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Science for resilient livelihoods in dry areas

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Regional Initiative on Water Scarcity

inter-Regional Technical Platform Water Scarcity

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WEBINARS SERIES ON RAINWATER HARVESTING

27th June 2022 - 12th July 2022

Module n°3:

Mapping the Potential for Rainwater Harvesting

Boost your crop water productivity in selected farming systems: assess and adapt

Module 3: Mapping the Potential for Rainwater Harvesting

Session 1: Technical and socio-ecological tools and approaches for RWH mapping and upscaling

Date: 27th June 2022 **Time**: 13 h 00 – 14 h 30 (GMT+2)

***Register**: Tools and approaches for rainwater harvesting mapping and upscaling*

Session 2: Exploring the potential for rainwater harvesting

Date: 12th July 2022 **Time:** 13 h 00 – 14 h 30 (GMT+2)

***Register**: Exploring the potential for rainwater harvesting*

BACKGROUND

Water scarcity is a critical challenge in countries and regions with arid and semi-arid conditions and fast-growing water demands. This is mostly the case in all of the countries across the NENA Region, where food demand and food insecurity continue to grow, widening the water supply-demand gap in most countries. Furthermore, the anticipated impact of climate change in the NENA region is indicative towards an increased intensity of rainstorms and flash floods, while the total amount of annual precipitation rates shows declining trends. During the last 20 years, interest has been renewed in RWH as one of the most effective climate adaptation strategies to cope with water scarcity, thus reducing the pressure on the limited freshwater resources and increasing rainfed crop productivity.

This webinar series on Rainwater Harvesting aims to provide an overview of RWH applications and illustrates, with country examples, the diversity of approaches. It will try to unlock the potential of rainwater harvesting applications in the NENA region by highlighting the role of rainwater management in overcoming the current challenges in achieving water security. It will also shed the light on the need for innovations in economics, social consensus and supportive laws and regulations to ensure a widespread uptake of RWH technologies in the NENA region.

Main Conveners:

FAO/WEPS-NENA project & Water Scarcity Initiative (WSI) with: ICARDA, ICID and FAO *inter*-Regional Technical Platform on Water Scarcity (*i*RTP-WS)

Contributing Partners:

University of Florence, Italy

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Languages:

English and French with live translation

Recording:
https://dgroups.org/fao/waterproductivity/rwh

ABOUT THE MODULE 3

There are two webinars available for discussing the potential of rainwater harvesting. The first webinar ***"Technical and socio-ecological tools and approaches for RWH mapping and upscaling"*** and the second webinar ***"Exploring the potential for rainwater harvesting"*** will assess the potential of RWH practices by examining the different approaches for mapping and upscaling suitable sites for RWH systems, through the utilization of land and water suitability frameworks, remote sensing tools and socio-ecological variables.

EXPECTED OUTCOMES FOR THE PARTICIPANTS

Participants will achieve the following outcomes:

1. Understand the main approaches and tools available for mapping and upscaling the potential for rainwater harvesting;
2. Get an overview of practical applications of rainwater harvesting mapping tools in the MENA region and Western Africa.

SUGGESTED READINGS

- **A Participatory GIS Approach for Assessing Land Suitability for Rainwater Harvesting in an Arid Rangeland Environment** https://www.tandfonline.com/doi/full/10.1080/15324982.2012.709214
- **Participatory Land Suitability Analysis to Identify the Optimum Land Use for a Mountainous Watershed in Jordan** G0807024155.pdf (ijera.com)
- **Selection and characterization of Badia watershed research sites** https://repo.mel.cgiar.org/handle/20.500.11766/8833
- **Soil-landscape modeling and land suitability evaluation: The case of rainwater harvesting in a dry rangeland environment.** https://www.sciencedirect.com/science/article/pii/S0303243412000062
- **The Water Harvesting Explorer tool** https://sahel.acaciadata.com/
- **The WOCAT database** https://qcat.wocat.net/en/wocat/
- **The Regional Water Harvesting Potential Mapping Project** http://mena-rainwater.org/
- **Piemontese, L., Kamugisha, R.N., Barron, J., Tukahirwa, J.M.B., Harari, N., Jaramillo, F.,** 2022. *Investing in sustainable intensification for smallholders: quantifying large-scale costs and benefits in Uganda.* Environ. Res. Lett. https://doi.org/10.1088/1748-9326/ac5ae0
- **Piemontese, L., Kamugisha, R.N., Fetzer, I., Tukahirwa, J., Tengberg, A., Pedde, S. and Jaramillo, F.** *Barriers to scaling sustainable land and water management in Uganda: a cross-scale archetype approach.* Ecology and Society 26, (2021). https://www.ecologyandsociety.org/vol26/iss3/art6/
- **Piemontese, L., Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.** *Estimating the global potential of water harvesting from successful case studies.* Global Environmental Change 63, 102121 (2020). https://doi.org/10.1016/j.gloenvcha.2020.102121

CERTIFICATE OF ACHIEVEMENT

A digital certificate of achievement will be offered by FAO to participants who:

- Attend at least four webinars belonging to Module 1 to Module 4 (dates of the webinars: 31 May, 7, 21, and 27 June, 12, 19 and 26 July and 2 August at 01:00 p.m. GMT+2) and five sessions belonging to Module 5 to Module 10 (dates to be detailed between August and November).
- Obtain a score of no less than 70 percent in each of two written assessments that include multiple-answer questions and reflect the content of the aforementioned modules.

The link to the first assessment – that will be self-paced and non-proctored – will be sent by email on August 7 to eligible participants who will be given two weeks to submit their answers. Respondents will have the possibility to make two attempts to answer the assessment questions, and only the highest score will be considered.

Important note: *For participants who wish to obtain a certificate of achievement, to be able to track your attendance, you must register and join the webinars using the same e-mail address.*

Session 1
Speakers and moderator

Feras Ziadat

Is currently Land and Water Officer at FAO, focusing on land resources planning tools and approaches to support integrated land and water management, participatory land use planning, combating land degradation and desertification, integrated landscape management and sustainable land management. He is also Chair of the UN Coalition on Combating Sand and Dust Storms. Feras Ziadat is a former senior scientist on soil conservation and land management at the International Center for Agricultural Research in the Dry Areas (ICARDA) and an associate professor at the University of Jordan.

Luigi Piemontese

Is a postdoc researcher at the Water Harvesting Lab, at the School of Agriculture (DAGRI) of the University of Florence. He is trained in environmental engineering and has an interdisciplinary background acquired during the 4-year PhD time at the Stockholm Resilience Centre (Sweden), where he has conducted research on both hydroclimatic and socio-cultural aspects related to water consumption and sustainable agriculture. Before his PhD, he worked at the United Nation Satellite Centre (UNOSAT) on hydroclimatic modelling for flood early warning systems. For the past two years, he has been working on participatory analysis of the best location for water harvesting structures.

Domitille Vallée

Works as a Project manager for the FAO Regional Office for Near East and North Africa. She coordinates a regional project funded by the Swedish cooperation on "implementing the agenda 2030 for efficiency, productivity and sustainability in the NENA region". She is an agricultural specialist with a specialization in environmental assessment, rural engineering and water resources management. With 25 years of experience, she worked in different regions of the world on environmental performance, information sharing, irrigation, and water assessment. For the last 15 years, she focused more specifically on participatory land and water management for agriculture and watershed/landscape management. Currently she works on water sustainability in the NENA region.

Session 2
Speakers and moderator

Dr Ajit Govind

Is a broadly trained Environmental Physicist. His academic training consists of a Bachelor's degree in Agricultural Sciences (TNAU, India, 1998), Master's degree in Agricultural Physics (IARI, India, 2001) and Doctoral degree in ecohydrological-biogeochemical modeling (University of Toronto, Canada, 2008). Currently, he is working as ICARDA Climatologist based in Egypt. He is also a senior scientist at the French National Institute of Agricultural Research (INRA). At ICARDA, he is responsible for all climate research initiatives in the dryland contexts in MENA, Central Asia, India and China. He is responsible for the OneCGIAR Climate Initiative in MENA region. He works closely with FAO to establish the Evapotranspiration monitoring Network and mapping of the regional RWH potential in the MENA region under the Regional Water Scarcity Initiative.

Anne van der Heijden

Is a Water Resources Consultant at Acacia Water. She is specialized in water resources assessments, IWRM, catchment hydrology, Nature Based Solutions, field surveys, GIS and remote sensing. She has six years of professional experience, especially in arid and semi-arid regions. Anne has a special interest in water scarcity, sustainability and capacity building. She is currently working on projects in Ethiopia, Kenya, Sudan and the Western Sahel region.

Jeanne Bazin

Is a Water Resources Specialist at Acacia Water, with a background in water systems modelling, climate adaptive water management, territorial development and agricultural transition. She is involved in desk and modelling studies, catchment assessments and intervention planning for water resources development and for decision support for IWRM and community resilience. She is currently working on projects in Angola, Kenya, Somalia, and the Western Sahel region.

Dr Pasquale Steduto

Holds an MSc in Water Science and a PhD in Soil-Plant-Water Relationships from the University of California in Davis. He has been working for more than 25 years on agricultural water use efficiency and water productivity, with a focus on crops water requirements, crop yield response to water and associate modeling development under water scarcity. During his career, Mr Steduto has served as: head of the Ecophysiology Laboratory at the CIHEAM; Chief of the Water Service and Regional Programmes Coordinator for the NENA Region at FAO; Chair of UN-Water; member of advisory committees for several International Institutions. He is presently an independent Senior Water Advisor. Authors of over 100 publications in scientific journals and books, Mr Steduto has been ranked in the top 1% of world's highly cited researcher in the 'Web of Science' for the year 2020.

Module 3: Mapping the Potential for RWH

M3/ Session 1: Technical and Socio-ecological Tools and Approaches for RWH Mapping and Upscaling

Date: 27th June, 2022

Time: 01:00 PM - 02:30 PM (GMT +2)

Time	Activity
01:00 – 01:05	**Welcoming Remarks** Introduction to the session objectives and speakers **Moderator: Domitille Vallée,** Project Manager, FAO Regional Office for Near East and North Africa
01:05 – 01:30	Presentation on **"A participatory GIS approach for assessing land suitability for rainwater harvesting in an arid rangeland environment"** By **Feras Ziadat,** Land and Water Officer, FAO Rome
01:30 – 01:55	Presentation on **"Estimating the global potential of water harvesting from successful cases"** By **Luigi Piemontese**, Researcher, University of Florence
01:55 – 02:25	Open Discussions – (Q&A's)
02:25 – 02:30	Conclusion & Wrap-up

Module 3: Mapping the Potential for RWH

M3/ Session 2: Exploring the potential for rainwater harvesting

Date: 12th July, 2022

Time: 01:00 PM - 02:30 PM (GMT +2)

Time	Activity
01:00 – 01:05	**Welcoming Remarks** Introduction to the session objectives and speakers **Moderator: Pasquale Steduto**, Senior Water Resources Management Expert, FAO
01:05 – 01:30	Presentation on **"A Web-based Tool to Map the Regional Water Harvesting Potential for MENA"** By **Ajit Govind**, Senior Scientist, ICARDA Egypt
01:30 – 01:55	Presentation on **"The Water Harvesting Explorer Tool - Decision support tool for small-scale water storage interventions in Western Sahel"** By **Anne van der Heijden** and **Jeanne Bazin**, Acacia Water
01:55 – 02:25	Open Discussions – (Q&A's)
02:25 – 02:30	Conclusion & Wrap-up

This activity is implemented within the regional project "Implementing the 2030 Agenda for water efficiency/productivity and water sustainability in NENA countries" under the umbrella of the Water Scarcity Initiative. This regional project is implemented by the Food and Agriculture Organization of the United Nations and funded by the Swedish International Development Cooperation Agency (SIDA).

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WATER
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in the Near East and North Africa countries