MIRRA

Methods for Irrigation and Agriculture

لتطوير أساليب الري والزراعة

NEWSLETTER

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TABLE OF CONTENTS

RESEARCH AND DEVELOPMENT

Rainwater Harvesting Preparations at the NUSTALGIC Project (Inspirational Site)

Picture 1: Excavation works underway to construct the new rainwater harvesting pond at MIRRA's Inspirational Site.

As MIRRA assumes the role of Jordan's Inspirational Site within the NUSTALGIC project, extensive preparations are underway to implement innovative and cost-effective rainwater harvesting technologies. These efforts aim to transform the farm into a hands-on learning hub where farmers, researchers, and stakeholders can observe, evaluate, and co-design solutions that enhance water availability and strengthen resilience in dryland farming systems.

As part of these preparations, MIRRA is implementing two key rainwater harvesting technologies: canals at the foot of natural slopes and pitting systems. These techniques blend ancestral hydro-knowledge with modern engineering to maximize the capture, retention, and infiltration of rainwater during limited precipitation events.

Canals guide surface runoff into storage tanks, while pitting basins enhance soil moisture and support groundwater recharge. These systems were selected for their simplicity, affordability, and high efficiency, making them accessible and suitable for local farmers.

To ensure successful deployment, MIRRA's field team initiated several preparatory activities:

Site Cleaning and Land Preparation

Clearing debris, leveling the land, and aligning natural slopes to ensure smooth water flow.

Mapping Natural Slopes and Water Pathways

Assessing site topography to identify runoff lines, low points, and optimal tank locations ensuring maximum water capture through the planned canals.

These efforts form the foundation for effective implementation and long-term system performance.

Once fully operational, the new rainwater harvesting systems are estimated to:

- Increase water availability by 20–25%
- Improve water-use efficiency by approximately 20%

Enhanced soil moisture will help reduce irrigation needs and improve crop resilience, enabling surrounding farming communities to better cope with climate stresses.

Picture 2: MIRRA's field team installing boundary poles and preparing the site for upcoming rainwater harvesting structures.

The increased water availability and improved soil moisture resulting from the new systems will directly support the cultivation of key Neglected and Underutilized Species (NUS), such as legumes, barley, and cochineal-resistant cactus.

These drought-tolerant crops, prioritized by the NUSTALGIC project, will be planted at the Inspirational Site to demonstrate their performance under climate-smart, water-efficient conditions. By showcasing how rainwater harvesting enhances NUS growth, the site will serve as a learning hub for farmers and encourage wider adoption of these resilient crops across surrounding communities.

As part of the NUSTALGIC DRy-farming system multi-actor Innovation Platforms (DRIPS) model, the site will host 20 primary demonstration farmers, each managing their own demo plot and serving as a knowledge hub within their community. Through monthly meetings, field visits, and learning activities, these farmers will help transfer newly acquired skills and technologies to around 300 secondary farmers, supporting wider adoption and long-term impact across the region.

Picture 3: Stages of preparing a rainwater harvesting pond, including cleaning, reshaping the site and preparing it.

Through these preparations, MIRRA is positioning its Inspirational Site as a regional model for climate-smart agriculture, demonstrating how modernized rainwater harvesting can strengthen dryland farming systems.

Picture 4: A closer view showing the water-harvesting pond.

YOUTH CAPACITY BUILDING

Highlighting MIRRA's 2025 Interns: A Year of Learning, Cultural Exchange, and Sustainable Development

Throughout 2025, MIRRA had the pleasure of hosting four outstanding interns. Each of them brought unique academic backgrounds, curiosity, and commitment to sustainability, making valuable contributions across our programs from research and fieldwork to communications and technical development.

Brenna Boldt

Joined MIRRA during her first visit to Jordan as part of her Arabic and regional studies program; focused on sustainable development and its impact on rural communities. Her engagement and commitment to improving her Arabic skills are truly commendable.

Desirae Krzeczkowski

An Environmental Engineering and Physics student from the University of Michigan, she was driven by interests in water security and sustainable food systems. Her work centered on Jordan's water challenges and MIRRA's balanced approach to technical and social needs, enhancing her understanding of irrigation systems and water policies.

Ulexus “Zeus” Spicer

Arrived in Jordan in summer 2025, engaged with MIRRA’s environment, and contributed to its digital presence. Focused on developing a webpage for MIRRA’s farm and improving user experience across the site while enhancing his knowledge in sustainability and communication through cultural immersion

Elizabeth McGillen

A student of International Economics and Sustainability at George Washington University, she joined MIRRA in the fall. Contributed through research, and bolstering the organization's online presence, particularly valuing the connection between research and practical farming needs while fostering her passion for sustainable agriculture and Jordanian culture.

A Year Marked by Growth and Collaboration

The four interns of 2025 brought diverse perspectives and academic strengths, contributing meaningfully to MIRRA’s initiatives. Their involvement reflected MIRRA’s commitment not only to advancing climate-smart agriculture, but also to fostering international exchange and capacity-building for emerging young professionals.

We are proud of everything they accomplished and grateful for the energy, curiosity, and creativity they brought to Jordan and to MIRRA.

Building Strong Community Partnerships: MIRRA's Engagement with Five Cooperatives in Mafraq under the NUSTALGIC Project

As part of MIRRA's work on the NUSTALGIC project in Jordan,

recent efforts focused on strengthening local partnerships to support resilient dry-farming systems and inclusive value chains in the Mafraq region. With Oxfam facilitating coordination and visit arrangements, the MIRRA team led technical discussions with five key cooperatives to build trust, present the project's goals, and explore collaboration opportunities that ensure broad community benefits.

Picture 1: Eng. Asma from Oxfam, and representatives of the Mossawah Cooperative, during the coordination meeting.

The cooperatives visited were: Nashmiyyat Ghadir Al-Teir Cooperative, Good Land Cooperative, Al-Zakeyyah Charity Cooperative, Mossawah Cooperative, and Al-Rabia Cooperative for Development. These community-rooted cooperatives share MIRRA's commitment to supporting local families, livelihoods, and socio-economic development, aligning strongly with the mission of the NUSTALGIC project.

Picture 2: Eng. Ammar from MIRRA, representatives from Oxfam and a representative from the Al-Rabia Cooperative for Development during the coordination meeting.

Purpose of the Visits

The visits aimed to build strong relationships with local cooperatives and present the NUSTALGIC project. MIRRA introduced the project's vision, upcoming activities, and discussed how cooperatives can support farmer outreach.

The team shared key project components, including resilient NUS crops, improved dry-farming practices, and water-harvesting solutions, as well as the focus on inclusive value chains for women and youth.

Picture 3: Eng. Ammar from MIRRA, and a representative from the Good Land during the coordination meeting.

The cooperatives were invited to become key partners in:

- identifying and reaching farmers
- sharing information about demonstration sites
- supporting the selection of primary and secondary farmers
- facilitating participation in training, field days, and DRIPS activities

Picture 4: Team MIRRA met with Ghadeer Al-Tair Cooperative, represented by Hameeda, Fatima, and Eng. Momen from Oxfam. The Left photo features Eng.Ammar from MIRRA with the Mayor of Umm Al-Jimal and a representative fromAl-Zakeyyah Charity Cooperative, strengthening partnerships for the NUSTALGIC project.

Outcome of the Engagement

The meetings were exceptionally positive, and all five cooperatives expressed:

- strong interest in collaborating with MIRRA
- full support in helping us reach local farmers
- a clear commitment to ensuring the project's benefits reach the people who need them most

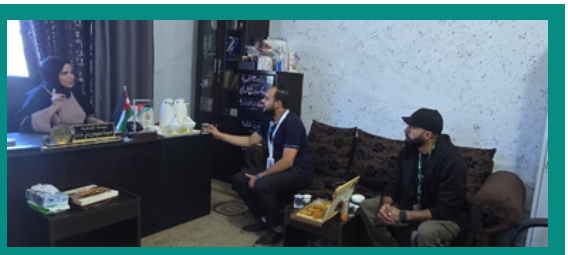
Their enthusiasm reinforces the project's approach: community-rooted partnerships are essential for creating impact, sustaining agricultural innovation, and ensuring that new dry-farming solutions are adopted and scaled across Mafraq.

Next Steps

In the coming months, MIRRA will continue working closely with these cooperatives as we begin:

- DRIPS demonstration planning
- future field days, recipe days, and training sessions
- farmer selection
- technical and social engagement activities

Picture 5: Eng. Momen from Oxfam, Eng. Ammar from MIRRA, and Mr. Mohammed Ali, head of Al-Zakeyyah Charity Cooperative, during an indoor meeting.



Picture 6: Eng. Momen from Oxfam, Eng. Ammar from MIRRA, and Ms. Hameda, the head of Nashmiyyat Ghadir Al-Teir Cooperative, during a coordination meeting.

These early partnerships set a strong foundation for successful implementation of NUSTALGIC in Jordan ensuring that innovation, resilience, and community benefit remain deeply connected.

OUTREACH AND AWARENESS

MIRRA's Participation in the Scientific and Career Day of the Geography Department at the University of Jordan

MIRRA participated in the Scientific and Career Day organized by the Geography Department at the University of Jordan, under the patronage of the Dean of the Faculty of Arts, Professor Dr. Mohammad Al-Qudah. The event was held under the theme: "Geography and Digital Transformation: Leveraging Technology and Artificial Intelligence for Sustainable Development and the Labor Market."

Picture 1: A look at the seminar sessions and MIRRA's interactive booth, where students engaged with us to learn more about our programs in sustainable agriculture, water efficiency, and training opportunities.

Eng. Sewar Saleh represented MIRRA during the event, where she engaged with students and introduced them to MIRRA's key programs. She highlighted the importance of volunteering as a pathway for gaining practical experience and building essential skills. MIRRA's participation also featured an information booth that facilitated direct dialogue with students and raised awareness about the role of technology and applied research in advancing the agriculture and water sectors. The event emphasized the value of MIRRA's partnerships with academic institutions and their crucial role in bridging education with labor-market needs to support sustainable development in Jordan.

MIRRA extends its gratitude to the Geography Department at the University of Jordan for the kind invitation and excellent organization. The association reaffirms its commitment to continuing its support for academic and community initiatives that empower the next generation of changemakers.

Picture 2: MIRRA received a certificate of appreciation for its participation in the Scientific and Career Day.

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