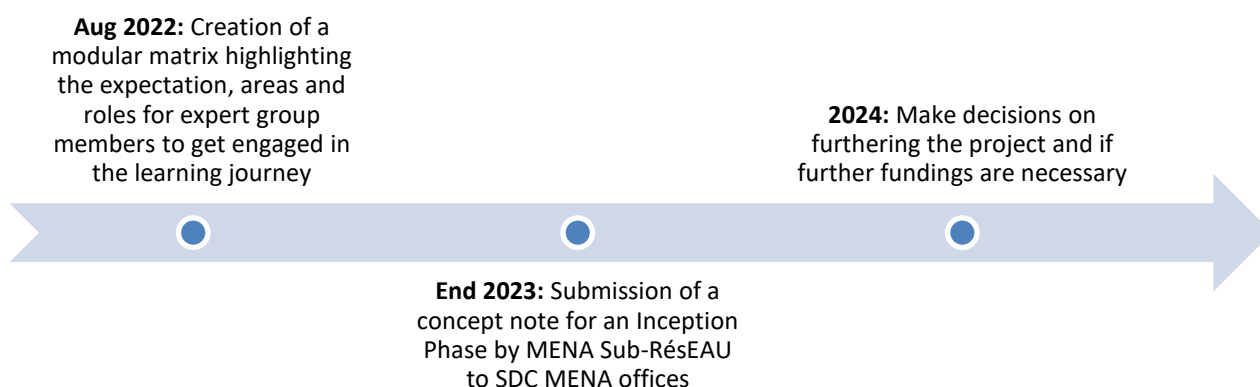
#### Sustainable-Ecological

Apply a beneficiary's approach to

- Identify needs, opportunities, and risks
- Allocate a percentage of benefits to the ecosystem

## Roadmap with key milestones for the period August 2022 – End 2022:

- Compilation of a state-of-the-art report on decentralized/rural WWT in MENA including obstacles and opportunities.
- Upgrading of selected pilot treatment plants in Lebanon as demonstration sites.
- Visits of the demonstration sites in Lebanon by various stakeholders from Jordan, Lebanon, and Iraq.
- Development of a refined concept note on a comprehensive smart approach to decentralized / rural wastewater treatment in MENA.



## Potential outcomes implementation the idea

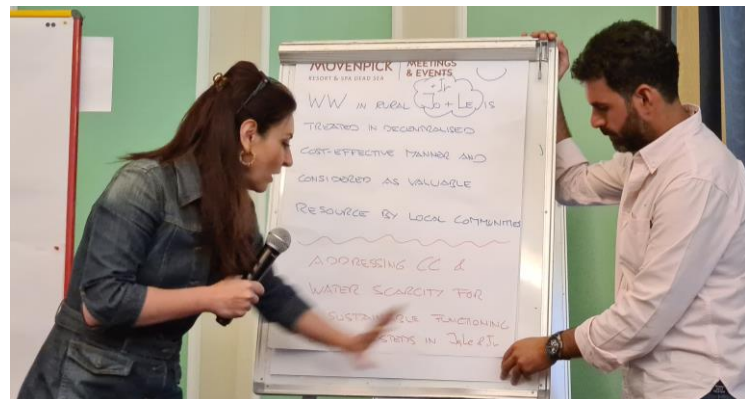
- The project will provide an opportunity for stakeholders from Jordan and Iraq to join the learning journey to exchange with Lebanese colleagues on the importance of wastewater reuse and the value associated with it.
- Potentially it will help with reducing the stigma associated with wastewater reuse in the communities in Jordan and Iraq through a visit to Lebanon, where the agricultural application of reused wastewater is prominent.

## The Wastewater Treatment and Reuse Expert Group

### Contacts

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