



WES INFO BULLETIN REGIONAL ACTIVITY ON WATER HARVESTING INCLUDING THROUGH RETENTION & AQUIFER RECHARGE WITH STORM WATER

November 2022

Overview

As part of the Water and Environment Support (WES) project in the Southern Neighborhood region, a **Regional Activity focusing on 'Water Harvesting including through retention & aquifer recharge with storm water'** (RW-4-REG) was organized involving designated participants representing different stakeholders from the WES Partner Countries (PCs), namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, and Tunisia.

Increased urbanization in all PCs has resulted in significant reduction of recharge to the groundwater sources and an increase in storm water flows with the related negative consequences.

Topics such as natural water retention, irrigation, floods, biodiversity and climate change adaptation were addressed during this Activity, via a Regional Training and a Peer-to-Peer process for the exchange of experience between and among peers from relevant institutions in the Partner Countries.

Objectives

The objectives of this Activity were:

- » To introduce the concept of Water Harvesting (WH) and Natural Water Retention Measures (NWRMs) water storage either on the surface or in the groundwater aquifer.
- » To provide technical guidance (with modelling tools and tailored excel files) to address specific problems and procedures towards the efficient application of WH & NWRMs in urban, farmlands and natural areas.
- » To facilitate the exchange of ideas and experience among the peers and the experts and to enhance good examples and success stories.
- » To sum up conclusions and actions to be taken by the PCs in the near future.

Methodology and Implementation

The team of WES Water Experts organised a Peer-to-Peer (P2P) Kick-off Meeting in July 2021, during which the P2P process was presented to the peers together with the road map for implementing the said process. A questionnaire was introduced to the peers which was subsequently used to identify the issues to be discussed during the planned P2P sessions and to decide on possible case studies/lessons learned to be presented by the peers during the regional training and future meetings.

During the plenary sessions of the **5-day on-line Regional Training in October 2021**, a number of focused and easy to follow presentations, as well as background material and exercises were used. Especially, the interactive quizzes proved to be very useful: a. as an instrument of instant and individual engagement of the experts from their remote sites and b. for providing the trainers immediate identification of the dynamics regarding expertise, level of knowledge and overall understanding.

Regional Training main topics:

The regional training's topics included: Computer tools for NWRMs modelling and assessment; Water reuse using distributed technologies in arid countries coupled with groundwater recharge; Land Use Management to Minimize Flooding and Soil Erosion in Semi-Arid Climatic Zones; WH and Irrigation Management in sustainable agriculture; and Case Studies from Morocco, Greece and Jordan etc.

Following the end of the Regional Training, another meeting with the peers was organised which resulted in the selection of the topics to be exchanged during the P2P process and the subsequent design of the process.

Six half-day on-line P2P sessions were organised during the period between December 2021 and June 2022, during which, the peers received coaching and expert advice on aspects of WH and NWRMs in both urban and natural and rural environments.

They also had the opportunity to interact, research certain topics in their countries, present findings and share experiences, and build a regional peer support network in relation to the topic.

Peer to Peer sessions themes:

NWRM in urban areas: Design methods and computational tools for the appropriate use of WH and NWRMs in urban areas including data requirements and modelling tools; environmental impacts of WH and NWRMs in urban areas

NWRM in rural areas: Use of WH as non-conventional water resources in agriculture; Agricultural Policy Measures and Good Agricultural Practices to achieve sustainable rural development in the context of WH

NWRM in natural areas: Design methods and computational tools for the appropriate use of WH and NWRMs including data requirements and modelling tools

NWRM in rural & natural areas: Environmental impacts of WH and NWRM in rural/natural areas

Results

Regional Training

The on-line Regional Training was carried out in total of 15 hours, was held twice weekly between 7 October and 21 October 2021.

In total 60 representatives of Ministries of Water, Irrigation Authorities, River Basin Authorities, Land Management, Geological Survey Agencies, Water Utilities, Municipalities and NGOs, coming from 9 countries, participated in this training during which:

- ✓ They were introduced to the overall concept of water harvesting and natural water retention and detention measures (hydrologic, environmental, and economic components) and their various approaches.
- ✓ They learnt about the benefits of WH and the use of NWRMs (e.g. assessment, planning, policy decision).
- ✓ They got familiar with the computational procedures needed to plan, design, and assess the performance of WH and NWRMs.
- ✓ They were introduced to the design of WH and NWRMs as described by the EU through its Working Team for the Common Implementation Strategy of the Water Framework Directive (WFD).

- ✓ They were acquainted to the data needs and requirements for the design and implementation of WH and NWRMs both in urban and natural environments and its links mostly with irrigation and agriculture.
- ✓ They explored the real use of WH and NWRMs through countries' case studies from the MENA region.
- ✓ They discussed real situations in their own countries where WH and NWRMs can be implemented.

The presentations of speakers from the PCs and European Union countries provided the trainees the right perspective on the definitions, methodologies and required data efficiently elaborate WH and NWRMs in urban, farmlands and natural areas.

The main purpose to minimize flood peaks and volumes by increasing water retained in the catchment for direct and indirect use was underlined along with the importance of using clever small-scale interventions with natural materials, minimising the use of concrete, that emulate the physical processes of the hydrologic cycle like infiltration.

WH and NWRMs are relatively new concepts within the hydrologic community (although their use was empirically applied by local communities for centuries) with little or no experience at all and are applied at a local and small scale. In this respect, it takes a number of NWRMs to achieve a considerable effect on the water resources balance of the area.

Peer to Peer process

The on-line Regional Peer to Peer process was organised in the period between December 2021 and June 2022.

In total, 22 Representatives of Ministries, Government Agencies, Local Authorities, Academia from WES Partner Countries participated in this P2P process during which they were enabled to:

- ✓ Strengthen their capacities on selected issues related to NWRM in both urban and natural and rural environments.
- ✓ Share knowledge and expertise on NWRMs applicable in the South Mediterranean countries.
- ✓ Boost south-to-south (and north-to-south) cooperation.
- ✓ Build lasting relations and exchanges.

The implementation of the Peer-to-Peer exchange could contribute to the promotion and dissemination of sustainable water management policies and practices and therefore its application by the related organizations in the PCs, in view of increasing water scarcity, combined pressures on water resources from a wide range of users, desertification processes and in connection with climate change.



Useful Links

https://www.wes-med.eu/activities_type/rw-4-reg-regional-training-on-water-harvesting-and-natural-water-retention-measures/

https://www.wes-med.eu/activities_type/rw-4-p2p-peer-to-peer-exchange-on-water-harvesting-and-natural-water-retention-measures/

<http://nwrms.eu/measures-catalogue>

<http://nwrms.eu/sites/default/files/documents-docs/53-nwrms-illustrated.pdf>

<https://www.epa.gov/green-infrastructure/green-infrastructure-arid-communities>

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC75938/eur25551en_jrc_blueprint_nwrms.pdf

WES Project

The Water and Environment Support (WES) is a regional project designed to contribute to the implementation of an integrated approach to pollution reduction and prevention, in line with the Union for the Mediterranean agendas and the Barcelona Convention. WES is also meant to contribute to a more efficient management of scarce water resources in the ENI Southern Neighbourhood region.

The project aims to do so by increasing the capacity of stakeholders that are involved in pollution reduction and water management and support them in formulating and implementing the environmental and water policies.

WES supports the shift to a more sustainable consumption and production model, promotes an integrated and efficient management of water, combats plastic pollution and marine litter and fosters dialogue on key environmental and sustainable development issues. In this way, WES also supports mutual understanding, cooperation, and peace in the region.

The WES Project Countries are Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, and Tunisia. However, to ensure the coherence and effectiveness of EU funding or to promote regional cooperation, the eligibility of specific actions can be extended to neighboring countries in the Southern Neighbourhood region.

For any further information on WES project, please visit: www.wes-med.eu

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