Final External Evaluation Report

Design and implementation of water harvesting practices and policy dialogue in Jordan 3Rs project (Recharge, Retention, and Reuse)

Final evaluation covering the period from 1 January 2022 to 30 Dec 2025

Donor: Embassy of the Kingdom of the Netherlands (EKN)
Implementers: INWRDAM, IHE Delft, Acacia Water
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Disclaimer

This final external evaluation was commissioned by the Inter-Islamic Network on Water Resources Development and Management (INWRDAM), that is funded by the Embassy of the Kingdom of the Netherlands in Jordan. It was conducted independently by an external evaluation team in accordance with the Terms of Reference for the period 1 January 2022 to 30 December 2025. The role of INWRDAM, consortium partners (IHE Delft Institute for Water Education and Acacia Water), and the Embassy was limited to coordination, facilitation, and quality assurance of the evaluation process. They did not influence the findings, analysis, conclusions, or recommendations presented in this report.

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The views expressed in this report are those of the independent evaluation team and do not necessarily reflect the official policies or positions of the donor, implementing agencies, government institutions, or stakeholders referenced.

List of Abbreviations

Acronym	Definition
EKN	Embassy of the Kingdom of the Netherlands
INWRDAM	Inter-Islamic Network on Water Resource Development and Management
KIIs	Key Informant Interviews
FGDs	Focus Group Discussions
OECD-DAC	Organization for Economic Co-operation and Development - Development Assistance Committee
MoWI	Ministry of Water and Irrigation
MoA	Ministry of Agriculture
JVA	Jordan Valley Authority
HBBs	Home-Based Businesses
SDC	Smart Desert Company
MoEnv	Ministry of Environment
MoU	Memorandum of Understanding
PPP	Public-Private Partnerships
O&M	Operation and Maintenance
MACS	Multi-Annual Country Strategy
RWH	Rainwater Harvesting
NBS	Nature-Based Solutions

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Executive Summary

This final evaluation assesses the performance of the 3Rs Project (Recharge, Retention, and Reuse) over the period 2022-2025. Implemented by the Inter-Islamic Network on Water Resources Development and Management (INWRDAM), IHE Delft, and Acacia Water with support from the Embassy of the Kingdom of the Netherlands, the project aims to strengthen Jordan's water security and climate resilience through integrated recharge, retention, and reuse interventions.

Transformation Pathway: "From Activities to Impact". The 3Rs Project built resilience through a clear chain linking inputs, outputs, outcomes, and long-term impact. The project constructed 90 hydrological structures within 32 sites and facilitated multi-stakeholder policy dialogues, which led to tangible outcomes. Training, partnerships, and structured capacity-building programs strengthened institutional systems and knowledge networks across national and local levels. Participatory community engagement approaches transformed fragmentation into trust and ownership, ensuring sustainability of interventions. Together, these actions culminated in enhanced national water security and climate resilience, validating the project's Theory of Change that local innovation can drive systemic transformation.

> *"Through the 3Rs Project, Jordan has transformed water harvesting into a national priority, anchored in inclusivity and evidence. With the adoption of the Women and Youth Empowerment Strategy and the institutionalization of the National Water Harvesting Dialogue, we are paving the way for a resilient water sector by 2027 and beyond."*
> *— H.E Engineer Raed Muzaffar Rifaat Abu Al-Saud, Minister of Water and Irrigation.*

The project's three target regions: Azraq, Mafraq, and the North Jordan Valley (NJV).[1] It also integrates critical Nature-Based Solutions (NBS) and supports sustainable livelihoods through water reuse innovations targeting 2.0 MCM harvesting water capacities.

- ***Azraq***: Flood-prone arid basin prioritized for recharge and flood mitigation***.***
- ***Mafraq:*** Semi-arid agricultural zone supporting host and refugee communities through livelihood restoration.
- ***North Jordan Valley (NJV):*** Fertile valley facing erosion and water stress, ideal for piloting Nature-Based Solutions (NBS) in intensive farming.

Together, these regions provide a nationally representative model integrating 2.0 MCM of water harvesting capacity, NBS innovations, and sustainable livelihoods that strengthen Jordan's resilience to climate and water scarcity.

Verified Impacts (Based on OECD-DAC Evaluation Criteria). This final evaluation confirms that the 3Rs Project was both strategically relevant and contextually responsive to Jordan's national priorities and the needs of its target communities. Its design and implementation were fully aligned with the National Water Strategy (2023-2024), the Food Security Strategy *(2021-2030),* and the Netherlands Multi-Annual Country Strategy (2023–2026), ensuring that interventions were not only technically sound but also policy-driven and locally owned. By directly addressing pressing challenges such as groundwater depletion, drought adaptation, and livelihood insecurity, the project positioned itself as a cornerstone in Jordan's evolving approach to climate resilience.

[1] All conceptual and detailed designs have been completed in the target regions: Azraq (15), Mafraq (20), JVN (10).

The evaluation confirms that the 3Rs Project's progress and achievements were assessed using a clear and verifiable set of **project-specific outcome indicators**, as outlined in **Annex A** (*Summary of Key Project-Specific Outcome Indicators vs. Achieved Results, as of November 2025).* These indicators formed the foundation for measuring technical progress, institutional strengthening, and social impact across all components of the project. Performance was reviewed against the original Terms of Reference (TOR) targets, allowing the evaluation team to determine whether results were achieved, exceeded, or remained in progress. Across nearly all indicators, the project demonstrated strong delivery, often surpassing expectations. Measurement relied on engineering validation, administrative records, GIS databases, training attendance sheets, policy documentation, and field verification. ***In terms of effectiveness, the project demonstrated outstanding performance achieving more than 80 percent of its planned outputs and exceeding 15 percent of its original targets. An additional 5 percent of outputs remain underway and are expected to be completed in the near term. In terms of effectiveness***. These results highlight the project's strong delivery capacity, effective implementation approach, and the soundness of its performance monitoring and results measurement framework.

Municipalities, government institutions, and community organizations expressed strong interest in replicating the 3Rs approach, recognizing its tangible benefits and adaptability to different ecological settings. The interventions ranging from hydrological infrastructure to cooperative-led livelihood initiatives demonstrated how technical measures can translate into real socio-economic gains when anchored in local ownership.

The project also excelled in efficiency, applying adaptive management practices and cost-effective nature-based solutions (NBS) to maximize results within budget and timeframe. By utilizing local materials, mobilizing community labor, and integrating renewable energy systems such as solar irrigation, the project maintained a strong value-for-money ratio.

From an impact perspective, the 3Rs Project generated both immediate and systemic change. It improved aquifer recharge and soil productivity, diversified rural livelihoods, and fostered institutional coordination across ministries and municipalities. Beyond its technical outputs, the project influenced national water policy by contributing to the development of Jordan's first National 3Rs Guidelines, embedding water harvesting and reuse into the country's broader resilience framework. ***The 3Rs Project transformed rainwater harvesting (RWH) from a technical intervention into a national movement for climate resilience and inclusive development proving that locally driven solutions can catalyze national change.***

Sustainability emerged as one of the project's defining strengths. Sustainability emerged as one of the project's defining strengths. Community ownership was institutionalized through cooperatives, women-led enterprises, and youth entrepreneurship programs that support continuity beyond donor engagement. ***In parallel, ministries and local authorities integrated 3Rs principles into operational frameworks, embedding project approaches into long-term planning and national strategies.***

The project demonstrated strong coherence and complementarity with other national and donor-funded initiatives, fostering cross-learning, knowledge sharing, and programmatic synergies. This ensured that the 3Rs model reinforced rather than duplicated broader national efforts to strengthen water and climate resilience.

Looking ahead, formalizing clear exit and financing strategies will be essential to ensure that the benefits achieved to date are protected, expanded, and fully transitioned to national ownership.

Cross-Cutting Achievements*.** Across all components, the 3Rs Project achieved significant cross-cutting results that reinforced its technical and social impact. Through the application of NBS, such as terraces, bunds, and *hafirs*, the project successfully rehabilitated degraded lands, reduced erosion, and improved flood protection. A particularly noteworthy case is Azraq, where the 3Rs interventions have measurably reduced the frequency and severity of seasonal flooding that historically caused extensive damage to roads, farms, and community assets. The construction of check dams, leaky dams, and hafirs in upstream wadis (such as Al-Ratam and Hassan) has significantly slowed runoff and improved groundwater infiltration. ***Local observations and ministry monitoring data indicate that these measures have lowered peak flood intensity, reduced sediment flow, and protected downstream communities from flash-flood risks.

Beyond flood mitigation, the Azraq model demonstrates the multi-benefit nature of NBS enhancing water availability for farmers, improving rangeland vegetation, and contributing to aquifer recharge. The visible transformation in Azraq's landscape has positioned it as a replicable national model for integrated water and land management under climate stress.

To further consolidate these outcomes, the Ministry of Water and Irrigation in collaboration with INWRDAM and key stakeholders adopted and scaled the 3Rs approach through the ***national dialogue on water harvesting and resilience planning***. This dialogue informed national guidelines and policy frameworks, ensuring the institutionalization and sustainability of the project's methodologies across Jordan.

A major achievement was the project's contribution to gender and youth empowerment. Women and young people accounted for nearly half of all training participants and job beneficiaries. Many women assumed leadership roles within newly established cooperatives, managing water-efficient greenhouse based HBBs, nurseries, and hydroponic systems. These initiatives demonstrated how inclusive design can transform beneficiaries into agents of change and ensure equitable participation in water governance.

The project also bridged a long-standing gap between academia and policy, transforming universities into active partners in applied research and innovation. The Muwaqqar National Training and Research Hub and Balqa Applied University hub emerged as living laboratories where students, municipal engineers, and researchers collaborated on data collection, field experimentation, and policy analysis turning theoretical learning into practical application.

Digital transformation further amplified the project's reach and transparency. The introduction of GIS-based dashboards, real-time climate monitoring stations, and NDWI (Normalized Difference Water Index) sensors enabled data-driven decision-making and continuous monitoring of water harvesting structures. These digital tools enhanced institutional accountability, fostered evidence-based management, and positioned the 3Rs Project as a model for modern, technology-enabled water governance.

A key recommendation emerging from this evaluation is the critical need for the 3Rs program to invest in a more robust administrative and operational capacity to sustain and scale its achievements. To transition from a successful pilot phase to a fully institutionalized national-level program, the program must enhance its core functions, particularly in monitoring and evaluation (M&E), strategic and internal communications, and donor relations. This will require a deliberate shift in future budget proposals to include greater spending on administrative and overhead lines. Such an investment is essential to support the recruitment of dedicated staff for M&E, communications, and operations. ***Furthermore, the program should strongly consider establishing a new leadership position, such as a deputy director, to oversee these critical support functions and ensure long-term operational excellence.***

Progress and Achievements

The 3Rs Project has achieved a measurable transformation in the way RWH is perceived, implemented, and institutionalized in Jordan. Guided by its Theory of Change, the project demonstrated that water management interventions can serve as powerful entry points for advancing climate resilience, local livelihoods, and inclusive governance. By integrating technical infrastructure with socio-economic empowerment and institutional capacity building, the project created a holistic model that links water security with sustainable development outcomes.

At its core, the project addressed two of Jordan's most pressing challenges, water scarcity and climate vulnerability, through practical, community-based solutions. Over the implementation period, ***more than 2.1 million cubic meters (MCM) of rainwater*** were harvested across ***32 sites*** through a combination of check dams, ponds, terraces, and hafirs. These interventions directly benefited ***176 farmers***, **87,000 livestock,** irrigated approximately ***70,000 trees and protected nearly 12,000*** residents from flood risks. The infrastructure investments were complemented by capacity-building and livelihood initiatives, ensuring that technical progress was matched by human and institutional development. In parallel, the 3Rs Project became ***a catalyst for local economic empowerment. It created over 280 employment opportunities,*** including **80** cash-for-work (CFW) positions, ***45-50 home-based businesses (HBB),*** and ***35 technical and maintenance jobs****, with a deliberate emphasis on inclusion:* ***40 percent*** *of beneficiaries were women, and* ***45 percent*** *were youth*. These employment pathways not only provided income during implementation but also helped build long-term skills in water management, entrepreneurship, and agricultural innovation.

The project's success also lies in how it operationalized its Theory of Change, translating its logical framework into real-world outcomes. Each component, whether infrastructure, capacity building, or policy dialogue, was designed to reinforce the others. The project's Recharge, Retention, and Reuse interventions strengthened water systems, while its training and institutional engagement created an enabling environment for sustainability and replication. This interconnected approach validated the project's underlying assumption: that addressing water challenges requires an integrated model linking physical resilience, institutional coordination, and community ownership.

These achievements collectively demonstrate that ***the 3Rs Project not only met but exceeded its 2025 performance targets, producing sustained impact across environmental, economic, and social dimensions.*** *See figure 1, also refer to annex A for Summary of Key Project-Specific Outcome Indicators vs. Achieved Results (as of November 2025).*

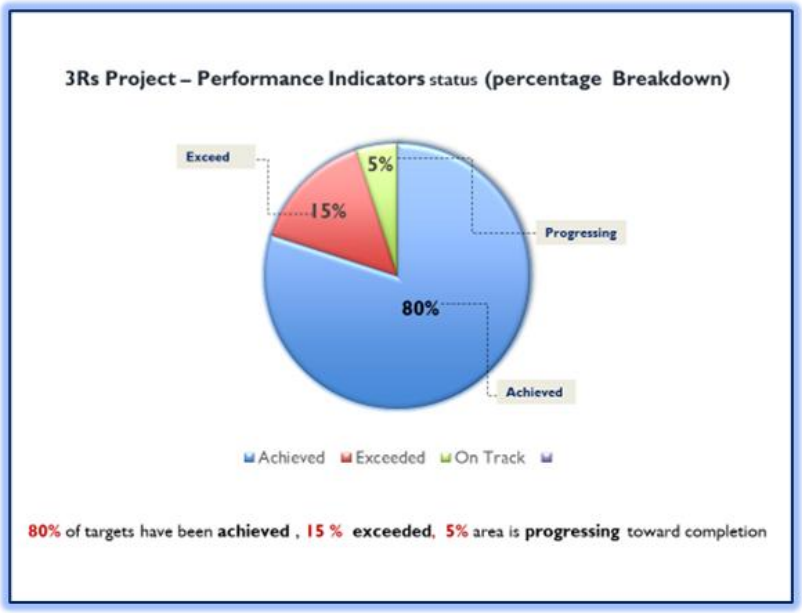


Figure 1: 3Rs Project indicators progress

Environmentally, it contributed to water and ecosystem resilience by

replenishing aquifers, reducing land degradation, and protecting against floods. It generated jobs, supported climate-smart livelihoods, and enhanced productivity in rural communities. It promoted inclusion by engaging women, youth, and local cooperatives as active partners in water governance.

This evaluation confirms that the project's outcomes are grounded in solid evidence drawn from multiple sources, including the Mid-Term Evaluation (February 2024), the 2024 Annual Progress Report, and the 2025 Work Plan. Additional data was triangulated through stakeholder consultations with government entities, municipal representatives, farmers, women's groups, youth organizations, and academic institutions. Together, these sources provide a comprehensive and credible foundation for assessing the project's performance and lessons learned, ensuring that findings reflect both quantitative achievements and qualitative transformations observed in the field.

Ultimately, ***the 3Rs Project stands as a proof of concept that Jordan's water crisis can be addressed through integrated, inclusive, and adaptive approaches.*** Its success underscores the importance of combining local innovation with institutional alignment and transforming RWH from a technical intervention into a national model for climate resilience and sustainable development.

Achievements at a Glance (2022–2025)

The evaluation team found that the 3Rs Project achieved substantial and measurable progress in advancing water security, livelihood development, and institutional coordination across Jordan. Over its three-year implementation period, the project delivered a combination of technical infrastructure, capacity building, and policy reform that together created a model for integrated and sustainable water resource management.

Environmental and Infrastructure Achievements. The 3Rs Project transformed Jordan's arid landscapes into demonstrations of NBS. Across 32 validated sites in Azraq, Mafraq, and the North Jordan Valley, over **2.1 millio**n cubic meters MCM of rainwater were harvested water that once drained away or caused destructive floods.

Through soil *bunds*, and semi-circular terraces, more than 400 hectares of degraded land were rehabilitated, curbing erosion, and restoring pasture. Over 70,000 trees were revived, while 12,000 residents gained direct protection from seasonal floods through newly constructed *hafayer* and desert ponds.

In Azraq, nature-based flood-mitigation and recharge structures retain approximately 400,000 m^3 of floodwater annually, enhancing groundwater availability and reviving more than 10,000 trees**.** and reviving more than 10,000 trees. These interventions now protect around 6,000 residents from recurrent seasonal flood risks.

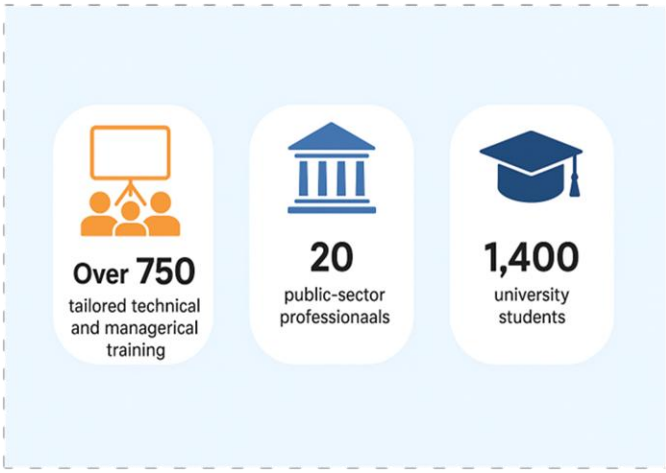
In Mafraq, 20 water harvesting structures providing 0.5 MCM of recharge capacity, together with three slope-management systems, have stabilized erosion-prone lands and strengthened agricultural productivity for both host and refugee communities. The rehabilitation of trees is further improving soil moisture retention and ecosystem resilience.

In the Northern Jordan Valley, five of eight water harvesting interventions were completed by late 2024, with the remaining sites on track for 2025 finalization. These structures are building a replicable national model of climate-resilient water infrastructure that safeguards agricultural livelihoods in Jordan's most productive farming corridor.

Livelihoods and Economic Empowerment. The project's environmental impact translated directly into new economic opportunities. Through 20 hydroponic HBBs, women and youth turned innovation into income, creating around 15 permanent jobs across underserved communities. Half of the HBB units are operated by women, and all include active youth participation, strengthening inclusive entrepreneurship. Smart irrigation technologies improved water-use efficiency by an estimated 30%, while solar energy integration reduced operating costs by 40%, enhancing profitability and sustainability.

At the heart of this success stands the Sama Al-Sarhan Cooperative, now recognized nationally as a model for community-driven, climate-smart agriculture. It demonstrates how rainwater harvesting, solar energy, and hydroponic production can translate environmental gains into sustained livelihoods. The initiative has strengthened local ownership and created inclusive micro-agribusiness opportunities for women and youth, offering a replicable pathway for rural economic growth across Jordan.

Capacity Building and Knowledge Transfer. The project's human-capital legacy is equally significant. ***Over 750 tailored technical and managerial training***, farmers, women, youth, students and government staff received tailored technical and managerial training. ***Twenty public-sector professionals*** underwent extended on-the-job mentoring in water governance, while ***1,400 university students*** engaged through field visits, lectures, and youth exchanges that bridged science and practice. *See **annex B** for Summary of 3Rs Project Training and Capacity Building Activities (2022–2025).*



The Eco-Female Journalism Initiative trained six women journalists, amplifying environmental awareness through national media. To sustain technical learning, the project established three National Training Centers: Muwaqqar Station, focusing on flood mitigation and groundwater recharge; the Sama Al-Sarhan Smart Site, a solar-powered hydroponic hub and rainwater usage; and Princess Tasneem Station at Balqa University, dedicated to climate-smart agriculture. Together, these centers institutionalize knowledge transfer and create a long-term learning ecosystem for Jordan's water sector.

Policy, Institutional, and Knowledge Achievements. Policy reform and institutional engagement were at the heart of scaling the 3Rs model. The National Youth and Women Empowerment Strategy (2025-2028), formally adopted by the Ministry of Water and Irrigation (MoWI), stands as a landmark integrating gender and youth inclusion into water governance.

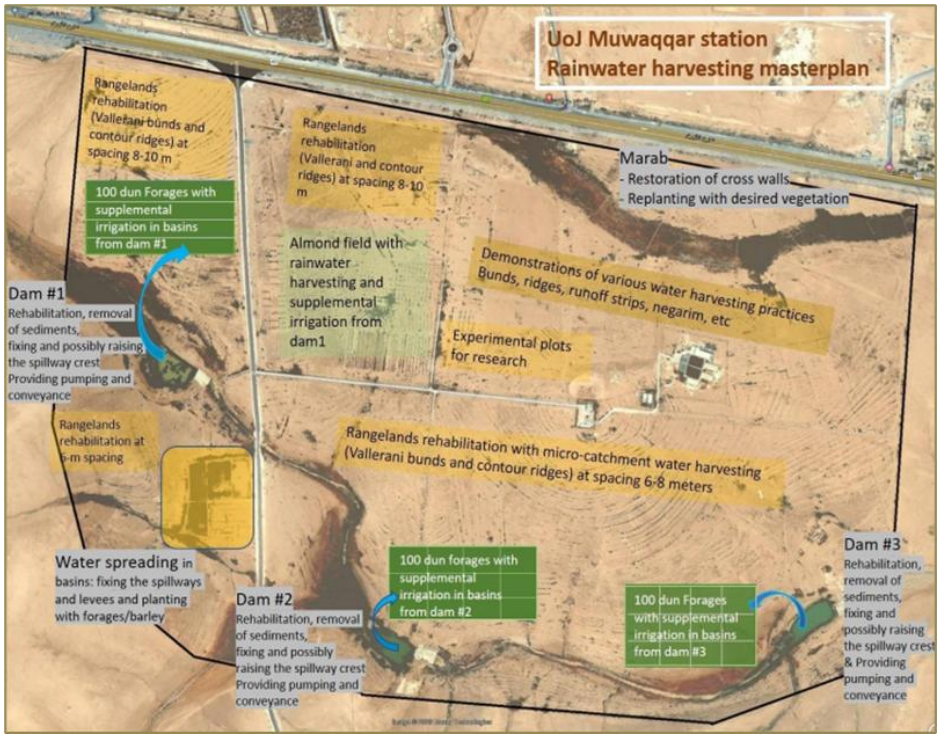


Figure 2: Al-Muwaqqar Research Station land use map

A centralized geodatabase now integrates geographic information system (GIS) maps, hydrological data, and engineering designs across 32 sites, while a ***knowledge hub an d media lab currently 75-80 percent completed,*** serves as a bridge between research, policy, and community practice (*see figure 2 for Al-Muwaqqar Research Station land use map*). The Third National Water-Harvesting Policy Dialogue further advanced cross-sectoral collaboration and policy coherence.[2]

The project also supported the drafting of Jordan's first National Water-Harvesting Guidelines and a 10-Year Strategy Framework, establishing clear standards for replication. Through these achievements, INWRDAM solidified its national role, becoming a permanent member of four key committees, including the National Water-Harvesting Committee and the 10 Million Trees by 2030 Initiative.

Social and Gender Impact. Perhaps the project's most profound transformation lies in the social realm. Women and youth emerged as visible actors in water governance and climate-smart agriculture, moving from peripheral involvement to decision-making and leadership. Communities that once perceived rain as a threat now view it as an economic and ecological resource.

In Azraq and Sama Al-Sarhan, improved flood management shifted mindsets from reactive crisis response to preventive planning. The project also dismantled resistance to water harvesting, embedding a culture of collective responsibility and local innovation. This behavioral shift (grounded in empowerment and trust) may prove to be the project's most sustainable outcome.

Partnerships and Donor Collaboration. The 3Rs Project exemplifies how multi-level partnerships translate innovation into impact. Funded by the Embassy of the Kingdom of the Netherlands and implemented by INWRDAM in partnership with IHE Delft and Acacia Water, the project operated collaboratively with MoWI,

[2] The "Al-Muwaqqar Research Station Initiative" aims to address the issue of the sustainability of natural resources in the dry areas of the Jordanian Badia region as a model for land restoration in other parts of the region.

MoA, JVA, the universities of Jordan and Balqa, municipalities, and community-based organizations. This synergy not only ensured effective delivery but also strengthened water diplomacy, embedding participatory methods within Jordan's national frameworks.

Sustainability and Future Outlook. Sustainability was woven into every intervention. The project invested in durable, low-maintenance nature-based structures and developed an exit strategy centered on cooperative management and private-sector engagement, most notably in Sama Al-Sarhan's agribusiness model.

A comprehensive sustainability plan now integrates capacity development, financial viability, and institutional coordination to secure long-term results.

Looking ahead, priorities include institutionalizing local Early Warning Systems (EWS), replicating successful water-harvesting models in new basins, and operationalizing the National Knowledge Hub to ensure that learning, innovation, and scaling continue well beyond the project's lifetime.

Overall Quantitative Achievements (2022–2025)

In quantitative terms, the 3Rs Project exceeded expectations in almost every performance domain resulting in a measurable shift toward resilience, participation, and national ownership. The metrics reflect not just outputs delivered, but the cumulative effect of a program that connected infrastructure with livelihoods, capacity with confidence, and local action with national vision.

- ***Water Harvested***: Over 2.1 MCM of rainwater harvested across multiple sites Amman, Azraq, Mafraq, North Jordan Valley, enhancing recharge, flood control, and agricultural use.
- ***Farmers Supported:*** 176 farmers directly benefited through improved irrigation systems, hydroponics, and water-harvesting structures, enabling better yields and reduced water dependency.

- ***Jobs Created:*** 280 employment opportunities generated (permanent and temporary) across construction, community engagement, and cooperative operations. This includes on-site works, training facilitation, and green enterprise support. *See **Annex C** for more information on Jobs created under the 3Rs Project (2022–2025).*
- ***Cash-for-Work & Local Economic Development:*** 80 cash-for-work (CFW) positions. Approximately 150-180 individuals engaged in short-term employment during construction and maintenance phases. 46 percent were women. The scheme provided immediate income support, built technical skills, and strengthened ownership of local assets.
- ***Tree Coverage:*** 70,000 trees planted or sustained through harvested rainwater and soil conservation interventions, reducing erosion and restoring biodiversity.
- ***Livestock Served:*** 87,000 livestock (mainly sheep and goats) benefited from enhanced water availability and improved grazing conditions.
- ***Communities Protected from Floods***: Around 12,000 inhabitants safeguarded through improved flood management systems, including hafayer, desert ponds, and stone barriers.
- ***CO_2 Emission Reduction:*** Approximately 24 3,000 tons of CO_2 saved through integration of renewable energy (solar irrigation) and nature-based infrastructure.
- ***Training Reach:*** Over 500 students and trainees annually engaged in academic and community-based learning on water harvesting and climate adaptation.
- ***Training Events Conducted:*** 60+ trainings and workshops held between 2022-2025, reaching 1,500 participants (farmers, youth, women, municipal engineers).

Before and After Project Interventions: Challenges and Solutions

The evaluation team found that the 3Rs Project effectively addressed long-standing and systemic challenges in Jordan's water, agricultural, and institutional landscape. *Prior to the intervention, the sector was characterized by fragmented institutional mandates, overstressed aquifers, and limited community engagement*. Jordan lacked a unified or operational framework for RWH, and coordination among ministries, municipalities, and academic institutions remained weak. Most actors worked in isolation, with overlapping roles and minimal data sharing.

The team observed that farmers, particularly women and youth, faced multiple and interrelated barriers to participation in water and agricultural initiatives. High unemployment, low access to financing and markets,

and recurrent drought cycles constrained productivity and income generation. *Furthermore, the evaluation noted widespread community skepticism toward externally driven projects, largely due to past experiences when interventions were implemented without adequate local consultation or sustained support*.

Against this background, the 3Rs Project introduced a coordinated and multi-dimensional model that combined infrastructure development, capacity building, and policy reform within a single integrated framework. *According to the evaluation team's field observations in Mafraq, Azraq, Muwaqqar, and the Jordan Valley, the project's technical interventions such as check dams, retention ponds, terraces, hafirs, and climate-smart greenhouses were appropriately designed to meet local hydrological, and livelihood needs*. These investments were complemented by a focus on capacity development, with over 145 practitioners trained in water harvesting design, monitoring, and management, ensuring that technical knowledge was institutionalized within local and national systems.

Evaluation findings underscore that participatory approaches-built trust and accountability, while low-cost nature-based solutions proved both effective and scalable. The project's academia policy partnerships enhanced research relevance and technical legitimacy, and early investment in institutional mechanisms for sustainability, including cooperative governance and ministry adoption has positioned the model for continued expansion. Importantly, the project's participatory and consultative approach succeeded in bringing together over 200 stakeholders from government ministries, municipalities, universities, cooperatives, and community-based organizations. *The evaluation team confirmed that this inclusive process fostered dialogue, mutual learning, and shared ownership features largely absent in earlier initiatives*. The collaborative drafting of Jordan's first National 3Rs Guidelines, now fully aligned with the National Water Strategy (2023-2040), was identified as one of the project's most significant policy-level achievements. The guidelines provide a clear roadmap for mainstreaming RWH and reuse into national planning and budgeting frameworks.

This transformation represents a major shift in how water management is conducted in Jordan. *The project effectively converted institutional fragmentation into policy coherence, community mistrust into active participation, and used successful pilot initiatives to create a nationally endorsed model for sustainable water and livelihood resilience*. The evaluation team highlighted that the project's success was not only technical but also institutional and cultural demonstrating how coordinated, locally grounded action can generate systemic impact.

Overall, the evaluation concludes that the 3Rs Project has contributed meaningfully to redefining the water governance landscape in Jordan. By embedding community engagement, policy alignment, and inter-agency collaboration into a single operational model, the project has laid the groundwork for long-term sustainability and national replication. The evaluators also noted, however, that maintaining this progress will require continued institutional commitment, adequate financing, and the scaling-up of local capacity mechanisms established during the project period.

The table below outlines the key challenges before the project and the solutions introduced through its interventions:

Dimension	Before the 3Rs Project	After the 3Rs Project (Evaluation Team Observations)
Water Management and Infrastructure	RWH was fragmented and largely uncoordinated. Groundwater over-extraction stressed aquifers, and no unified framework guided national implementation.	The project constructed 90 hydrological structures (check dams, *hafirs*, ponds, and terraces)within 32 sites, harvesting over 2.1 MCM of water. These interventions recharged aquifers, reduced flood risks, and demonstrated scalable, NBS aligned with national water strategy.
Institutional Coordination	Ministries, municipalities, and universities worked in silos, with limited collaboration or data sharing. Policies were inconsistent and lacked harmonization.	The evaluation team observed a marked improvement in inter-agency coordination, with over 200 stakeholders engaged in developing the National 3Rs Guidelines, officially endorsed and aligned with the Water Strategy 2023-2040. Institutional dialogue and joint planning became more structured and inclusive.
Community Engagement Trust	Communities were skeptical of previous water projects due to limited consultation and perceived top-down implementation. Local ownership was weak.	The project's participatory planning and inclusive consultations-built trust and ownership among local farmers and cooperatives. The evaluation team noted strong community endorsement in sites such as Sama Al-Sarhan and Azraq, where residents actively maintain water structures and advocate for project replication.
Economic Inclusion and Livelihoods	High unemployment among women and youth limited economic participation in the water and agriculture sectors. Market linkages were weak or non-existent.	The project created over 280 employment opportunities, including HBBs, CFW, and technical roles, with 40 percent women and 45 percent youth participation. Evaluators confirmed that these activities diversified household incomes and demonstrated viable models for climate-smart livelihoods.
Policy Framework and Knowledge Systems	No dedicated national policy or operational framework existed for RWH and reuse. Universities focused on theory rather than applied field research.	The evaluation team verified that the project produced Jordan's first National 3Rs Guidelines, bridging research, policy, and practice. The establishment of Muwaqqar and Balqa hubs linked universities to field implementation, strengthening applied research and data-driven decision-making.

Project Background

Jordan continues to face acute groundwater depletion and increasing climate-induced stress on its limited water resources. In response, the 3Rs Project implemented by INWRDAM in partnership with IHE Delft and Acacia Water and funded by the Embassy of the Kingdom of the Netherlands was designed to demonstrate how integrated Recharge, Retention, and Reuse (3Rs) approaches can strengthen water security, economic resilience, and social inclusion at scale. ***The project's overarching goal has been to operationalize the 3Rs approach as a practical model for climate adaptation and local development, linking technical water interventions with livelihood generation, policy reform, and institutional capacity building.***

The project aimed to move beyond fragmented interventions toward a coherent national framework for sustainable RWH. Its design combined technical innovation, policy reform, and capacity development to bridge the gap between field-level implementation and national-level policy change.

It specifically aimed to increase awareness of the strategic role of RWH in achieving water security for Jordan, while equipping both decision-makers and communities to engage in national dialogue, policy formulation, and hands-on implementation. The 3Rs Project aligns directly with the Netherlands Multi-Annual Country Strategy (MACS) 2023–2026, which prioritizes water and climate resilience, economic inclusion, and human rights. It also supports the objectives of Jordan's National Water Strategy 2023-2024, reinforcing national efforts to achieve water balance and strengthen climate adaptation.

3Rs Project Overview

The Design and Implementation of Water Harvesting Practices and Policy Dialogue in Jordan commonly referred to as the 3Rs Project (Retention, Recharge, Reuse) is a flagship cooperation initiative between the Government of Jordan and the Government of the Netherlands. The project is funded by the Embassy of the Kingdom of the Netherlands (EKN) in Amman and directly supports national water security, climate resilience, and socio-economic empowerment objectives.

The project is jointly implemented by INWRDAM, the IHE Delft Institute for Water Education, and Acacia Water, in close coordination with the Ministry of Water and Irrigation (MoWI), the Jordan Valley Authority (JVA), and the Ministry of Agriculture (MoA).

3Rs Implementation Framework

The project's consortium leverages complementary strengths to ensure a robust, evidence-based, and scalable model for rainwater harvesting in Jordan:

- **INWRDAM**. Leads national coordination and policy dialogue; manages implementation, stakeholder engagement, and knowledge transfer.
- **IHE Delft**. Supports applied research, capacity strengthening, and technical backstopping, particularly for monitoring, evaluation, and digital tools.
- **Acacia Water**. Provides hydrological and geotechnical expertise in site selection, system design, flood mitigation modelling, and recharge optimization.

Working together with Jordanian government institutions, the consortium ensures that all interventions are technically sound, climate-smart, socially inclusive, and directly aligned with **Jordan's National Water Strategy (2023–2040)** and Dutch MACS cooperation priorities.

Theory of Change and Results Framework

The project's Theory of Change (ToC) was built on a simple premise: that sustainable water security and climate resilience require the integration of infrastructure, governance, and policy. The ToC emphasizes that technical interventions must be supported by institutional capacity and empowered stakeholders to achieve lasting impact. *See **figure 3** for INWRDAM's Theory of Change*.

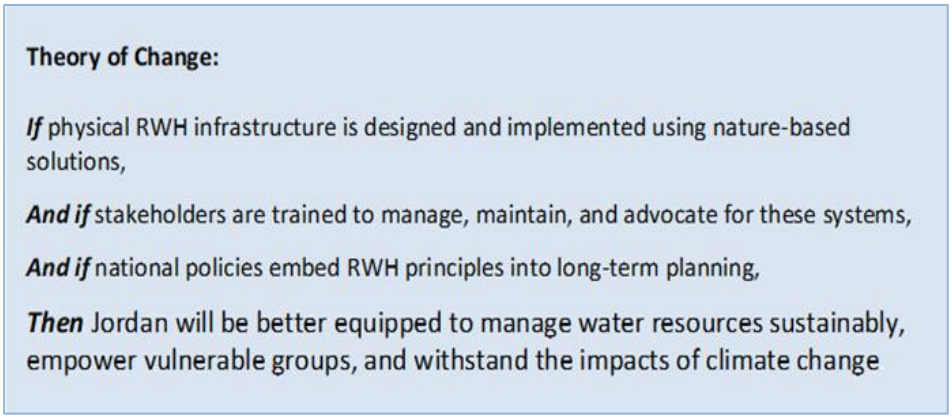


Figure 3: INWRDAM's Theory of Change *(TOC).*

To translate this vision into practice, the project operationalized its ToC through:

- Deployment of NBS: construction of check dams, *hafirs*, and leaky structures to enhance water recharge and flood protection.
- Launch of a Youth and Women Empowerment Strategy: promoting gender equity and inclusion in the water sector.
- Development of hydroponic HBBs in Sama Al-Sarhan, linking water-efficient agriculture to local livelihoods.
- Capacity-building, fostering technical independence and ownership across ministries, municipalities, and universities.

The results framework expands on the theory of change. It assumes that sustainable water security and climate resilience can only be achieved when nature-based water harvesting infrastructure is combined with empowered stakeholders and supportive policies. At the Goal (or impact) level, the framework aims to enhance Jordan's national water security and resilience to climate change. *This is achieved through four interlinked Outcomes: the expansion of water harvesting infrastructure, strengthened institutional and community capacities, integration of 3Rs principles into policies, and the institutionalization of knowledge and monitoring systems.*

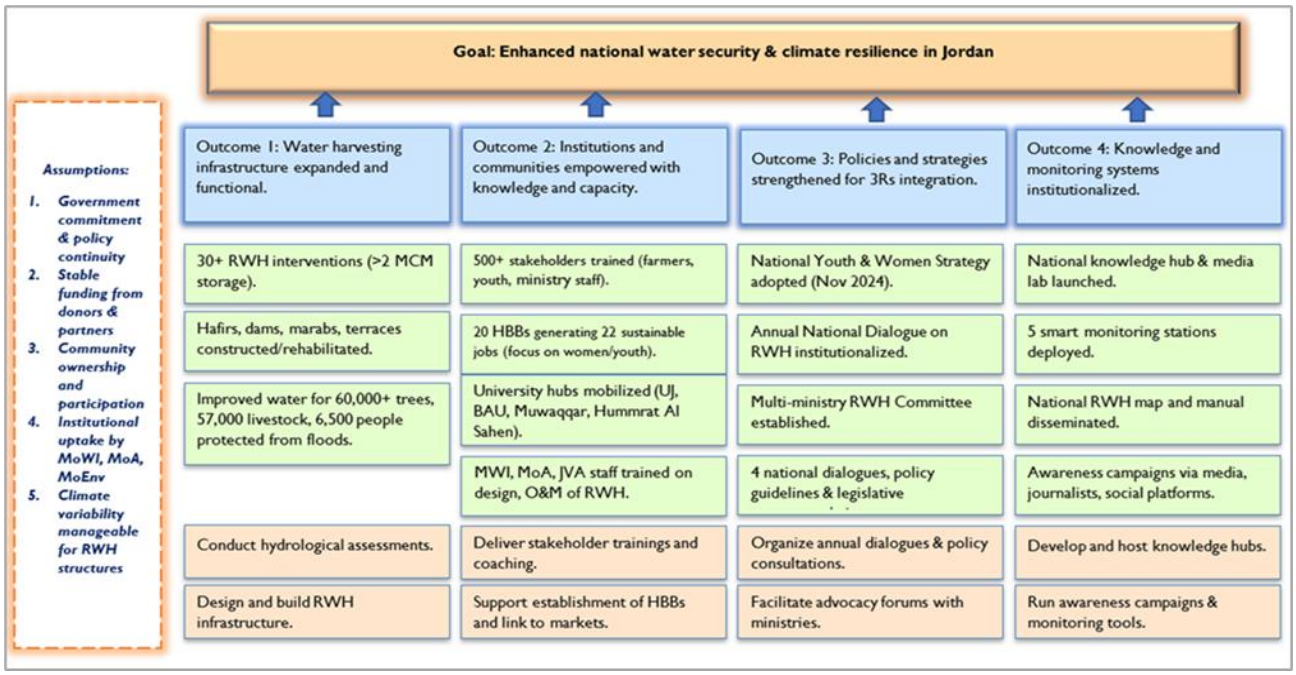


Figure 4: The 3Rs Project's Results Framework

Gold/Orange	Overall Goal	Impact	"Enhanced water security and climate resilience"
Blue	Outcomes	Intermediate Results	"Institutions empowered," "Policies strengthened"
Green	Outputs	Direct Results	"90 RWH structures built,"
Light Orange	Activities	Implementation Actions	"Conduct hydrological assessments," "Organize policy dialogues"
Orange Outline	Assumptions	External Enablers	"Government commitment," "Community participation"

How the 3Rs Project Achieved Change

The evaluation team found that the project advanced resilience through a well-structured and results-driven implementation model. Activities including the construction of 90 water harvesting structures, and facilitation of multi-stakeholder policy dialogues produced tangible outputs that translated directly into systemic outcomes. Key achievements included: Expanding infrastructure for water recharge, retention, and reuse, strengthening institutions and local capacities in water governance, integrating cross-sectoral policies linking municipal and national actors, institutionalizing knowledge systems through the establishment of academic hubs that promote continuous learning and data-driven management.

These interconnected results collectively reinforced the project's overarching goal to enhance national water security, climate resilience, and sustainable livelihoods in full alignment with Jordan's development priorities and the project's Theory of Change.

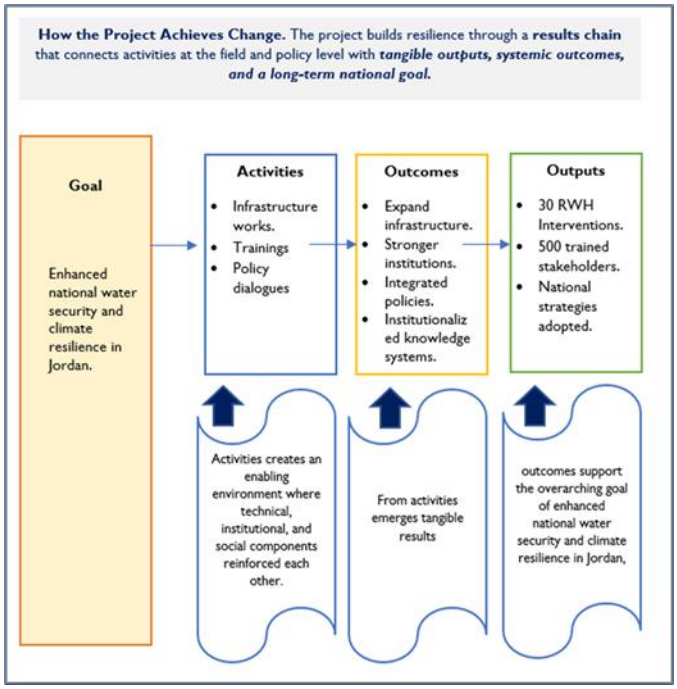


Figure 4: How INWRDAM achieved change.

Contributions of Partners and Activities Implemented

The success of the 3Rs Project was made possible through the combined efforts of national institutions, academic partners, international experts, and local communities each contributing uniquely to advancing resilience, inclusivity, and innovation in Jordan's water sector.

The Embassy of the Kingdom of the Netherlands. As the funding and strategic partner, the Embassy of the Kingdom of the Netherlands played a catalytic role in guiding the project's vision and ensuring alignment with the Netherlands–Jordan bilateral cooperation framework. The Embassy's leadership emphasized policy coherence, gender and youth inclusion, and evidence-based climate action, helping to elevate the 3Rs Project from a pilot initiative to a recognized model for water security and resilience. Through continuous dialogue with Jordanian institutions and implementing partners, the Embassy also fostered cross-sector collaboration, visibility, and accountability, strengthening water diplomacy between the two countries.

Ministry of Water and Irrigation (MoWI). The MoWI demonstrated leadership at the policy and institutional levels, particularly by adopting the National Youth and Women Empowerment Strategy in the Water Sector, a landmark step toward embedding inclusivity and equity in water governance. MoWI's guidance ensured that women and youth were recognized as integral stakeholders in decision-making processes, institutional planning, and national water policy frameworks.

Ministry of Agriculture (MoA). The Ministry of Agriculture spearheaded land-based interventions including slope management, erosion control, and tree-terrace rehabilitation that enhanced water retention, rehabilitated degraded lands, and boosted agricultural productivity. MoA's technical teams worked closely

with INWRDAM and local communities to ensure that soil and water conservation techniques were context-appropriate, climate-resilient, and scalable to other governorates.

Jordan Valley Authority (JVA). The JVA played a central role in infrastructure development and water recharge interventions, co-leading the design and construction of check dams, leaky dams, and desert ponds. These interventions contributed to aquifer recharge, flood mitigation, and improved water storage capacity, directly protecting vulnerable households and supporting agricultural livelihoods in downstream communities.

ACACIA Water. ACACIA Water provided critical technical and scientific leadership through hydrological modeling, environmental baselines, and feasibility studies that guided the siting and design of water-harvesting structures in Azraq, Mafraq, and other project locations. Working in close partnership with INWRDAM and national ministries, ACACIA co-developed Jordan's first National Guidelines for Rainwater Harvesting and a comprehensive manual for mapping 3Rs opportunities across the country set for official adoption in 2025. By bridging science, policy, and practice, ACACIA ensured that all designs were evidence-based, climate-informed, and policy-aligned, creating a strong technical foundation for future replication.

IHE Delft Institute for Water Education. IHE Delft strengthened the capacity development and knowledge transfer components of the project. The institute led the extended training programs and mentorship sessions that empowered professionals, engineers, and graduate students from MoWI, MoA, and universities to apply 3Rs concepts in real-world contexts. IHE Delft's contribution focused on embedding international best practices in hydrological monitoring, water governance, and NBS, ensuring that local institutions gained the expertise to sustain and scale project interventions. Furthermore, Delft facilitated the North–South knowledge exchange, connecting Jordanian researchers and practitioners with global peers and helping translate research findings into policy recommendations and operational guidelines.

Academic Partners. Partnerships with the University of Jordan and Balqa Applied University anchored the academic and innovation dimensions of the project. The University of Jordan and Balqa Applied University played pivotal roles in linking academia with field implementation, turning project sites into living laboratories for innovation, applied research, and capacity building. More than 1,400 students and researchers participated in field-based learning, data collection, and research projects related to hydrogeology, climate adaptation, and sustainable agriculture. These universities also contributed to developing the national 3Rs geodatabase, which will serve as a long-term monitoring and decision-support tool for policymakers and planners.

- The University of Jordan: INWRDAM memorandum of understanding (MoU) institutionalized joint research, training, and student-led field projects.
- The Balqa Applied University: INWRDAM MoU formalized collaboration through the Muwaqqar Research and Training Hub, a center for national knowledge exchange on climate and water resilience.
- The Princess Tasneem Smart Climate Station: established under the project, enhanced real-time hydrological monitoring, linking academic data to national decision-making.

***JOHUD*.** The project partnered with the Jordanian Hashemite Fund for Human Development (JOHUD) to support the annual national competition for school students, which this year focused on the theme of water stewardship. Our participation contributed to raising awareness on the importance of rainwater harvesting and sustainable water use among youth across the Kingdom. The competition engaged more than 25,000 students nationwide, with all participation proceeds dedicated to supporting centers for people with disabilities, reinforcing a social responsibility dimension. In parallel, and through close collaboration with

JOHUD, training sessions were delivered in multiple regions, equipping school students with practical knowledge on water conservation, climate resilience, and community engagement.

Local Communities and Community-Based Organizations (CBOs). Local communities were at the heart of implementation. Through participatory planning, training, and the CFW mechanism, they contributed directly to the construction and maintenance of hafayer, check dams, and desert ponds. In Sama Al-Sarhan, CBOs established 20 solar-powered hydroponic HBBs, generating 22 sustainable jobs and promoting women and youth entrepreneurship. These community-led initiatives illustrated how modern farming techniques, renewable energy, and cooperative management can strengthen livelihoods and build resilience in water-scarce environments.

The 3Rs Project exemplified effective multi-stakeholder collaboration from the Embassy's policy vision and donor coordination to Delft's academic leadership, Acacia's technical innovation, and INWRDAM's on-the-ground implementation. Together, these partnerships transformed fragmented efforts into a coherent model of climate-smart water management, anchored in evidence, inclusion, and national ownership.

Smart Desert (Complementary Program Synergy). The Smart Desert Project, funded by the French Development Agency (AFD) and implemented by consortium of (IUCN, INWRDAM, Bluemont, NARC, Horizon, Greentech), collaborated closely with 3Rs in promoting climate-smart agriculture, water efficiency, and inclusive economic development. Joint technical sessions and exposure visits strengthened coordination in Mafraq and the Northern Badia, enabling knowledge exchange and alignment between Dutch- and EU-funded resilience programs.

Exposure Visits and Knowledge Exchange. Knowledge exchanges were designed to strengthen institutional collaboration, provide hands-on learning opportunities for national partners, and promote regional exchange on integrated water harvesting and climate-resilient practices. The visits were coordinated jointly by INWRDAM, IHE Delft, and Acacia Water, designed to:

- Facilitate peer learning between Jordanian and Dutch experts on practical water-harvesting and Managed Aquifer Recharge (MAR) systems.
- Strengthen the link between science and policy by connecting local implementers to successful international 3R models.
- Enable participants to translate theoretical knowledge into field application, especially in planning, monitoring, and evaluating 3R interventions.
- Encourage cross-institutional coordination and alignment with Jordan's National Water Strategy (2023-2040).

This evaluation concludes that the 3Rs partnership model represents a best-practice example of integrated water governance combining Dutch technical expertise with Jordanian institutional leadership and grassroots implementation. By linking INWRDAM, Acacia Water, IHE Delft, MoWI, MoA, municipalities, JOHUD, universities, Smart Desert, and local communities, the project established a functional and replicable system for managing climate and water challenges.

The evaluation team recommends formalizing these relationships under a National 3Rs Partnership Platform, co-chaired by INWRDAM and MoWI, with representation from universities, municipalities, and complementary programs such as Smart Desert. Exposure visits under the 3Rs Project are a cornerstone of its capacity building and learning agenda bridging theory and practice, connecting Jordan's national institutions with global innovation, and ensuring that the design, monitoring, and policy integration of water-harvesting interventions are scientifically grounded, participatory, and sustainable.

Purpose of the Evaluation

This final evaluation covers the full implementation period of the 3Rs Project between January 2022 and December 2025, and provides an independent, evidence-based assessment of its performance against the stated objectives. It examines both achievements and challenges, analyzing the extent to which project results contributed to improving water security, climate resilience, and local livelihoods in Jordan.

The primary purpose of this evaluation is to assess the relevance, effectiveness, efficiency, coherence, and sustainability of the project in line with the OECD-DAC evaluation criteria. The assessment further explores whether and how the project's integrated interventions combining technical, institutional, and socio-economic components have led to measurable progress toward the intended outcomes and long-term impacts.

Beyond measuring results, the evaluation also aims to distill key lessons learned and provide strategic recommendations to guide the consolidation, institutionalization, and potential scale-up of the 3Rs approach. The findings are intended to inform the design of future programs and policy frameworks within Jordan's water, environment, and climate resilience sectors, ensuring that proven models like the 3Rs can continue to generate sustainable and inclusive impact. Table 1 below presents the key evaluation questions as outlined in the Terms of Reference (ToR). *See Annex D for more details on Evaluation Objectives, Questions, Findings, and Evidence (Annexs D: a & b)*

OECD-DAC Evaluation Criteria	Questions
Relevance	How well did the project aligned with national and local priorities? Were interventions appropriate for site-specific ecological, hydrological, and socioeconomic conditions? To what extent are the interventions and practices introduced by the project relevant for the targeted beneficiaries in the current economic, social and environmental conditions in Jordan? To what extent have capacity building and awareness sessions, responded to the needs of the targeted beneficiaries, and aligned them with the project objectives?
Effectiveness	To what extent were the project objectives achieved across the different components? How effective was the coordination among implementing partners and stakeholders? What challenges have limited the effectiveness of the project in achieving its objectives? How effectively has the project adjusted its approach based on emerging challenges and stakeholder feedback?
Efficiency	Were resources (financial, human, technical) used optimally? Were timelines and budgets adhering to? Has the budget been efficiently allocated to different work packages and activities, in relation to the output and outcomes achieved?

Impact	What tangible changes occurred in water availability, agricultural practices, and community livelihoods? How did the project contribute to the Netherlands Multi-Annual Country Strategy (MACS) 2023–goals in the target communities? Were there improvements in institutional capacity, gender equity, or policy frameworks?
Sustainability	What mechanisms are in place for maintenance, ownership, and long-term financing? What revenue models (e.g., farmer co-ops, PPPs) ensure infrastructure maintenance? To what extent are the projects' results to date likely to continue after the project's duration?
Gender and Inclusion	Did women's participation in water decision-making increase beyond project-specific activities?
Coherence	To what extent are the project's components complementary and reinforcing each other? To what extent does the project align with other NL funded programs and projects in Jordan? To what extent does the project align with water and agriculture sector strategy of the Jordanian government?

Methodology

The final evaluation applied a mixed-methods approach consistent with the OECD-DAC evaluation criteria, combining quantitative evidence with qualitative insights from multiple data sources. This approach enabled triangulation across methods, ensuring that findings are both robust and contextually grounded.

Approach and Data Sources. The evaluation team used a combination of desk review, Key Informant Interviews (KIIs), Focus Group Discussions (FGDs), and field observations to assess the project's relevance, effectiveness, efficiency, coherence, sustainability, and impact. This participatory approach emphasized learning and reflection while capturing the perspectives of institutional partners and community beneficiaries alike.

Desk Review

- The evaluation team conducted an extensive desk review of project documentation, including the Mid-Term Evaluation (February 2024), the 2024 Annual Progress Report, the 2025 Work Plan, technical annexes, and training records.
- This desk review provided a foundation for verifying achievements and contextualizing findings.

Key Informant Interviews (KIIs)

- A total of 12 KIIs were conducted with representatives from IHE Delft, Acacia Water (team lead and CEO), NL Embassy, the MoWI Women's Development Unit, Ministry of Agriculture, Secretary General, JVA, municipal council members, former mayors (Azraq and Sabha), and INWRDAM senior leadership. Respondents included both women and men, ensuring balanced perspectives. Stakeholders emphasized the project's strong alignment with national strategies, its inclusive and participatory

approach, and its effectiveness in addressing water scarcity, food security, and women/youth empowerment. ***They recommended sustaining and scaling the project, embedding its outcomes in national frameworks, securing predictable financing mechanisms, and strengthening capacity building and community ownership to safeguard investments and ensure long-term impact***. ***They also provided insights into institutional ownership, policy alignment, and coordination mechanisms.***

Focus Group Discussions (FGDs)

- As part of the evaluation, three FGDs were conducted between September 3-25, bringing together a total of 36 participants (16 females, 20 males). Participants included farmers, youth, climate change activists, students, reporters, and local leaders. The discussions were designed to capture beneficiaries' direct feedback on the usefulness of project activities, with attention to gender representation and community perspectives.
- Discussions explored perceptions of interventions, livelihood impacts, challenges, and sustainability prospects.
- The qualitative survey focused on measuring changes in beneficiaries' experiences and outcomes. Participants were also asked to assess three core activities: training and capacity building, awareness sessions, and technical support/coaching. Ratings were provided on a 1–5 scale (1 = not useful, 5 = extremely useful).

Field Visits and Geographic Coverage

- As part of the evaluation process, the team conducted field visits to key implementation sites in Mafraq, Sama Al-Sarhan, Azraq, Muwaqqar, and the Jordan Valley,[3] as well as to the University of Jordan and two CBOs. These sites were strategically selected to capture the project's geographic, ecological, and institutional diversity spanning water-scarce desert zones, productive agricultural valleys, and academic research hubs. ***During these visits, the evaluation team directly observed a range of interventions, including RWH structures, hydroponic farming units, and greenhouses, and held consultative discussions with beneficiaries, cooperatives, municipal representatives, and local authorities to validate findings and assess on-the-ground impact.***

  These field observations were triangulated with evidence from KIIs, FGDs, and a comprehensive review of project documentation and monitoring data. This mixed-method approach strengthened the credibility, depth, and contextual accuracy of the evaluation findings.

- ***The field visits confirmed that the project's interventions not only enhanced water availability and improved agricultural practices, but also fostered community ownership, strengthened women's and youth participation, and deepened institutional and cooperative partnerships at the local level.*** These findings highlight the project's transformative contribution to building social and institutional resilience in water-stressed areas. At the same time, the evaluation identified several areas requiring continued attention, notably the need for ongoing technical training, stronger market linkages for local producers, and sustainable financing mechanisms to safeguard the long-term viability and scalability of community-based initiatives.

[3] Sites under the Recharge–Retention–Reuse (3Rs) project: Princess Tasneem Smart Climate Station, and Homrat Al-Sahen.

Check Dam and Gully Plug at Humret AL Sahen.

Triangulation

- Findings were validated by triangulating across multiple data sources:
  - Quantitative indicators (e.g., water harvested, jobs created, trees irrigated).
  - Qualitative evidence (e.g., testimonies on community trust, women's leadership).
  - Observational data and document verification.
  - This ensured consistency between reported outputs and observed field realities.

Mitigation

- Mitigation measures included expanding document review, when necessary, and cross-checking findings with multiple stakeholder groups.

Ethical and Risk Considerations

The evaluation team applied strict ethical standards and risk management protocols, fully aligned with INWRDAM's Risk Management Framework, and international best practices. The following safeguards were systematically observed:

- **Informed Consent**. All participants were informed about the evaluation purpose, process, and their rights before participation, and explicit consent was obtained.
- **Confidentiality.** Data confidentiality was strictly maintained: personal identifiers were not recorded, and findings are presented in aggregate form.
- **Gender-Sensitive Approach.** Female enumerators were engaged to conduct women's FGDs, ensuring safe spaces and equitable participation.
- **Cultural Sensitivity.** Data collection methods were designed and implemented with full respect for local culture, values, and traditions.
- **Security Preparedness.** Contingency plans were developed to manage potential risks, including delays or site access challenges due to security conditions.
- **Data Protection.** Upon conclusion of all required deliverables, all digital data will be securely stored and backed up on encrypted INWRDAM servers, ensuring both integrity and confidentiality.
- **Policy Compliance.** The evaluation team committed to INWRDAM's Safety and Security Policy, Anti-Fraud/Corruption Policy, and Whistleblowing Policy.

- **Professional Conduct.** The evaluation team maintained strict neutrality, refraining from representing political, religious, or financial interests. The team conducted all activities in a way that safeguarded the reputations of INWRDAM, the Embassy of the Kingdom of the Netherlands, and consortium partners.

Ethical and Risk Considerations

The evaluation adhered to INWRDAM's Risk Management Framework and international evaluation ethics standards. Safeguards included:

- Informed Consent: All participants were briefed on the purpose and provided voluntary consent.
- Confidentiality: Data anonymized and reported in aggregate form.
- Gender-Sensitive Approach: Female facilitators led women's FGDs to ensure inclusivity.
- Cultural Sensitivity: Engagements designed to respect local customs and values.
- Security Preparedness: Contingency plans in place to mitigate access or safety risks.
- Data Protection: All data stored securely on encrypted servers.
- Professional Conduct: Neutrality maintained throughout; activities aligned with INWRDAM's Anti-Fraud, Whistleblowing, and Safety and Security Policies.

Analytical Framework and Findings Structure

Evaluation findings were analyzed and organized under the OECD-DAC criteria Relevance, Effectiveness, Efficiency, Impact, Sustainability, and Coherence with cross-cutting attention to gender, youth, and inclusion. This structure ensures that both institutional insights and community experiences are captured, reflecting the project's strategic, technical, and human dimensions.

The synthesis of stakeholder perspectives, field observations, and quantitative achievements provides a comprehensive and credible assessment of the 3Rs Project's overall performance, sustainability prospects, and pathways for future scaling.

Evaluation Findings

The evaluation process drew upon a diverse range of qualitative data sources, including Key Informant Interviews (KIIs), Focus Group Discussions (FGDs), and Evaluation Team assessments, to provide a comprehensive picture of the project's performance. This triangulated approach ensured that both institutional insights and community experiences were captured reflecting the strategic, technical, and lived dimensions of the project's design and implementation. The findings presented in the following sections are organized around the OECD-DAC evaluation criteria, which comprises relevance, effectiveness, efficiency, impact, sustainability, coherence, and cross-cutting issues (gender, youth, and inclusion). Together, these findings offer an integrated understanding of the project's strengths, challenges, and areas for future improvement.

Key Informant Interviews (KIIs)

The KIIs were a cornerstone of the final evaluation for the 3Rs Project. Conducted between September and October 2025, they captured multi-level perspectives from national policymakers and academic experts to municipal engineers, farmers, and women beneficiaries. By combining stakeholder testimonies with project monitoring data, the KIIs offered a holistic view of the project's performance and sustainability. They provided

critical evidence of how 3Rs interventions reshaped local water management, strengthened inter-institutional collaboration, and enhanced socio-economic inclusion across Jordan's most water-scarce regions.

Key informants provided several strategic recommendations to ensure the project's long-term success and impact. They strongly advocated for resuming and expanding the project to safeguard existing achievements and extend its benefits to other underserved regions. ***A central priority was the institutionalization of key strategies, including the Youth and Women Empowerment Strategy and the national water harvesting policy framework, ensuring their formal integration into national governance systems***.

This section summarizes the findings from a series of KIIs conducted with senior representatives from government institutions, local authorities, academia, implementing partners, and the private sector (*See **annex E** for Summary of Key Informant Interviews)*. Collectively, these perspectives reaffirm the 3Rs Project's strategic relevance, its contribution to Jordan's water and climate resilience agenda, and the strong ownership fostered among stakeholders. The interviews also provided actionable recommendations for ensuring sustainability, institutionalization, and scaling of successful interventions.

KII 1. Niveen Al Kfoof Head of Women's Studies Department at MoWI

Niveen emphasized the landmark achievement of the National Youth and Women Empowerment Strategy, a milestone that embedded inclusion into Jordan's water governance architecture. She stressed that sustaining such progress requires time and continued effort. Without predictable resources and institutional backing, the strategy's achievements risk remaining fragmented.

Key Achievements

- Institutional adoption of gender and youth empowerment is progressing, but sustainability depends on multi-source financing (government, PPPs, and donor co-funding).
- Continued mentorship and skills-building are critical to ensure women and youth transition from participation to leadership roles.

Recommendations

- Integrate the Empowerment Strategy within the National Water Strategy 2023-2040.
- Ensure sustainable financing through government budgets and co-financing.
- Expand community feedback loops to align interventions with local priorities.

KII 2. Nofa Al Fayez, Municipal Council Member, Azraq.

Nofa Al Fayez highlighted the profound transformation that took place in Azraq the 3Rs Project's interventions in water harvesting and community preparedness. ***Prior to the 3Rs Project, the community faced recurrent flooding that disrupted lives and public services. During heavy rainfall, floodwaters would inundate residential areas and public infrastructure, forcing schools to serve as emergency shelters for displaced families.*** The lack of structured drainage and risk management meant that the community was caught off guard each rainy season. There was also limited public awareness about water harvesting as a sustainable practice many residents perceived rainwater as a source of danger rather than an opportunity. Institutional coordination between local authorities, and community groups was minimal, and women's participation in decision-making around water and climate issues was nearly absent. With the construction of hafayer (earth dams) and desert ponds, Azraq witnessed tangible improvements in both flood protection and local water availability. ***These structures now serve as essential buffers, capturing and storing runoff that once caused***

destruction and loss. Communities and municipal authorities reported a noticeable reduction in flood-related damage and an increased ability to manage rainfall through improved infrastructure and community coordination.

Nofa emphasized that the next critical step for sustainability is the establishment of a local Early Warning System (EWS). It is important in ensuring timely alerts, enabling communities to take proactive measures such as clearing drainage channels, mobilizing volunteers, and preparing shelters in advance. This evolution will mark a shift in local attitudes from reactive crisis response to a growing awareness of the value of preventive action.

Key Achievements

- **Enhanced flood resilience:** Schools no longer need to serve as emergency shelters thanks to improved flood control infrastructure.
- **Water security gains:** Stored rainwater now supports local agriculture, livestock, and household use.
- **Social empowerment:** Women and youth gained stronger visibility and credibility in local water governance and community mobilization.
- **Behavioral change:** The project transformed perceptions, rainwater is now viewed as an economic and environmental resource rather than a hazard.

Recommendations

- Expand the local Water Knowledge and Training Center to serve additional agricultural valleys in northern Jordan.
- Institutionalize the Early Warning System within municipal and Civil Defense operations to ensure continuity and accountability.
- Ensure regular maintenance of hafayer and ponds through allocated local budgets and ongoing coordination with community associations.
- Continue building community capacity for flood monitoring and response to sustain the culture of preparedness.

KII 3. Yehya Zain Al-Deen, Former Mayor of Azraq

Yehya highlighted the project's alignment with municipal and community priorities, particularly for farmers and livestock owners. He praised the participatory approach that emphasized consultation and follow-up after implementation.

Key Achievements

- The project's flood mitigation efforts, particularly in Wadi Hassan and Al-Ratam, demonstrated clear impact.[4]
- International exposure visits (e.g., to the Netherlands) enhanced knowledge exchange and municipal capacity.

Recommendations

[4] Al-Ratam (Rattameh) is one of the key rainwaters harvesting intervention sites under the 3Rs Project.

- Replicate the model across additional communities.
- Prioritize rehabilitation of key watercourses and reservoirs.
- Strengthen municipal capacity to serve as the central link between citizens and project stakeholders.

The project met or exceeded most planned outputs.

- 2.1 million cubic meters of rainwater harvesting capacity across 32 sites, improving recharge and flood control.
- Individuals trained, including farmers, youth, women, and government staff.
- 20 hydroponic greenhouses established, supporting women and refugee households.
- Formal adoption of the National Youth and Women Empowerment Strategy in the water sector
- Establishment of the Muwaqqar National Training Hub as a living laboratory for water harvesting and applied research.

In Hallabat, the project strengthened rangeland rehabilitation and sustainable land management in partnership with community members and the These efforts promoted community participation in protecting grazing lands and restoring natural ecosystems, while building local knowledge on techniques that can be replicated across similar arid zones in Jordan.

3Rs project team during a visit to the revitalized rangeland.

Humret Al Sahen – Tasneem Bint Ghazi Research Station. Humret Al Sahen hosts the Tasneem Bint Ghazi Research Station, operated by Al-Balqa Applied University. The site functions as a living laboratory for testing and refining sandy-soil management techniques aimed at enhancing water retention, reducing soil erosion, and improving vegetation cover in arid conditions.

A series of rainwater harvesting interventions have been implemented within the research station to support both applied research and practical field learning. These include the construction of terraces, check dams, and the implementation of maintenance programs to ensure their long-term functionality. Beyond its research role, the site delivers tangible environmental benefits contributing to reduced soil erosion,

enhanced groundwater recharge, and improved ecosystem resilience in the surrounding Humret Al Sahen area.

The project's cash-for-work (CFW) scheme created direct income opportunities for vulnerable groups, particularly youth and women, while supporting construction, tree planting, and maintenance of water harvesting structures. This short-term employment also fostered a sense of local ownership and provided hands-on training in eco-engineering practices.

Through joint initiatives, JOHUD mobilized school students' participation and facilitated awareness campaigns on rainwater harvesting and water conservation across multiple regions. In addition, JOHUD supported women-led microprojects that connected environmental restoration with livelihoods and local enterprise development, strengthening community ownership and inclusive participation in climate-resilient practices.

The project also leveraged public engagement platforms, including the National Olive Festival, to strengthen community awareness and market visibility. During the event, the 3Rs team engaged directly with visitors and local cooperatives, showcasing key project interventions such as rainwater harvesting and reuse systems, soil erosion control measures, and the broader importance of sustainable water management in climate-affected regions. These outreach efforts increased project visibility, raised public awareness, and reinforced linkages between local enterprises, cooperatives, and stakeholders in support of economic and environmental resilience.

Collectively, these interventions strengthened food security, livelihoods, and institutional relationships. While implementation in Sama Sarhan initially faced challenges, mainly limited hydroponics training and weak market linkages these were mitigated in later phases through improved training design, cooperative-based marketing, and social contracting models that fostered accountability and inclusion.

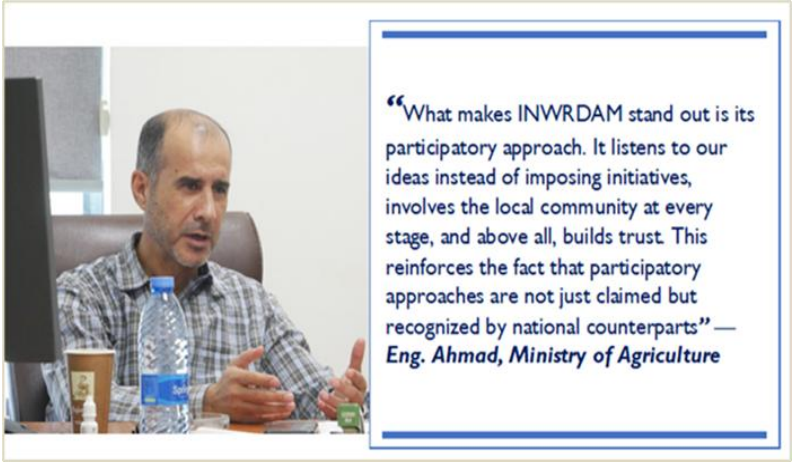
Wadi Al-Ratam - Azraq. Al-Ratam represents one of the northern catchment demonstration sites, contributing to the Recharge–Retention–Reuse (3Rs) framework's replicable model for water harvesting in Jordan's arid zones. he site is also part of the evidence base informing the national water harvesting guideline and replication models being promoted by INWRDAM and the Ministry of Water and Irrigation.

KII 4. Eng. Ahmad Al-Qawabea, MoA

Ahmad confirmed that the project was highly coherent with MoA's soil and water conservation agenda, offering practical benefits for farmers while institutionalizing water harvesting within ministry operations.

Key Achievements:

- MoA's partnership was crucial for site selection, technical oversight, and the creation of a geodatabase for water structures.
- Integrating livestock and agriculture management is vital to address climate vulnerability.
- Ongoing practitioner training ensures institutional memory and local ownership.



Recommendations

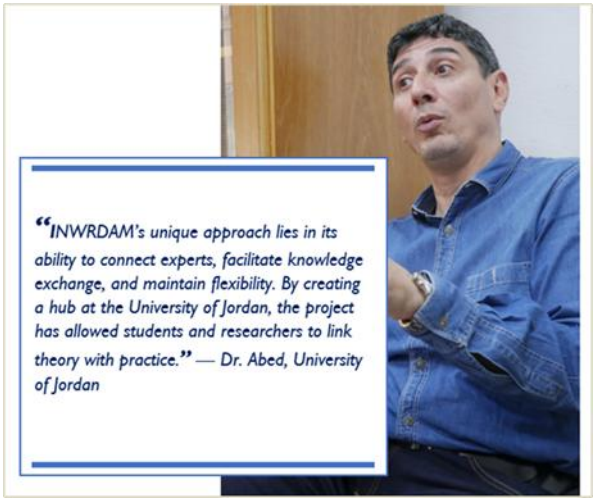
- Expand the project to southern governorates.
- Enhance specialized training (e.g., Water Management Systems, or WMS).
- Ensure maintenance budgets.
- Promote stakeholder transparency through national water forums.

KII 5. Dr. Eid Al Abdalat, University of Jordan

Dr. Eid underscored the academic transformation enabled by the 3Rs Project. The University of Jordan evolved from theoretical instruction to an applied, field-based model through the establishment of the Muwaqqar Hub; a living laboratory for hydrological monitoring and training.

Key Achievements

- Over 145 faculty and students trained in applied 3Rs practices.
- The Hub now supports national strategies by providing real-time data to ministries.
- Dutch expertise and continuous technical exchange enriched research outputs.



Recommendations

- Integrate 3Rs concepts into university curricula.
- Establish long-term financing for hubs.
- Enhance community engagement in research.
- Formalize academia-policy linkages.

KII 6. Dr. Marwan Al Raqqad, Executive Director, INWRDAM

Dr. Marwan explained that the project transitioned from pilot interventions to a scalable watershed model, merging infrastructure, institutional ownership, and community empowerment. He emphasized efficiency as a system-level outcome and warned that without a follow-on phase, many gains could be lost.

Key Achievements

- The 3Rs Master Plan now functions as a national reference for watershed replication.
- The project embedded coordination and participatory planning into national dialogue

Recommendations

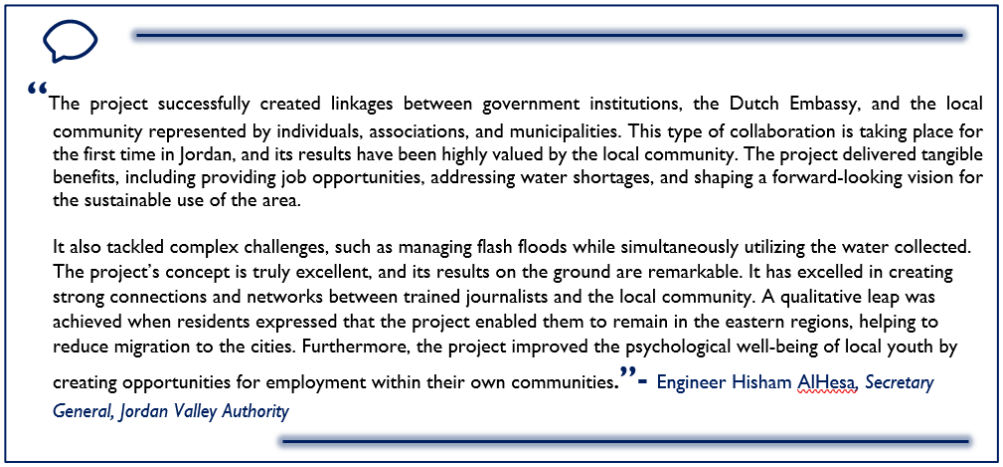
- Pilot the Early Warning System in Mafraq and Ma'an.
- Expand Training-of-Trainers programs.
- Reduce dependency on external consultants by empowering local expertise.
- Consolidate lessons under the 3Rs Master Plan

KII 7. Eng. Hisham Al Hesa, Secretary General, JVA

Eng. Hisham praised the project's multi-level coordination linking the Embassy of the Kingdom of the Netherlands, government institutions, and local communities for the first time in Jordan. The project's integrated model generated tangible social, economic, and psychological benefits for local youth and families.

Key Achievements

- Created local jobs, reduced rural migration, and enhanced community stability.
- Improved disaster management and flood control in the Jordan Valley.
- Quote: **"**This type of collaboration between the government, the Embassy, and the local community is taking place for the first time in Jordan.**"**



KII 8. Dr. Basem – Director, Smart Desert Company

Dr. Basem characterized the 3Rs Project as a paradigm shift in Jordan's agricultural and water management landscape, moving from traditional to climate-smart and market-oriented practices. Key Points:

- 3Rs created a bridge between policy dialogue, regional cooperation, and local livelihoods.
- The project's integration of hydroponics and RWH established a scalable "sustainable cluster" model.

Recommendations

- Institutionalize the Rainwater Harvesting Committee.
- Integrate commercial business models into Phase II.
- Prioritize funding for infrastructure.
- Enhance collaboration with local organizations to navigate social dynamics.

KII 9. Walaa Al-Zaidin (MoA) and Hiba Al-Sharafat (MoWI), Extended Training Participants

Both trainees noted that the IHE Delft-led workshops fostered strong technical capacity and improved coordination between ministries. Practical modules enhanced participants' ability to monitor, evaluate, and maintain RWH interventions.

Key Achievements

- The training fostered unified technical understanding between MoWI and MoA.
- Participants now apply data-driven monitoring tools directly in the field.

Recommendations

- Expand future trainings to Karak and Tafileh
- Diversify content to include climate resilience and social engagement.
- Institutionalize refresher courses under the Knowledge Hub.

KII 10. IHE Delft Institute for Water Education

IHE Delft emphasized the shift in perception of RWH and highlighted the movement from a fragmented concept to a fixture of communities' ideas of resource management. To get to this point involved bringing diverse parties together, improving awareness, and updating national water resource strategies.

Key Achievements

- Successfully moved RWH to a key component of the national water resource strategy.
- Significant improvement in general and technical awareness of RWH options.
- Success in bringing diverse parties together, leading to national dialogues.
- Organizations like JVA and INWRDAM are now focusing on RWH and taking more initiative.

Recommendations

- Ensure readiness and acceptance are in place before scaling.
- Grow RWH knowledge at the lowest community levels and establish clear ownership.
- Clearly convey success statistics and non-captured benefits to build trust.
- Use economics as the primary frame of reference for RWH value.
- Design projects to be followed for a longer duration to sustain impact.
- Seek a compromise between the best technical solution and local acceptability.

KII 11. Tine te Winkel and Dr. Arjen de Vries, Acacia Water

The Acacia team credited the project with transforming institutional coordination, noting that before 2022, ministries worked in isolation. They also noted that RWH has moved successfully from a fragmented concept to become more mainstream in water management thinking and is driving a cross-sectoral collaboration and a shift in donor focus (e.g., World Bank is favoring smaller interventions like the water harvesting explorer to boost groundwater recharge).

Key Achievements

- Institutional and policy coherence improved dramatically.
- Capacity building led to a stronger technical foundation for future watershed masterplans.
- RWH is now a strategic component of the National Water Strategy 2023-2040.

- Successful collaboration and institutional shifts (e.g., JVA, INWRDAM).
- External focus is now on smaller, sustainable interventions aided by technical tools.
- RWH demonstrates potential for improved groundwater recharge rates.

Recommendations

- Continue institutionalizing the National Water Harvesting Dialogue.
- Co-lead regional hydrological analyses with ministries.
- Find a compromise between technical efficacy and local acceptability.
- Improve low-level knowledge and establish clear ownership.
- Use economics and success statistics to clearly frame benefits.
- Mandate longer-term follow-up and monitoring to sustain impact.

KII 12. Donor Feedback – Embassy of the Kingdom of the Netherlands (EKN)

The Embassy emphasized that while the 3Rs Project has demonstrated strong technical progress and clear contributions to national water harvesting priorities, ***the next phase must focus on strategic alignment, institutional strengthening, and long-term sustainability.***

Alignment with the MACS Priorities. All future activities must remain fully aligned with the Multi-Annual Country Strategy (MACS), reinforcing Jordan's climate resilience, stability, and inclusive economic growth.

Partnership & Coordination. A key priority identified was sharper donor coordination, including systematic mapping of other water harvesting and flood-resilience initiatives to avoid overlap and increase national coherence. Donor feedback emphasized formalizing donor mapping and alignment particularly with Swiss flood mapping efforts. A key recommendation emphasized by the Embassy was the need to elevate donor coordination to strategic action, ensuring that water harvesting interventions are aligned with national flood-risk reduction priorities. In particular, the Embassy encouraged 3Rs to initiate a coordination meeting with the Swiss Embassy and key development partners to better align water harvesting efforts with Jordan's National Flood Mapping Program. Switzerland is working with Jordan's National Centre for Security and Crisis Management through the Swiss Agency for Development and Cooperation (SDC) to produce high-resolution flood-risk maps, strengthen data-driven planning, and build national expert capacity in flood preparedness and emergency response. Coordinating with this initiative would reduce fragmentation, improve site prioritization, and ensure that future 3Rs investments directly support national disaster-risk management goals.

Lesson for Future Cooperation. Long-term impact requires institutionalizing community-led, technically validated models supported by national frameworks, digital monitoring, and inclusive governance.

Future Collaboration Opportunities. Scaling RWH to southern governorates, institutionalizing the Knowledge Hub, private-sector co-financing, MoWI-accredited training programs, and regional learning exchanges.

The Embassy also encouraged the project to clarify and strengthen private-sector engagement, given its critical role in sustaining market linkages, technology adoption, and scale-up financing models.

To maximize learning and national uptake, ***the Embassy recommended accelerating the transformation of the Knowledge Hub into an active, interactive platform for visibility, exchange, and case-study dissemination, rather than a static research repository***. Further ***strengthening of INWRDAM's internal systems was considered essential, i***ncluding establishing a Deputy Chief of Party role, enhancing the MEL and

Communications functions, and leveraging ACACIA's expertise to build stronger reporting, technical synthesis, and capacity-building mechanisms.

Clearer articulation of how water harvesting interventions translate into livelihood gains, ***institutional governance improvements was also emphasized, alongside operationalizing the Youth and Women Empowerment Strategy with defined partners,*** indicators, and accountability pathways.

Overall, the Embassy reaffirmed its commitment to the 3Rs vision, while ***calling for focused reporting, stronger ownership, and prioritization of interventions that deliver measurable impact and reinforce Jordan's long-term water and climate security.***

Priority Recommendations Emphasized

- Define a clear KPI framework, exit strategy, and long-term ownership model to ensure institutional sustainability.
- Strengthen MEL–Communications integration to better demonstrate performance, impact stories, and learning.
- Finalize and share the National Water Harvesting Strategy with government and donors to guide coordinated scaling.
- Enhance donor coordination, including initiating formal collaboration with the Swiss flood mapping initiative to align water harvesting and disaster-risk reduction efforts.
- Clarify and expand private-sector roles in sustaining and financing solutions such as greenhouse operations, irrigation technology, and market linkages.
- Fully operationalize the Youth & Women Empowerment Strategy with defined partners, indicators, and reporting mechanisms.
- Transform the Knowledge Hub into an interactive platform for national learning, showcasing results, tools, and model sites.
- Leverage ACACIA Water's expertise in technical reporting and capacity building to strengthen institutional capabilities.
- Enhance core administrative and operational functions to support long-term scaling, specifically in monitoring and evaluation (M&E), strategic and internal communications, and donor relations.
- Increase budget allocations for administrative and overhead lines in future proposals to ensure sufficient resources for program management and administrative systems.
- Invest in dedicated personnel for critical operational areas, including M&E, communications, and operations, to ensure operational excellence.

Summary of Donor Feedback – Embassy of the Kingdom of the Netherlands (EKN)

Feedback Area	Key Points Raised	Proposed Actions / INWRDAM
Strategic Direction & Alignment	• Strengthen alignment with MACS priorities (climate resilience, stability, refugee focus, human rights). • Define a clear Goal, KPIs, Impact Framework, Ownership Plan, and Exit Strategy. • Establish a Deputy Chief of Party role to improve decision-making and oversight. Improve donor coordination; map complementary efforts (e.g., Swiss flood mapping) and leverage synergies. • Improve donor coordination and map complementary initiatives (including Swiss-supported National Flood Mapping Program) to align water harvesting with disaster-risk reduction. • Clarify how 3Rs contributes to national stability and inclusive economic participation. • Better define private-sector engagement and sustainability models.	• Clearer national contribution narrative. • Improved program governance and visibility of results pathways. • Enhanced strategic cohesion across partners and donors.
Technical & Thematic Priorities – Water Harvesting & Sites	• Finalize and submit the National Water Harvesting Strategy for donor review. • Clearly articulate RWH typologies, target users, and expected outcomes. • Link site selection more strongly to agricultural and economic potential. Position Azraq as a flagship site for scaling. At Kishek Farm: document replicability, number of refugee households supported, and MoA coordination for wider promotion.	• Stronger demonstration-to-scaling pipeline. • Targeted impact and knowledge uptake.
Youth & Gender Integration	• Fully operationalize the Youth & Women Empowerment Strategy: ○ Define partners and coordination roles. ○ Create M&E plan and reporting Clarify next steps for implementation. • Ensure participation is meaningful, not symbolic.	• Improved inclusion outcomes and evidence. • Stronger alignment with MACS and EKN expectations.
Smart Desert / Agriculture Value Chains	• Clarify ownership and management of greenhouses for sustainability. • Strengthen practical capacity for youth and vulnerable groups to manage assets. • Define operational linkage between Smart Desert agriculture and INWRDAM water harvesting activities.	• Better livelihood integration and sustainability. • Increased productivity and asset protection.

Institutional Capacity & Management	• Strengthen INWRDAM's internal capacity in both technical and administrative fields. • Enhance MEL & Communications to support data visibility and storytelling. Ensure all training has clear learning design with measurable results. • Continue leveraging ACACIA expertise in reporting and capacity building. • Improve internal program management and team structure.	• Increased institutional resilience and continuity. • Stronger performance reporting and learning culture.
Knowledge, Learning & Visibility	• Improve storytelling: explain why activities matter, not only what was delivered. • Transform the Knowledge Hub into an interactive learning platform. • Showcase achievements and case studies (Kishek, Azraq) and amplify IHE Delft technical role. • Ensure communications and outreach link back to project objectives.	• Faster visibility and national demand for scaling. • 3Rs positioned as Jordan's leading NBS and RWH model.
Cross-Cutting Themes	• Gender, youth, and inclusivity must be mainstreamed across all components. • Demonstrate inclusion in site selection, employment, training access, and governance.	• Improved social equity outcomes. • Stronger alignment with GoJ + donor compliance requirements.

Collectively, the KIIs reveal that the 3Rs Project achieved systemic transformation by integrating water management, economic empowerment, and institutional reform. Stakeholders consistently acknowledged improved coordination between ministries, stronger academic-policy linkages, and greater community trust. The findings affirm that the 3Rs model has transitioned from a pilot initiative into a national framework for water security and resilience. Future efforts should focus on sustaining partnerships, institutionalizing digital monitoring, and embedding inclusive governance across all levels of implementation.

Cross-Cutting Observations

- Institutional Coherence: Cross-ministerial coordination improved markedly through the Rainwater Harvesting Committee and 3Rs Knowledge Hub.
- Gender and Youth Inclusion: The adoption of the National Youth and Women Empowerment Strategy marks a systemic shift toward inclusive governance.
- Community Ownership: EWS, hydroponic HBBs, and cooperative structures strengthened local resilience and accountability.
- Sustainability Outlook: Long-term results depend on predictable financing, continued training, and embedding 3Rs principles in national policy and municipal planning.

Across all interviews, stakeholders reaffirmed the 3Rs Project's relevance, inclusivity, and institutional coherence. Interviewees praised its participatory design, efficient use of resources, and visible community-level impact. The key themes emerging include:

- Relevance: Strong alignment with Jordan's water and food security strategies.
- Effectiveness: Broad achievement of outputs water harvesting structures, capacity building, and gender mainstreaming.
- Sustainability: Institutionalization and financing remain the main challenges for scaling.

- Coherence: The project fostered unprecedented collaboration between ministries, academia, donors, and municipalities.
- Impact: Tangible environmental, social, and economic improvements, coupled with transformative changes in perception and practice at the community level.

Overall Recommendations (based on KIIs, Field Observations, and Evaluation Findings). The final evaluation concludes that the 3Rs Project has successfully demonstrated how integrated RWH can drive both water security and socio-economic transformation in Jordan. Building on this foundation, the following strategic recommendations are proposed to consolidate outcomes, ensure sustainability, and guide the design of a potential Phase II (2026-2029).

1. **Institutionalize and Sustain the 3Rs Knowledge Hub**. Transform the existing platform into a permanent national coordination and data system, hosted by MoWI, supporting evidence-based decision-making. **Priority Actions:**
    - Embed the Hub within MoWI with dedicated staffing, financing, and governance.
    - Facilitate National Water Harvesting Dialogues and inter-ministerial data exchange.
    - Integrate GIS dashboards, smart monitoring, and gender-disaggregated records as standard decision tools.
    - Position the Hub as an interactive platform, not only a research repository.

2. **Strengthen Institutional and Policy Synergy.** Formalize coordination between MoWI, MoA, and the Ministry of Environment through the Rainwater Harvesting Committee, ensuring continuity of cross-sectoral planning. Align 3Rs interventions with Jordan's National Water Strategy 2023-2040 and Food Security Strategy 2021-2030. ***Priority actions:***
    - Institutionalize the Youth and Women Empowerment Strategy into sector policies.
    - Host annual national coordination forums with donors to harmonize priorities.
    - Develop a 3Rs Master Plan endorsed by all ministries to guide replication.

3. **Expand the Geographic Scope through the Gate Model.** Scale- up 3Rs interventions to southern governorates (Karak, Tafileh, and Ma'an) using the Gate Model, which ensures community validation, hydrological feasibility, and economic viability before site selection. ***Priority actions:***
    - Pilot new sites integrating RWH, hydroponics, and HBBs.
    - Leverage the experience of existing hubs (Sama Al-Sarhan, Azraq, Muwaqqar) as regional mentors.
    - Embed local governance and cooperatives into replication planning.

4. **Ensure Financial Sustainability and Co-Financing Mechanisms.** Sustainability requires predictable and diversified financing. Donor funding alone cannot ensure long-term operation or maintenance. ***Priority actions:***
    - Establish co-financing models (GoJ + donors + PPPs + cooperatives).
    - Introduce payment for ecosystem services (PES) and cost-recovery approaches.
    - Implement a phased exit plan transferring responsibility gradually to local actors.

5. **Strengthen Livelihoods and Market Linkages.** To sustain socio-economic gains, hydroponic and greenhouse based HBBs must be integrated into viable market systems. ***Priority actions:***
    - Facilitate partnerships with private sector buyers, agricultural cooperatives, and retail outlets.
    - Provide business incubation, financial literacy, and cooperative management training.
    - Support the creation of value chains for women- and youth-led enterprises.

6. **Embed EWS and Smart Monitoring in Municipal Governance.** Expand the EWS to all flood-prone municipalities, integrating it into local emergency plans and municipal dashboards. ***Priority actions:***
    - Institutionalize data exchange between municipal systems and MoWI's central hub.
    - Build local technical capacity for calibration, data interpretation, and maintenance.
    - Use EWS as an entry point for community awareness and disaster preparedness.

7. **Consolidate Academia-Policy Linkages.** Maintain strong collaboration between INWRDAM, the University of Jordan, Al-Balqa Applied University, and technical institutes to ensure that 3Rs concepts remain embedded in academic curricula and research agendas. ***Priority actions:***
    - Establish accredited training-of-trainers programs and field-based courses.
    - Develop a national certification scheme for RWH professionals.
    - Encourage applied student research and joint publications on NBS and RWH systems.

8. **Foster Community Ownership and Inclusivity.** The sustainability of the 3Rs model relies on strong community ownership and inclusive governance. ***Priority actions:***
    - Empower cooperatives and local associations to manage infrastructure and funds.
    - Expand representation of women, youth, and refugees in decision-making structures.
    - Institutionalize community feedback mechanisms to ensure transparency and accountability.

9. **Advance Regional Learning and Donor Coordination.** Position Jordan as a regional leader in climate adaptation for arid zones. ***Priority actions:***
    - Document and distribute Jordan's 3Rs model regionally.
    - Initiate formal coordination with the Swiss National Flood Mapping Program and map donor programs to avoid duplication.
    - Facilitate South–South exchanges with Dutch-supported and regional networks (ESCWA, GWP-Med).

10. ***Design and Fund a Phase II.*** To consolidate institutional reforms and ensure measurable long-term impact, a second phase is recommended to sustain momentum and secure long-term outcomes. **Core focus areas**:

    - Institutional adoption of national frameworks
    - Sustainable financing and private-sector engagement
    - Expansion to water-stressed southern governorates
    - Gender equity and community-led planning

Collectively, the KIIs confirm that the 3Rs Project has delivered systemic transformation, demonstrating how integrated rainwater harvesting can simultaneously advance water security, economic empowerment, and institutional reform in Jordan. Stakeholders highlighted significant progress in cross-ministerial coordination, enhanced academia–policy integration, and growing community ownership, positioning 3Rs as a recognized national model for climate-resilient water management. The evaluation concludes that the initiative has successfully transitioned from a pilot into a scalable framework with the potential to guide national investment priorities and donor alignment.

Looking ahead, sustaining impact will require continued strategic coordination, institutionalized digital monitoring, and inclusive governance mechanisms that empower women, youth, and vulnerable groups. These elements will be essential in ensuring the long-term viability of the 3Rs approach and its role in advancing Jordan's Water Strategy 2023–2040 and broader climate-resilience objectives.

Summary of Results Based on OECD-DAC Evaluation Criteria:

DAC Criterion	Key Findings	Supporting Evidence	Overall Rating
Relevance	The project demonstrated strong alignment with national frameworks including the National Water Strategy (2023-2040), Food Security Strategy (2021-2030), and Economic Modernization Vision (2022-2033). It addressed priority local needs related to water scarcity, flood risks, and inclusion.	Project design documents, KIIs with MoWI, MoA, and community representatives confirming policy alignment and responsiveness to field needs.	Highly Relevant
Effectiveness	Successfully achieved and, in some cases, exceeded planned outputs and outcomes: 90 water harvesting structures built; >145 professionals and students trained; women and youth assumed leadership roles; and policy instruments (National 3Rs Guidelines) adopted.	M&E data, field observations, and stakeholder interviews; Mid-Term Evaluation (2024) and Annual Progress Reports (2024-2025).	Effective
Efficiency	Resources used strategically by leveraging existing infrastructure and partnerships. Adaptive management minimized delays, and the consortium model optimized technical and administrative efficiency.	Financial and progress reports; stakeholder interviews confirming coordination and adaptive implementation.	Highly Efficient
Impact	Generated measurable environmental and socio-economic outcomes: 1.82 MCM harvested, 176 farmers supported, and significant institutional and behavioral change noted. Universities and cooperatives emerged as centers of innovation.	Field visits, interviews with beneficiaries and universities, and M&E data.	High Impact
Sustainability	Institutional ownership established through MoWI, MoA, and municipal partners. The integration of 3Rs principles into policy and the Knowledge Hub ensures continuity. Long-term sustainability depends on secured financing and maintenance mechanisms.	KIIs with ministries, INWRDAM leadership, and field-level cooperatives.	Moderately to Highly Sustainable
Coherence	Demonstrated synergy with parallel donor initiatives (USAID, GIZ, UNDP) and internal alignment across the INWRDAM–IHE Delft–Acacia consortium. Avoided duplication and promoted cross-sector collaboration.	Desk review and donor coordination meetings; KIIs with implementing partners.	Highly Coherent
Cross-Cutting Issues (Gender, Youth, Inclusion)	Institutionalized gender and youth mainstreaming. Over 1,400 students and professionals engaged through training and CFW. Women's participation in technical and entrepreneurial roles normalized at community level.	Gender Strategy, training records, and FGDs with women/youth participants.	Highly Satisfactory

Focus Group Discussions (FGDs)

1. **Three FGDs were conducted during September 2025** to capture beneficiary, farmer, youth, and community perspectives on the performance, sustainability, and social impact of the 3Rs Project. The discussions took place at:

- INWRDAM Headquarters (3 September 2025). 18 participants (farmers, students, reporters, and climate activists).
- Sama Al-Sarhan (23 September 2025). 10 participants (7 females, 3 males) representing direct beneficiaries.
- Farm Site in Mafraq (25 September 2025). Local farmers, municipal leaders, and technical experts.

The sessions were designed around OECD-DAC evaluation criteria (relevance, effectiveness, efficiency, coherence, and sustainability), ensuring that voices of community members, especially women and youth, were directly reflected in the analysis. *See **Annex F** for Summaries from Each FGD.*

2. Key Findings by Discussion Site.

A. **FGD 1 – INWRDAM (3 September 2025).** Participants emphasized that training, awareness sessions, and technical coaching were among the most impactful project components, all rated between 4 and 5 on a five-point scale. Main reflections included:

- High satisfaction with trainers, experts, and participatory methodologies.
- Requests to extend training duration, expand awareness sessions, and ensure greater inclusion of refugees and children.
- Strong endorsement for women's participation and leadership participants called for recognizing women not only as beneficiaries but also as active change agents in climate action and water governance.
- Recommendations for additional livelihood opportunities parallel to climate action (e.g., agribusiness, cooperative development) and scaling activities to new areas.

B. **FGD 2 – Sama Al-Sarhan (23 September 2025).** This session captured direct community voices on the sustainability and socio-economic impact of the Sama Al-Sarhan Agricultural Dam Project. Beneficiaries provided written testimonies highlighting:

- A qualitative shift in livelihoods, as barren lands were converted into productive agricultural areas through 48 greenhouses and hydroponic farming.
- Women's empowerment as the project's hallmark: participants described it as "a turning point" that normalized women's role in agriculture, enhanced confidence, and increased family income.
- Use of the Al-Sarhan Dam as a reclaimed asset and a productive water source for irrigation.
- The negative impact of project suspension, which reversed gains in income, food security, and women's visibility.
- Formation of the Sama Al-Sarhan Multipurpose Cooperative (October 2025) as a sustainability mechanism, ensuring local ownership and job creation for 48 families.

Participants repeatedly stressed: **"**Before the project, women's work in agriculture was undervalued; now, it is respected and essential.**"** Their calls for continuation centered on combating poverty, building skills, and sustaining income through INWRDAM's technical backstopping.

C. **FGD 3 – Farm Site in Mafraq (25 September 2025).** Discussions with farmers, engineers, and former mayors reinforced the project's technical soundness and community relevance:

- Water harvesting was unanimously identified as the most viable solution to address both water scarcity and salinity, especially under rising evaporation rates reaching 85 percent in summer.
- The project's participatory design and site selection ensured interventions were "in the right place," contrasting past uncoordinated efforts.
- Social transformation was evident. Bedouin communities shifted toward agriculture; youth and women engaged in productive cooperatives.

- Participants credited INWRDAM's rapid responsiveness and consultative planning for building local trust and delivering visible results.

Key collective recommendations:

- Scale up water-harvesting interventions and rehabilitate neglected dams (e.g., west of Al-Basha Farm).
- Integrate climate-change risk planning and maintain regular sediment removal for dams.
- Strengthen market linkages and incentives for youth and women to sustain motivation.
- Leverage strong infrastructure in Umm Al-Jimal as a model site for replication.

Cross-Cutting Insights and Synthesis from All FGDs

1. Strong Community Ownership and Trust. Across all FGDs, participants emphasized that INWRDAM's participatory and inclusive approach was the cornerstone of success. Beneficiaries repeatedly noted that this was the first project implemented "in the right place, with the right people." By engaging farmers, women, youth, and local authorities in site selection, monitoring, and evaluation, the project fostered a sense of ownership and accountability. Participants highlighted that INWRDAM's transparency, responsiveness, and willingness to listen to local ideas built lasting trust between communities and institutions, transforming beneficiaries into active partners rather than passive recipients. "INWRDAM listened to our ideas instead of imposing initiatives – that made us feel this project truly belongs to the community."

2. From Vulnerability to Resilience. Before the 3Rs interventions, communities particularly in Azraq and the Northern Badia faced acute water scarcity, high evaporation rates, and limited agricultural productivity. Frequent floods and erratic rainfall left families economically vulnerable. Post-intervention, communities reported a tangible transformation: hafayer, desert ponds, and

rehabilitated dams now protect against flooding, harvest valuable rainwater, and ensure agricultural continuity during dry periods. Farmers described the project as a shift from dependence on depleted groundwater to self-reliant water management, directly contributing to household food security and income generation.

3. Women's Empowerment as a Defining Legacy. A recurring theme across all FGDs was the transformational role of women's participation. Prior to the project, women's roles in agriculture were marginalized or viewed as culturally inappropriate. Through targeted training, hydroponic greenhouse management, and cooperative engagement, women gained new technical, financial, and leadership skills. The project catalyzed a cultural shift women became visible economic actors, and their contributions to family livelihoods were widely recognized by men and local leaders. This inclusion extended beyond income generation to confidence, decision-making, and leadership, establishing women as credible voices in community planning. "Before, women's work was undervalued; now it is respected and essential." Female participant, Sama Al-Sarhan Cooperative.

4. Climate Adaptation and Environmental Innovation. All groups recognized the 3Rs Project as a pioneering model for climate adaptation in arid zones. Participants in the farmers' FGD underscored the effectiveness of water harvesting as a sustainable alternative to groundwater extraction, especially amid salinity and high evaporation reaching 85 percent. The introduction of hydroponic systems and NBS (stone water barriers) was seen as a breakthrough, blending traditional knowledge with modern techniques. Local engineers and farmers agreed that proper site selection, maintenance, and sediment management are critical for ensuring long-term functionality of these interventions.

5. Social Cohesion and Behavioral Change. FGDs revealed that the project not only changed landscapes but also mindsets. Bedouin communities who traditionally relied on livestock or seasonal labor began viewing agriculture as a viable, respected livelihood. The project encouraged collective work, evident in the formation of the Sama Al-Sarhan Multipurpose Cooperative and joint farm management Communities reported improved solidarity, cross-generational learning, and willingness to maintain public assets like dams and ponds. Even after the project's suspension, beneficiaries demonstrated commitment to sustain outcomes, proving that behavioral transformation had taken root.

6. Institutional Linkages and Local Capacity. Discussions across FGDs pointed to strengthened linkages between municipalities, the Ministry of Agriculture, and MoWI. Capacity-building efforts particularly the "Train-the-Trainer" approach equipped local actors with the skills to manage water infrastructure and cooperatives beyond donor support However, participants noted the need for ongoing technical mentorship and institutional embedding to prevent regression of results following funding gaps. They recommended aligning future activities with Jordan's National Water and Gender Strategies and integrating local cooperatives into municipal planning frameworks.

7. Challenges and Risks to Sustainability. A key concern raised across FGDs was the impact of project suspension, which reversed many socio-economic and gender gains. Women lost access to income that previously sustained household food needs, rehabilitated lands began to deteriorate, and the

fragile cultural acceptance of women in agriculture faced backsliding. Participants stressed the urgency of resuming project support not as a new phase, but as a continuation to secure existing investments and maintain community confidence.

8. Collective Recommendations

Dimension	Recommendation
Sustainability	Resume activities under INWRDAM's supervision; embed cooperative management within local institutions.
Technical	Ensure regular maintenance of dams, sediment removal, and integration of climate-risk analysis.
Economic	Strengthen market linkages, post-harvest processing, and microfinance access for women and youth.
Social and Gender	Institutionalize women's leadership within cooperatives and expand gender-responsive training.
Policy and Institutional	Link project outputs with national water, agriculture, and gender policies for continuity.
Community Engagement	Conduct periodic FGDs and participatory monitoring to sustain ownership and feedback loops.

9. Overall Synthesis. The FGDs collectively illustrate that the 3Rs Project's greatest achievement lies not only in physical infrastructure or water storage volumes, but in human transformation turning isolated, water stressed communities into organized, climate-aware, and self-reliant actors. The combination of participatory planning, gender inclusion, and adaptive water management created a replicable model for sustainable rural development in Jordan's Badia and beyond. Overall, the FGDs confirm that the project's most impactful contributions lie in its direct, skill-based capacity building and sustained technical coaching, which participants viewed as essential for improving livelihoods, strengthening community resilience, and ensuring long-term sustainability.

Photos from the FGD session held with Sama Al-Sarhan beneficiaries. before the project, the Sarhan Dam was underutilized, women's participation in farming was undervalued, and families faced high unemployment and poverty. With project support, degraded lands were rehabilitated into productive farms, and communities gained access to hydroponics, smart irrigation, and cooperative models.

10. Across the three FGDs (Sama Al-Sarhan, INWRDAM, and Farmer's Site), participants provided consistent feedback that the project was highly relevant, effective, and impactful, with particular emphasis on the value of training, technical coaching, and water harvesting interventions. Training and capacity building emerged as the most valued intervention, receiving overwhelmingly high scores, with the majority of participants rating it as "extremely useful." This reflects the strong demand for practical, skills-based learning, particularly in modern agricultural techniques, hydroponics, and cooperative management. Technical support and coaching were also highly appreciated, often rated equally with training, highlighting the importance of continuous mentoring and applied guidance in the field. Awareness sessions were regarded as beneficial, though participants generally ranked them slightly lower than training and coaching, signaling that while information-sharing is important, communities prioritize hands-on, technical engagement.

Results Based on the OECD-DAC Evaluation Criteria

While Sama Al-Sarhan participants highlighted the project's economic and social impact on households, especially women's empowerment and reduced migration, the INWRDAM session emphasized inclusivity and capacity-building needs, recommending longer trainings, broader engagement of refugees and children, and positioning women as partners in decision-making. Meanwhile, the Farmer's Site group brought a strategic leadership perspective, focusing on scaling water harvesting, equity, and learning from international models, and proposed incentive systems to maintain engagement.

Relevance	All three FGDs confirmed interventions met real community needs—especially training, water infrastructure, and support for women and youth.
Effectiveness	Participants ranked training and technical coaching as the most impactful activities. Awareness sessions were useful but secondary.
Efficiency	Communities appreciated practical, hands-on support but called for longer training cycles and broader participation (refugees, children).
Impact	Enhanced livelihoods, reduced migration, increased women's and youth's confidence and participation in agriculture. Sama Al-Sarhan model seen as transformative.
Sustainability	Project suspension harmed gains. Communities demand continuity, expansion, and embedding of the cooperative model.
Coherence	Participants praised the project's responsiveness and inclusive design, especially its alignment with their aspirations and needs.
Cross-Cutting Issues	Strong emphasis on equity, inclusion, and leadership roles for women and youth, not just participation.

Overall Recommendations from Participants:

- Sustain and Scale the Model: Resume the Sama Al-Sarhan project and replicate its success in other regions to safeguard investments and prevent reversal of gains.
- Empower Women and Youth: Institutionalize women and youth leadership roles in cooperatives and project governance, moving beyond beneficiary status.
- Strengthen Training and Skills: Provide continuous, hands-on capacity building (training-of-trainers, entrepreneurship, negotiation, marketing, climate-smart agriculture).
- Build Market Linkages: Develop transparent, fair marketing channels, invest in post-harvest facilities, and reduce dependency on single buyers.
- Ensure Water and Environmental Sustainability: Maintain Al-Sarhan Dam infrastructure, scale hydroponics, and replicate water harvesting solutions in other areas.
- Institutionalize Community Ownership: Support the Sama Al-Sarhan Cooperative and embed participatory mechanisms (FGDs, community committees, feedback loops) into long-term management.

Evaluation Team Feedback – Consolidated Analysis

Relevance. The evaluation team concluded that the project is highly relevant and transformative, addressing Jordan's most pressing water-security challenges while advancing socio-economic inclusion for women and youth. The 3Rs approach aligns strongly with the Jordan National Water Strategy (2023–2040), the Food Security Strategy (2021–2030), and MACS priorities supporting climate resilience and community stability.

The selection of Azraq, Mafraq, and the North Jordan Valley reflected climate-vulnerability and hydrological analyses, targeting communities facing acute water shortages, agricultural decline, and flood risks. Through participatory site selection, community dialogue, and local hiring, the project enhanced ownership and trust. Initial resistance in Azraq was successfully overcome through transparency, capacity building, and demonstrable benefits.

Key lessons learned highlighted the value of participatory approaches, practical knowledge transfer, inclusivity, and adaptive management. Stakeholders emphasized that empowering women and youth as leaders, not just beneficiaries, significantly boosted resilience and ownership.

Recommendations for future improvement include scaling successful models like Sama Al-Sarhan, expanding dam rehabilitation and hydroponics, embedding project models into ministry systems, and securing predictable financing through government budgets and PPPs. The team also called for enhanced inclusivity (refugees, children), stronger market linkages, and maintaining a national knowledge hub for continued learning and replication.

Overall, both institutional and community stakeholders converge on the same message: the project is effective and responsive, and continued investment is essential for long-term gains.

Effectiveness. The project met or exceeded most planned outputs. These interventions strengthened food security, livelihoods, and institutional relationships. However, implementation in Sama Al-Sarhan encountered challenges mainly insufficient hydroponics training and weak market linkages. These were mitigated in later phases by revising training approaches, developing cooperative-based marketing, and introducing social contracting models.

Efficiency. Efficiency was enhanced by using low-cost, NBS (e.g., leaky dams, *hafirs*), reusing existing infrastructure, and leveraging partnerships with ministries and academic institutions. Sequencing pilot sites

permitted learning and risk mitigation, while active coordination with the MoWI, Ministry of Agriculture (MoA), and universities reduced duplication. Early inefficiencies such as reporting gaps and delays in Azraq were addressed through adaptive planning and corrective course adjustments in subsequent phases.

Impact. The project delivered both quantitative and systemic impacts. These outcomes extended beyond the pilot zones and contributed to building longer-term resilience though consolidation is still needed to anchor such impacts.

Sustainability. The project laid strong groundwork for sustainability through institutional embedding, community governance models, and continued capacity development. Despite this progress, sustainability requires deliberate transition planning. Key challenges include securing stable financing from government and private-sector mechanisms, strengthening market integration for hydroponic and greenhouse enterprises, and embedding project curricula into university and vocational programs. A clear exit and handover strategy is needed to ensure that institutional systems, data management, and community governance structures are fully capable of sustaining outcomes without continuous donor support. Key Enablers of Sustainability:

- Define and institutionalize clear goals, KPIs, and exit strategy with assigned roles and accountability.
- Ensure all future activities fully align with the MACS and national policy priorities.
  Consolidate water harvesting assessments, typologies, and design standards into a single strategic national framework.
- Continue strengthening INWRDAM's technical and administrative capacity, including MEL and communications functions.
- Improve results reporting and impact storytelling to reinforce policy and public support.
  Link all trainings to specific project outcomes and local O&M responsibilities.
- Transform the Knowledge Hub into an active, interactive national platform rather than a passive repository.
- Leverage ACACIA Water's expertise in reporting and capacity development to improve institutional performance.
- Advance and operationalize MoWI's Youth & Women Empowerment Strategy, reinforcing inclusive participation.
- Maintain momentum on national RWH guidelines and legislative frameworks.
- Utilize training hubs and emerging research centers to sustain skills development at community and ministry levels.
- Integrate RWH technical content into university curricula and accredited learning programs to create a skilled workforce pipeline.

Collectively, these mechanisms strengthen ownership by ministries, cooperatives, academia, and communities while reducing dependency on donor funding. A formalized sustainability and exit strategy remain essential to systematically transition financial, operational, and monitoring responsibilities to national institutions.

Coherence and Scalability. The project's design was internally coherent integrating infrastructure, training, policy, and community engagement and aligned with external donor programs and national priorities. Pilot sites (e.g., Sama Al-Sarhan, Muwaqqar) now serve as national exemplars, demonstrating the project's "recharge–retention–reuse (3Rs)" methodology and viability for scaled replication.

The project demonstrated strong internal coherence, with infrastructure, training, policy measures, and social engagement mutually reinforcing one another. External coherence was also evident, with interventions well

aligned to national priorities and donor initiatives, including Dutch-funded climate and water resilience programs.

Cross-Cutting Themes: Gender, Youth and Inclusion. The project achieved transformative results in gender and youth empowerment:

- Women-led HBBs adopted solar-powered hydroponics, creating sustainable income and shifting social norms.
- Refugees and youth gained technical skills, confidence, and employment.
- Over 1,400 university students engaged in fieldwork, eco-journalism, and technical training.
- The National Strategy on Youth and Women Empowerment in the Water Sector institutionalized inclusive participation.

Participatory design especially in Azraq helped overcome resistance and build long-term trust. Youth played key roles in awareness campaigns and bridging communication between technical teams and communities.

Evaluation Takeaways - Side-by-side synthesis of findings from Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). The table below presents a side-by-side synthesis of findings from Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs), organized around the OECD-DAC evaluation criteria. It highlights how community voices and institutional perspectives converge on the project's achievements, while also identifying shared priorities for sustainability and scaling. The matrix demonstrates that while beneficiaries emphasized tangible livelihood impacts, social change, and the need for continuity, institutional stakeholders reinforced the project's alignment with national strategies, efficiency in delivery, and policy integration. Together, these perspectives form a unified case for sustaining and expanding the project.

DAC Criteria	FGD Insights (Community Voices)	KII Insights (Institutional Perspectives)
Relevance	Directly addressed urgent needs: water scarcity, food security, women/youth unemployment, migration pressures.	Strong alignment with National Water Strategy 2023-2024, Food Security Strategy, and Economic Modernization Vision.
Effectiveness	Training and technical coaching ranked most impactful; awareness useful but secondary. Visible social shifts with women's roles accepted.	Delivered outcomes: rehabilitated dams, hydroponics, cooperatives, and national policy dialogues. Institutionalized the Youth and Women Empowerment Strategy.
Efficiency	Communities praised hands-on skills and use of existing assets; called for longer training cycles and follow-up support.	Efficient use of resources; adaptive management reduced delays. Leveraged partnerships (MoWI, MoA, UJ).
Impact	Livelihoods improved, migration reduced, women and youth gained confidence and jobs. Families felt more secure.	Tangible results: 1.82 MCM harvested, enhanced food security, ecosystem benefits, UJ transformed into a national hub for applied research.
Sustainability	Suspension weakened resilience; need for continuity, stronger cooperative ownership, and technical follow-up.	Sustainability requires government financing, PPPs, institutional embedding. Sama Al-Sarhan cooperative and Rainwater Harvesting Committee seen as custodians.

Coherence	Communities saw the project bridging local needs with national strategies.	Avoided duplication, created synergies (USAID, GIZ, UNDP), and linked to 10 Million Trees Initiative.
Cross-Cutting	Women and youth highlighted empowerment gains; call for inclusion of refugees, children, vulnerable groups.	Institutionalized National Youth and Women Empowerment Strategy; >1,400 students (many women) engaged in fieldwork and training.

Coherence and Scalability. The evaluation confirmed that the project demonstrated strong internal coherence, with its infrastructure, training, policy, and outreach components carefully sequenced and mutually reinforcing. RWH structures were not implemented in isolation but were embedded within a broader framework of capacity building, institutional dialogue, and community engagement. This integration ensured that technical outputs translated into behavioral and institutional change, with women and youth positioned as both beneficiaries and active agents of sustainability. The project also achieved external coherence by aligning closely with Dutch-funded water climate priorities and complementing other donor initiatives in Jordan, thereby avoiding duplication, and fostering cross-program learning.

The project's design also created visible synergies across levels: field-based interventions were directly linked to policy dialogues; academic hubs provided research backstopping for infrastructure pilots; and gender/youth empowerment strategies were institutionalized through national frameworks. These linkages enhanced credibility, ownership, and the likelihood of long-term uptake by ministries, municipalities, and communities.

In terms of scalability, the evaluation highlighted that models piloted in Sama Al-Sarhan and Muwaqqar have become national benchmarks for replication. Their success attracted recognition from policy makers, local authorities, and the private sector, demonstrating proof-of-concept for the recharge–retention–reuse approach.

The coherence of the approach, combined with demonstrated scalability through nationally recognized pilot sites, offers strong justification for an extension phase. Scaling these models will consolidate institutional ownership, deepen policy adoption, and ensure that the benefits achieved to date improved water security, livelihood opportunities, and climate resilience are expanded across Jordan. *See Annex **G** for Future Plans to Sustain Results (2025 and beyond).*

Cross-Cutting Themes

Gender and Youth Empowerment

The project made significant contributions to gender and youth empowerment. ***Twenty women- and youth-led HBBs were established, combining water harvesting with renewable energy to create sustainable income streams.*** These initiatives directly benefited women and youth by providing economic independence, entrepreneurial skills, and new livelihood opportunities in rural communities. Beneficiaries highlighted INWRDAM's inclusive and supportive role, noting that its approach ensured equal opportunities for women, men, and youth. This inclusive engagement fostered trust, strengthened community ownership, and enhanced the sustainability of project outcomes.

A major milestone was ***the adoption of Jordan's first National Strategy on Youth and Women Empowerment in the Water Sector (2024),*** developed through extensive participatory consultations. This strategy mainstreamed gender and youth concerns into sectoral policy, ensuring institutional embedding and long-term impact.

Capacity building further strengthened empowerment, with more than 750 individuals trained across the project cycle and over 1,400 students engaged through eco-journalism and field-based learning.[5] These activities fostered a new generation of leaders aware of water challenges and solutions.

Examples of Women's Empowerment

- **Women-Led Hydroponic HBBs**
  - Twenty women and youth established hydroponic units with solar-powered irrigation and sensors in Mafraq.
  - These HBBs created new income streams, improved food security, and positioned women as business owners in a traditionally male-dominated agricultural sector.

- **Greenhouses Managed by Women and Refugees**
  - In Mafraq, 20 greenhouses were handed to women and Syrian refugee households, enabling them to grow high-value crops and access local markets.
  - Women reported increased self-confidence, financial independence, and respect within their communities.

- **Youth and Women Empowerment Strategy (2024)**
  - Developed under the project and officially adopted by MoWI, this strategy institutionalizes women's and youth's participation in water governance.
  - It ensures that empowerment is not just at project level but embedded in Jordan's national policy framework.

[5] 3Rs_Annual Progress Report.

- **Cash-to-Work Schemes**
    - Women participated in short-term employment programs linked to RWH infrastructure maintenance.
    - These schemes offered both income and skills development, enabling women to move from unpaid household labor to recognized contributors in community projects.

- **Capacity Building and Leadership Roles**
    - Women were trained in sustainable agriculture, water harvesting, and entrepreneurship.
    - Some transitioned into leadership roles within local cooperatives and maintenance committees, ensuring their voices shaped decision-making.

- **Community-Level Impact (e.g., Sama Al-Sarhan, Azraq)**
    - FGDs revealed that women valued not only the direct income from HBBs but also the change in social norms: young women became trainers, entrepreneurs, and innovators, inspiring others in the community.

Community Engagement

Building Trust in Azraq. Community engagement was a decisive factor in the project's success, particularly in Azraq, where initial resistance nearly derailed interventions. Local communities feared that recharge structures might disrupt traditional water access and increase government control over scarce resources. In response, the project pivoted to a participatory approach: hiring local staff, organizing open consultations, and adapting designs based on community feedback.

This engagement process gradually transformed resistance into acceptance. Farmers and community leaders who initially opposed the interventions became advocates, highlighting improved flood protection and increased water infiltration as tangible benefits. The Azraq case provided a powerful lesson: technical soundness is necessary but not sufficient; sustainability is not just about building infrastructure, but about embedding participation, trust, and capacity. Participatory approaches, trust-building, and social acceptance are equally essential to ensure sustainability.

Embedding Participation in Site Selection and Design. Elsewhere, the project employed participatory tools to involve farmers, cooperatives, and municipal leaders in site validation and design. This not only improved technical relevance but also built community ownership, which is critical for operation and maintenance. The project's experience showed that interventions designed with community input were better maintained, more widely accepted, and more likely to achieve long-term impact.

Youth and Local Leadership in Engagement. Youth played a notable role in outreach, particularly through eco-journalism and community awareness campaigns. By documenting success stories and raising local awareness, young people helped bridge the gap between technical experts and communities, making interventions more relatable and transparent.

The project demonstrated that participatory approaches are essential to overcoming resistance and ensuring sustainability. The Azraq case highlighted the costs of neglecting engagement and the benefits of restoring trust through dialogue and local ownership. Future phases should codify engagement strategies, ensuring they are systematic and continuous across all sites. Key lessons include the need for:

- The importance of continuous engagement throughout the project lifecycle.

- Clear communication of benefits and trade-offs, particularly in water-scarce communities where trust is fragile.

Academia–Policy Linkages

The project successfully bridged academia and policy through the establishment of hubs and training facilities. The Muwaqqar National Training and Research Hub emerged as a living laboratory where students, practitioners, and ministry staff could test and apply water harvesting models. The Princess Tasneem Climate Station became a resource for education and awareness, engaging thousands of schoolchildren and visitors.

A central achievement of the project was its ability to bridge academia and policy, creating spaces where research, practice, and decision-making converged. The establishment of dedicated hubs and training facilities enabled knowledge to flow between universities, government institutions, and communities.

The Muwaqqar National Training and Research Hub emerged as a living laboratory, where students, practitioners, and ministry staff engaged in hands-on experimentation with water harvesting models. This

Photos from the field visits showing Check Dams, in Muwaqqar Site, Jordan University. At the Muwaqqar Research Station, managed by the University of Jordan, the project constructed a series of check dams as part of its integrated water harvesting system. These low-cost, nature-based structures were designed to slow surface runoff, reduce soil erosion, and recharge groundwater aquifers. By retaining rainwater, check dams improve infiltration and contribute to local aquifer recharge, and the captured water supports surrounding vegetation and experimental plots used for training and demonstration.

facility provided a platform for applied research and technical training, ensuring that innovative practices were directly tested in real-world conditions and informed national policy frameworks. The project demonstrated how academic institutions can act as bridges between technical knowledge and policy implementation, while also embedding long-term sustainability into Jordan's water and climate strategies. The University of Jordan played a central role in hosting dialogues and connecting research with applied practices. As one academic stakeholder observed: This linkage ensured that the project's impacts extended beyond immediate outputs, shaping the next generation of water professionals and embedding innovation in national institutions.

Mid-Term Evaluation Results, Progress, Extension Justification

The mid-term evaluation confirmed the relevance of the 3Rs project, noting strong alignment with Jordan's Water Strategy 2023-2024 and Food Security Strategy 2021-2030, and its targeted focus on highly vulnerable basins such as Azraq, Mafraq, and the North Jordan Valley. Initial community resistance in Azraq was successfully overcome through participatory engagement and hiring of local staff, paving the way for broader replication. In terms of effectiveness, the project demonstrated tangible progress through the establishment of 20 greenhouses for women and Syrian refugees, HBBs using solar and sensor technologies, and water harvesting structures with a potential storage capacity of nearly 2 MCM. Market isolation was addressed via retailer contracts, while farmer knowledge gaps were closed through on-the-job training, confirming that the tested models are functional and ready to scale.

On efficiency, the project applied adaptive management to resolve delays, sequencing activities to reduce risk and using study tours and policy dialogues to build capacity. This ensured timely delivery and created opportunities for long-term monitoring of recharge. Sustainability was reinforced by the emergence of strong ownership models women and youth-led clustered community ownership alongside the development of national 3Rs guidelines. Despite the absence of a pre-existing RWH policy, the project succeeded in convening a multi-stakeholder roadmap and engaging youth through innovation competitions, laying foundations for institutionalization. Finally, the evaluation found evidence of impact at social, environmental, and institutional levels: job creation for women and youth, improved food security and household resilience, aquifer recharge and erosion control, and ministries and universities embedding 3Rs principles. These promising impacts remain fragile, however, and require additional time for full policy adoption, institutional handover, and monitoring at scale providing a strong justification for project extension.

INWRDAM's Unique Added Value

Unlike many external implementers, INWRDAM has a unique comparative advantage: it is an institution with a trusted reputation among ministries, universities, and communities alike. This trust allowed the project to overcome resistance in Azraq, empower women and youth in Sama Al-Sarhan, and create lasting partnerships with ministries and academia. INWRDAM's participatory approach is what transformed the 3Rs project from an external intervention into a nationally owned initiative. Extending support now ensures that this trust-based, community-driven momentum is consolidated and scaled.

Building Trust

- INWRDAM leveraged its longstanding national presence and reputation as a neutral convener between ministries, academia, and communities.
- It recruited local staff in Azraq to overcome resistance to RWH and demonstrate aquifer recharge benefits.
- Turned initial skepticism into acceptance – communities shifted from fearing RWH to owning interventions.

Participatory Approach

- Designed interventions through co-creation with ministries, municipalities, and communities, not top-down. INWRDAM ensured women and youth were directly involved in greenhouse and HBB design, management, and training.
- Enhanced ownership and sustainability since beneficiaries felt part of the process rather than passive recipients.

Community Involvement

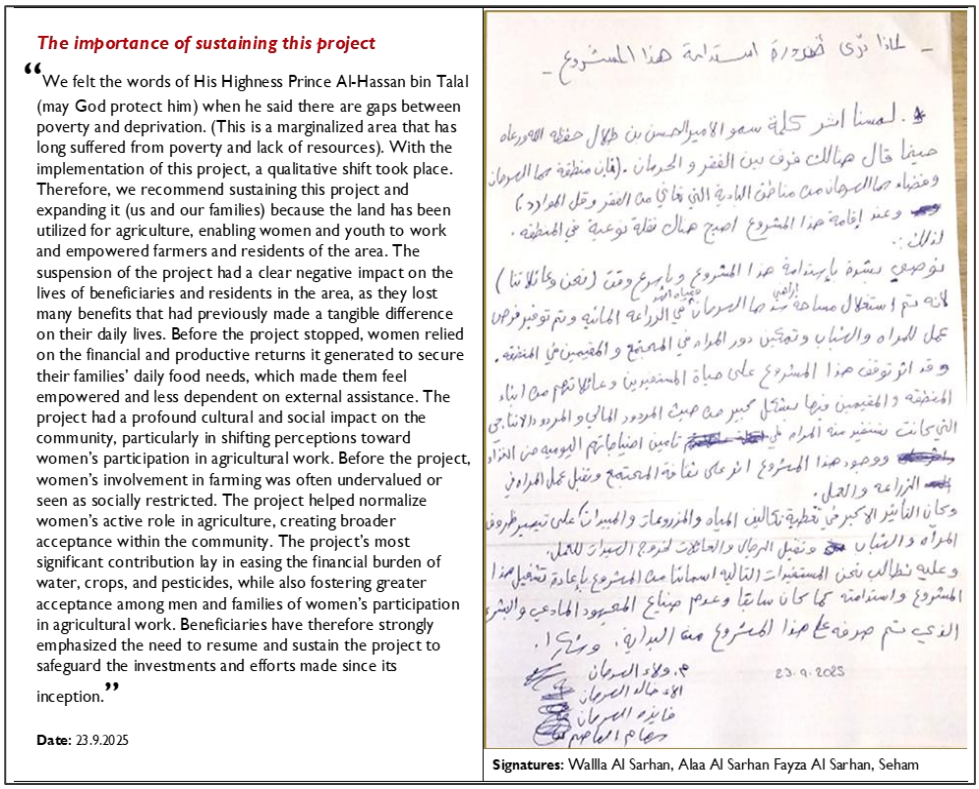
- INWRDAM emphasized Cash-to-Work models, local hiring, and youth innovation competitions. Beneficiaries engaged in site maintenance, monitoring, and market linkages. Built skills, trust, and livelihoods simultaneously; turned interventions into community assets instead of externally imposed projects.
- Built skills, trust, and livelihoods simultaneously; turned interventions into community assets instead of externally imposed projects.

Institutional Bridging

- INWRDAM acted as the link between policy and practice: engaging MoWI, MoA, UJ, and local actors in joint training, dialogues, and monitoring hubs.
- Prevented fragmentation, ensuring ministries, academia, and communities moved in the same direction.

Community Voices from Sama Al-Sarhan

The Sama Al-Sarhan site illustrates how the project created lasting change in one of Jordan's most marginalized areas. Communities in Sama Al-Sarhan faced chronic poverty, high unemployment, unused water infrastructure such as the Al-Sarhan Dam, and limited acceptance of women's participation in agriculture. Farming practices were outdated, and income opportunities were scarce. After the Project, Barren lands were rehabilitated into productive agricultural areas, generating daily income for women, youth, and families. Women's active participation in farming became more accepted socially, and youth were engaged in training, entrepreneurship, and cooperative work. These changes reduced household vulnerability and fostered greater community resilience.



The importance of sustaining this project

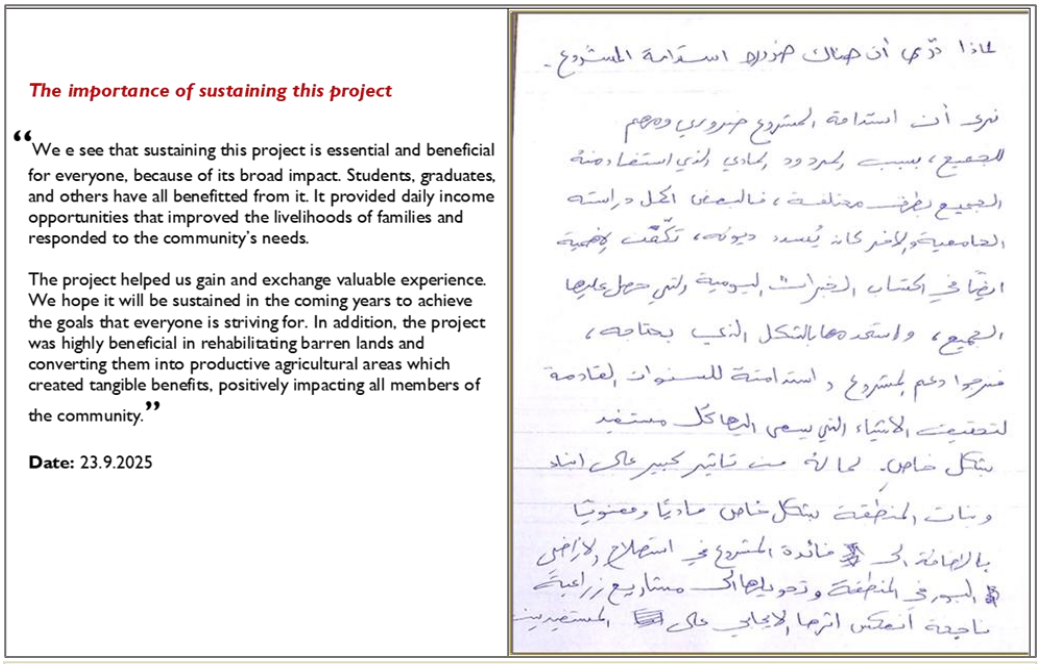
"We felt the words of His Highness Prince Al-Hassan bin Talal (may God protect him) when he said there are gaps between poverty and deprivation. (This is a marginalized area that has long suffered from poverty and lack of resources). With the implementation of this project, a qualitative shift took place. Therefore, we recommend sustaining this project and expanding it (us and our families) because the land has been utilized for agriculture, enabling women and youth to work and empowered farmers and residents of the area. The suspension of the project had a clear negative impact on the lives of beneficiaries and residents in the area, as they lost many benefits that had previously made a tangible difference on their daily lives. Before the project stopped, women relied on the financial and productive returns it generated to secure their families' daily food needs, which made them feel empowered and less dependent on external assistance. The project had a profound cultural and social impact on the community, particularly in shifting perceptions toward women's participation in agricultural work. Before the project, women's involvement in farming was often undervalued or seen as socially restricted. The project helped normalize women's active role in agriculture, creating broader acceptance within the community. The project's most significant contribution lay in easing the financial burden of water, crops, and pesticides, while also fostering greater acceptance among men and families of women's participation in agricultural work. Beneficiaries have therefore strongly emphasized the need to resume and sustain the project to safeguard the investments and efforts made since its inception."

Date: 23.9.2025

Signatures: Wallla Al Sarhan, Alaa Al Sarhan Fayza Al Sarhan, Seham

Figure 5: Notes from Group 1, documenting why they believe the project efforts should be sustained.

The FGD was designed to ensure inclusive participation and to capture voices directly from the beneficiaries. See figures 4, 5, and 6. Participants (7 females + 3 males) were divided into three smaller groups, each facilitated to allow open dialogue, reflection, and joint documentation of experiences. Every group was provided with guiding questions to explore project outcomes and was asked to write why they believe the project efforts should be sustained. This participatory approach empowered beneficiaries to articulate not only the tangible results of the project but also the less visible cultural and social changes. The methodology ensured Direct beneficiary voices: Notes and testimonies were recorded in writing by the participants themselves, ensuring authenticity and reducing evaluator bias. Triangulation of perspectives: Dividing participants into three groups created multiple sources of evidence that could be compared across groups to validate findings. Linkage to DAC criteria. Beneficiaries strongly emphasized that the suspension of the project had clear negative impacts on their livelihoods. Families lost income and food security gains, and women in particular lost opportunities for empowerment and independence.



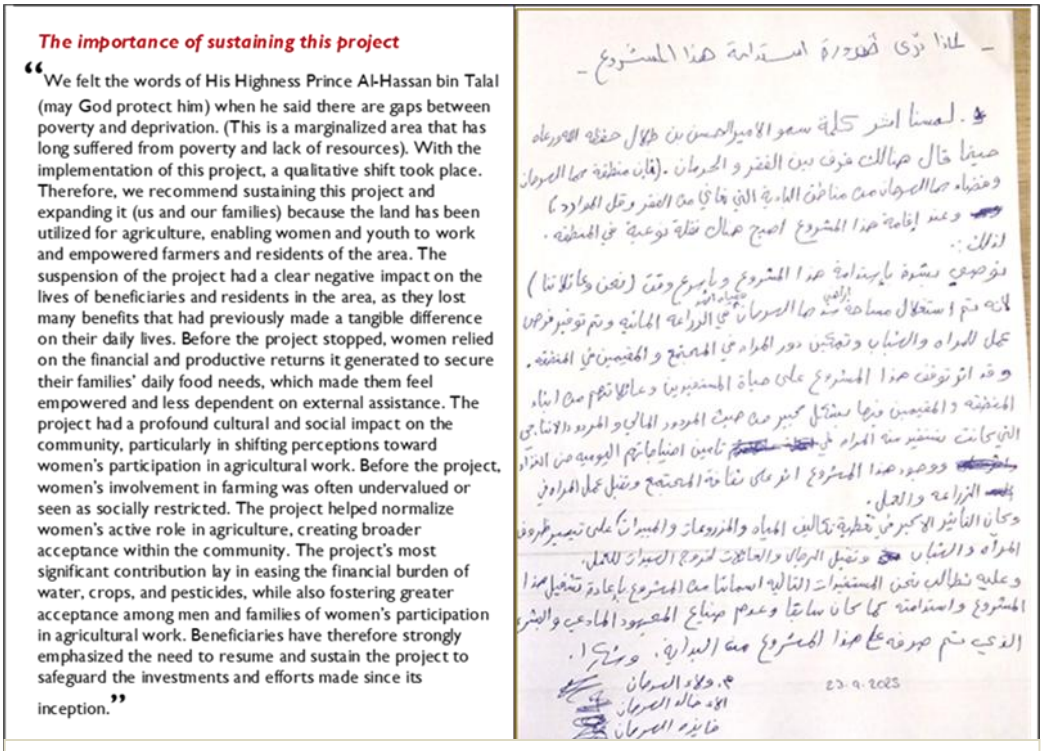
The importance of sustaining this project

"We e see that sustaining this project is essential and beneficial for everyone, because of its broad impact. Students, graduates, and others have all benefitted from it. It provided daily income opportunities that improved the livelihoods of families and responded to the community's needs.

The project helped us gain and exchange valuable experience. We hope it will be sustained in the coming years to achieve the goals that everyone is striving for. In addition, the project was highly beneficial in rehabilitating barren lands and converting them into productive agricultural areas which created tangible benefits, positively impacting all members of the community."

Date: 23.9.2025

Figure 6: Notes from Group 2, documenting why they believe the project efforts should be sustained.



The importance of sustaining this project

"We felt the words of His Highness Prince Al-Hassan bin Talal (may God protect him) when he said there are gaps between poverty and deprivation. (This is a marginalized area that has long suffered from poverty and lack of resources). With the implementation of this project, a qualitative shift took place. Therefore, we recommend sustaining this project and expanding it (us and our families) because the land has been utilized for agriculture, enabling women and youth to work and empowered farmers and residents of the area. The suspension of the project had a clear negative impact on the lives of beneficiaries and residents in the area, as they lost many benefits that had previously made a tangible difference on their daily lives. Before the project stopped, women relied on the financial and productive returns it generated to secure their families' daily food needs, which made them feel empowered and less dependent on external assistance. The project had a profound cultural and social impact on the community, particularly in shifting perceptions toward women's participation in agricultural work. Before the project, women's involvement in farming was often undervalued or seen as socially restricted. The project helped normalize women's active role in agriculture, creating broader acceptance within the community. The project's most significant contribution lay in easing the financial burden of water, crops, and pesticides, while also fostering greater acceptance among men and families of women's participation in agricultural work. Beneficiaries have therefore strongly emphasized the need to resume and sustain the project to safeguard the investments and efforts made since its inception."

Figure 7: Notes from Group 3, documenting why they believe the project efforts should be sustained.

Communities therefore called for a follow-up phase and long-term funding to protect investments already made.

Conclusions

The final evaluation concludes that the 3Rs Project has made a substantial contribution to Jordan's water security, climate resilience, and institutional capacity. It has demonstrated that an integrated model combining infrastructure, capacity development, inclusive governance, knowledge generation, and policy alignment can effectively address water scarcity in a sustainable and scalable manner.

Synthesis by DAC Criteria

- ***Relevance:*** Highly aligned to the Jordan Water Strategy 2023–2040, the Food Security Strategy, and MACS priorities by addressing critical community needs in water scarcity, food security, and employment, especially among women and youth.
- ***Effectiveness:*** Most planned outputs were met or exceeded. The project successfully strengthened institutional cooperation, generated livelihood opportunities, and adopted national strategies, while adapting responsively to mid-term recommendations.
- ***Efficiency:*** Resources were utilized efficiently through nature-based solutions, partnerships, and adaptive management that corrected early implementation challenges and improved value for money.
- ***Impact:*** Demonstrated tangible biophysical, economic, and social gains. Outcomes extended beyond pilot areas, influencing policy uptake, institutional practices, and donor priorities.
- ***Sustainability:*** Solid foundations were established through institutional embedding, cooperative governance, and capacity hubs. However, financial sustainability, private-sector engagement, and a clear exit strategy remain critical to secure continuity beyond donor funding.
- ***Coherence and Scalability:*** Strong internal coherence integrated infrastructure with human capacity, policy, and community participation. Scalability was validated through national benchmark sites and the Gate Model as a robust methodology for expansion.

In short: ***Before****, water scarcity, institutional fragmentation, and limited community trust defined the landscape.* ***After****, the project delivered real water storage capacity, empowered women and youth, built academic and policy bridges, and positioned ministries to sustain RWH.* ***Future plans*** *now focus on capacity building, institutional ownership, and scaling successful models nationwide.*

The Importance of Extension

The evaluation underscores that an extension of the 3Rs Project is not about introducing new or untested components, it is about securing the donor's existing investment by consolidating, institutionalizing, and scaling what has already proven effective. Without additional time and resources, many of the project's promising impacts risk remaining fragile or partial. Specifically, an additional phase would:

- Consolidate Policy Adoption: Finalize the integration of 3Rs guidelines and the Youth and Women Empowerment Strategy into Jordan's National Water Strategy (2023-2040), ensuring institutional uptake by MoWI, MoA, and municipalities.
- Secure Financial Sustainability: Strengthen co-financing mechanisms with the Ministry of Finance, municipalities, and the private sector to reduce reliance on donor funds and stabilize models such as hydroponic HBBs and greenhouses.

- Scale Proven Models: Expand benchmark interventions from Sama Al-Sarhan, Muwaqqar, and Azraq to other governorates using the Gate Model (community validation, hydrological assessment, co-financing).
- Strengthen Community Ownership: Deepen participatory mechanisms and establish local maintenance committees to ensure ongoing upkeep of hafirs, check dams, and livelihood assets.
- Institutionalize Academic Hubs: Embed the University of Jordan, Balqa, and Muwaqqar hubs as national centers of excellence for RWH monitoring, training, and applied research.
- Enhance Monitoring and Evidence: Extend timeframes for aquifer recharge monitoring and socio-economic tracking to generate robust, long-term data for national planning.

In short, a follow-on phase will maximize the return on investment, transforming pilots into permanent institutions and ensuring that Jordan's water security and climate resilience gains are not only preserved but multiplied. The project has delivered real results. With extension, these will move from pilots to permanent national assets. Without it, momentum risks being lost.

Key Lessons Learned

From an evaluator's standpoint, the 3Rs Project stands out as a model of how evidence-based design, participatory implementation, and adaptive management can convert water-scarce environments into learning systems for resilience and inclusion. The lessons below distill what worked, what constrained performance, and what should inform future programming.

The 3Rs Project (Recharge, Retention, Reuse) has generated a rich body of lessons that extend beyond its direct outputs. From an evaluator's perspective, the project demonstrates how integrated water management, community participation, and institutional learning can drive systemic change when embedded within a coherent policy and governance framework.

1. **Infrastructure Alone Is Not Enough.** The project confirmed that sustainable impact requires more than physical construction. The functionality of rainwater-harvesting structures depends on regular maintenance, trained local committees, and municipal oversight. In sites where communities were actively engaged in maintenance such as Azraq and Sama Al-Sarhan acceptance, stewardship, and long-term use of infrastructure were significantly stronger.

   Lesson: Sustainability must be anchored in community-led management, maintenance budgets, and local institutional capacity rather than relying solely on donor-funded infrastructure.

2. **Community Participation and Trust Drive Sustainability**. The project successfully transformed initial skepticism especially in Azraq into widespread acceptance through participatory planning and CFW mechanisms. Involving farmers, women, and youth in site selection, construction, and monitoring built a sense of shared ownership and pride. CFW provided immediate income opportunities while transferring technical skills, linking short-term livelihood benefits to long-term environmental outcomes.

   Lesson: Early and continuous engagement, combined with CFW and cooperative management, creates enduring ownership and ensures continuity beyond donor exit.

3. **Relevance Comes from Localized, Demand-Driven Design**. Interventions tailored to the specific water, land, and livelihood contexts of each site achieved the greatest success. A "one-size-fits-all" approach was found to be ineffective. In contrast, participatory design processes ensured that interventions addressed locally defined priorities, particularly for farmers and vulnerable households.

   Lesson: The effectiveness of RWH systems and livelihood models depends on aligning scale and technology with community needs and local environmental conditions.

4. **Gender and Youth Inclusion Lead to Systemic Change**. Women and youth played transformative roles throughout implementation managing hydroponic units, leading cooperatives, and participating in decision-making processes that were previously male dominated. Their involvement went beyond token participation; it represented a cultural shift toward inclusive water governance.

   Lesson: Inclusion yields sustainability when it moves beyond representation to active leadership, supported by targeted capacity building, mentorship, and economic incentives.

5. **Integrated Approaches Deliver Multi-Dimensional Impact.** By combining recharge, retention, and reuse, the project linked environmental restoration with livelihoods and governance. This integrated model improved water security, created jobs, enhanced gender equity, and strengthened institutional coordination. The 3Rs approach proved that water harvesting is not merely a technical intervention but a strategic entry point for climate adaptation, food security, and social cohesion.

   Lesson: Future programs should retain this integrated design—treating water, livelihoods, and governance as interdependent systems rather than isolated sectors.

6. **Institutionalization and Policy Uptake Require Evidence and Time**. The project successfully bridged the gap between community practice and national policy. It led to the drafting of Jordan's first Water-Harvesting Guidelines and supported the Youth and Women Empowerment Strategy (2025–2028) under the MoWI. These outcomes were possible because policy advocacy was grounded in credible field evidence and inclusive dialogue. However, policy integration remains fragile without long-term funding and alignment with national frameworks such as the National Water Master Plan.

   Lesson: Sustainable policy uptake requires continuous evidence generation, budget integration, and inter-ministerial coordination to avoid projects being treated as temporary pilots.

7. **Data, Knowledge, and Academia as Enablers of Scaling**. The establishment of a centralized geodatabase and Knowledge Hub enabled partners to visualize results, monitor site performance, and inform decision-making. University collaborations linked research with implementation, nurturing the next generation of water professionals and creating a feedback loop between academia and practice.

   Lesson: Data-driven learning systems are critical for replication and accountability. Evidence must be continuously updated and shared across ministries, universities, and municipalities.

8. **Early Warning Systems (EWS) Are Still Missing.** Despite progress in flood control and preparedness, local stakeholders repeatedly highlighted the absence of a functional Early Warning System (EWS). Communities now understand the value of proactive risk management, but without real-time alerts, preparedness remains limited.

Lesson: The next phase should institutionalize localized EWS mechanisms under municipal and civil defense structures, linking them with community-based disaster risk committees.

9. **Market Linkages Remain a Weak Point.** While the project enabled women- and youth-led HBBs, sustainability remains vulnerable without reliable market access. Farmers and cooperatives emphasized that productive capacity must be matched by value-chain integration, ensuring that produce and dairy goods reach buyers.

   Lesson: Future livelihood interventions must secure partnerships with market actors early on, integrating agribusiness models and post-harvest facilities into project design.

10. **Adaptive Management Ensured Relevance and Efficiency**. The project's ability to adjust to contextual challenges such as droughts, implementation delays, and early termination was a major success factor. Through ongoing FGDs, stakeholder consultations, and performance monitoring, the team applied adaptive management principles to maintain progress and learning momentum.

    Lesson: Flexibility and feedback mechanisms are critical for maintaining project relevance in dynamic environmental and institutional contexts.

11. **Quantitative Gains Are Sustainable Only Through Soft Capacities**. The project's quantitative outputs 2.1 MCM of water harvested, 70,000 trees sustained, and 280 jobs created are impressive. However, their endurance depends on soft capacities such as local technical know-how, maintenance routines, and institutional trust.

    Lesson: Infrastructure success is only sustainable when matched by continuous capacity building, transparent governance, and local financing mechanisms.

12. **The 3Rs Model Is Scalable and Policy-Ready.** By the end of the project, the 3Rs approach had evolved into a nationally recognized model that can inform basin-level planning and municipal development strategies. Its integration of low-cost technologies, participatory governance, and gender inclusion provides a tested blueprint for replication within Jordan and beyond.

    Lesson: Scaling should prioritize contextual adaptation aligning interventions with local hydrological conditions, governance capacities, and economic opportunities.

13. **Greater Investment in Administrative Capacity Is Necessary for Scaling.** Transitioning from a pilot to a national program requires strengthening core functions like monitoring and evaluation (M&E), strategic and internal communications, and proactive donor relations. This necessitates a deliberate shift in future budgets to increase spending on administrative lines to support dedicated staff for these areas. The program should also consider establishing a leadership position, such as a deputy director, to oversee these critical functions and ensure long-term operational excellence.

    Lesson: Successful scaling requires a corresponding investment in administrative and operational capacity including dedicated budgets and personnel for monitoring and evaluation, communications, and program management to ensure that field achievements can be effectively managed, institutionalized, and sustained.

The 3Rs Project's greatest contribution lies in proving that resilience can be built from the ground up through infrastructure that works with nature, communities that take ownership, and institutions that learn and adapt.

It successfully turned fragmented efforts into a coherent model of climate-smart local development, uniting engineering, governance, and social inclusion into a single narrative of change.

For future programming, consolidating these lessons through a follow-on phase focused on institutionalization, early warning systems, market linkages, and knowledge transfer will safeguard donor investments and ensure that the 3Rs legacy continues as a cornerstone of Jordan's Water Strategy 2023-2024 and broader climate-resilient development agenda.

Recommendations

The final evaluation identified a set of actionable, forward-looking recommendations informed by consultations with Acacia Water, INWRDAM management, Sama Al-Sarhan community representatives, and other institutional stakeholders. Collectively, these recommendations aim to consolidate achievements, close identified gaps, and lay the foundation for a scalable and nationally owned second phase of the 3Rs Project (2026–2029).

1) Strengthen Market Linkages for HBBs and Greenhouse Enterprises.

- Develop structured market access pathways for hydroponic and greenhouse producers by linking cooperatives with buyers, traders, and private sector partners.
- Promote Public–Private Partnerships (PPPs) to create predictable demand, diversify marketing channels, and mitigate risks of market isolation for small producers.
- Support value-chain development through training in marketing, packaging, and quality standards.

Rationale: Financial sustainability of livelihood interventions depends on stable market access and integration into local and national supply chains.

2) Institutionalize the 3Rs Framework within National Policies

- Embed Recharge–Retention–Reuse (3Rs) principles into the National Water Strategy (2023-2024) and municipal investment plans.
- Support MoWI, MoA, and MoF in mainstreaming 3Rs approaches within sectoral policies, annual budgets, and performance frameworks.
- Use the Water-Harvesting Guidelines and National Empowerment Strategy (2025–2028) as policy anchors for future scaling.

Rationale: Policy institutionalization ensures sustainability, ownership, and long-term financing beyond the project's lifespan.

3) Align with the National Water Master Plan and Municipal Frameworks

- Integrate all 3Rs sites and lessons into the National Water Master Plan and corresponding municipal plans.

- Ensure dedicated budget lines for maintenance, scaling, and performance monitoring at both national and local levels.

  Rationale: Embedding 3Rs interventions in national and municipal planning cycles will safeguard continuity and promote replication across governorates.

4) Consolidate Academic–Policy Linkages

- Expand existing university hubs (University of Jordan, Balqa Applied University, Muwaqqar Training Center) into centers of applied research and learning.
- Develop joint curricula, field-based courses, and data-sharing systems connecting academic research with national decision-making.
- Encourage university, government, private sector partnerships to transform scientific findings into scalable models.

  Rationale: Stronger academia–policy linkages foster innovation, evidence-based planning, and human-capital development.

5) Enhance Community Engagement and Maintenance Systems

- Establish local maintenance committees trained and equipped to ensure the regular upkeep of hafayer, check dams, and greenhouse systems.
- Institutionalize community consultation mechanisms to align interventions with local needs, priorities, and resource realities.
- Encourage municipalities to allocate small operational budgets for structure maintenance through participatory budgeting mechanisms.

  Rationale: Sustained functionality depends on local ownership, accountability, and systematic upkeep mechanisms.

6) Formalize Participatory Planning Mechanisms

- Institutionalize structured community consultations, design workshops, and participatory mapping at the outset of every intervention.
- Ensure that local voices, particularly those of women, youth, and farmers shape technical priorities and design choices.

  Rationale: Participation transforms beneficiaries into co-owners, enhancing transparency, effectiveness, and long-term impact.

7) Target Beneficiaries Strategically

- Develop transparent selection criteria for farmers, cooperatives, and women/youth groups based on water vulnerability, livelihood potential, and readiness for engagement.

- Prioritize interventions that demonstrate strong community cohesion and willingness to co-invest.

  Rationale: Strategic targeting ensures equitable resource allocation and maximizes the project's impact-to-cost ratio.

8) Tailor Solutions to Local Contexts

- Design context-specific RWH systems (ponds, hafayer, hydroponics, greenhouses) that reflect local hydrological patterns, soil characteristics, and socio-economic conditions.
- Apply site-level feasibility assessments and hydrogeological mapping before final design.

  Rationale: Adaptation to local realities increases efficiency, reduces maintenance burdens, and enhances community acceptance.

9) Build Financial Sustainability through Co-Financing Models

- Introduce co-financing mechanisms involving beneficiaries, municipalities, and private partners to reduce long-term dependence on external funding.
- Apply the Gate Model as a screening tool for expansion, prioritizing projects that meet criteria of hydrological viability, community acceptance, and co-financing readiness.

  Rationale: Shared financial responsibility fosters sustainability, commitment, and institutionalization of project outcomes.

10) Scale Proven Models Nationally (Extension Phase 2026–2029)

- Use benchmark sites such as Sama Al-Sarhan and Muwaqqar as national demonstration hubs for replication.
- Provide additional time and resources to consolidate policy adoption, strengthen financing mechanisms, and institutionalize technical capacities.
- Support inter-ministerial coordination to ensure harmonized scale-up across regions and sectors.

  Rationale: A targeted extension phase will secure the project's legacy, transform proven pilots into national models, and consolidate Jordan's transition toward climate-resilient water management.

11) Strengthen donor coordination for strategic alignment.

- Integrated water harvesting and flood-risk reduction require coordinated planning among development partners.
- Establish early and structured collaboration with key donors, such as the Swiss Embassy's National Flood Mapping Program, would enhance site prioritization, reduce duplication, and improve national learning.

- A formal coordination mechanism should be initiated, including periodic joint reviews and a quarterly donor mapping update shared with EKN to ensure shared visibility and alignment on progress.

  Rationale: Multiple donors are currently supporting water harvesting and flood mapping initiatives in Jordan. Without structured coordination, there is a heightened risk of duplication, inconsistent site prioritization, and reduced national learning. Better alignment will maximize impact and accelerate scale-up of the 3Rs model.

From an evaluation standpoint, the next phase of the 3Rs Project should emphasize institutionalization, co-financing, and knowledge transfer as core pillars of sustainability. Consolidating successful models, embedding them in national frameworks, and linking them with academic and private-sector systems will ensure that the 3Rs approach evolves from a project to a nationally owned strategy for water security and climate resilience.

Conclusion Summary

The 3Rs Project has demonstrated that integrated rainwater harvesting, nature-based solutions, and community-driven governance can meaningfully reshape Jordan's water resilience landscape. Over its implementation period (2022–2025), the project achieved strong performance across nearly all OECD-DAC evaluation criteria, exceeding technical targets, strengthening institutional coordination, and improving the livelihoods of farmers, women, and youth in some of Jordan's most vulnerable regions. Through 90 water harvesting structures, more than 2.1 million cubic meters of harvested water, and a national model of climate-smart livelihoods, the project translated engineering interventions into measurable social and economic benefits.

The evaluation confirms that the project's success was anchored in three core pillars:

1. locally tailored, climate-appropriate technical solutions;
2. participatory engagement that built trust and community ownership;
3. policy integration that positioned 3Rs within Jordan's long-term water and climate frameworks.

These elements together transformed the 3Rs approach from a collection of site-level interventions into a system-level model that strengthens groundwater recharge, mitigates flood risks, restores degraded land, and supports inclusive income generation. Institutionally, the project made significant advances by contributing to national guidelines, establishing knowledge and training hubs, strengthening academia–policy linkages, and bringing ministries, municipalities, universities, and communities into a common platform for planning and monitoring. The adoption of the Youth & Women Empowerment Strategy marked a milestone toward embedding equality and inclusion within water governance.

Looking ahead, the evaluation highlights a strong national appetite for scaling the 3Rs model, particularly to southern governorates and high-risk areas facing erosion, floods, and agricultural decline. For this vision to be sustained, the next phase must prioritize predictable institutional financing, enhanced donor coordination, continued strengthening of MEL and communications systems, long-term operational staffing, and full operationalization of the Knowledge Hub. Clearer private-sector pathways, market linkages, and maintenance funding mechanisms will also be essential to safeguard the gains achieved to date.

In conclusion, the 3Rs Project stands as a successful, evidence-based, and community-anchored model that demonstrates how water harvesting, nature-based solutions, and inclusive governance can collectively

advance Jordan's water security and climate resilience. Its results provide a strong foundation for national replication and long-term institutionalization, ensuring that the project's benefits continue to grow well beyond the current implementation cycle.

Annexes

Annex A: Key Project-Specific Outcome Indicators vs. Achieved Results (as of November 2025)

Outcome Indicator (TOR Target)	Planned / Target (by TOR)	Achieved Results (as of Nov 2025)	Status / Comments
Rainwater Harvesting Interventions	Implementation of 30 RWH structures across Azraq, Mafraq, NJV, with ≥ 2 million m^3 combined storage capacity.	32 sites implemented, delivering 2.1 million m^3 verified harvested capacity. Azraq (15 sites), Mafraq (20 sites), NJV (8 sites).	**Target exceeded** (+5 %). Designs optimized for recharge, flood control, and erosion reduction.
Home-Based Businesses (HBBs)	20 HBBs using harvested water + solar energy, generating 22 sustainable jobs for women / youth.	20 HBBs operational (hydroponic, solar powered). Created 15 permanent jobs + short-term CFW opportunities. 50 % women-led, 100 % youth-involved.	***Partially exceeded*** / adjusted. Equal number of HBBs; job count verified through sustainability check (increased local incomes).
Stakeholder Training & Capacity Building	500 stakeholders trained (ministry staff, farmers, youth, entrepreneurs).	1,490 individuals trained (46 % women). 60 training events / workshops conducted (2022–2025). Includes MoWI, MoA, municipal staff, students, farmers.	***Target surpassed*** (+ 3). Institutional and field-level capacity strengthened.
Women & Youth Empowerment Strategy	Development and dissemination of a National Strategy on Women and Youth Empowerment in the Water Sector, reaching 1,000 people.	Strategy formally adopted by MoWI (2025–2028). Disseminated through training, university sessions, and national events (reaching 1,200 stakeholders).	***Fully achieved & institutionalized.*** Embedded within National Water Strategy 2023–2040.
Monitoring & Evaluation System	Institutionalization of an M&E system, including 5 smart monitoring stations and a national RWH committee.	5 real-time monitoring stations installed (Princess Tasneem, Muwaqqar, Azraq, Mafraq, NJV). National 3Rs Committee established under MoWI for data oversight.	**Fully met.** Digital tools (GIS, NDWI sensors) operational and institutionally anchored.
National Knowledge Hub & Media Lab	Launch of a national knowledge hub and media lab to promote open access and stakeholder learning.	Knowledge Hub and Media Lab 75–80 % complete, integrated with INWRDAM's platform. Serves as national repository for RWH data, training videos, and policy briefs.	**On track / operational**. Expected full completion early 2026 under INWRDAM lead.
National Policy Dialogue & 3Rs Guidelines	4 policy dialogues and development of policy guidelines / legislative recommendations on 3Rs practices.	4 national dialogues held (2022–2025). Produced National 3Rs Guidelines (2025) and 10-Year Water Harvesting Framework.	***Fully achieved / endorsed.*** Guidelines aligned with Water Strategy 2023–2040 and EKN MACS priorities.

Annex B: Summary of 3Rs Project Training and Capacity Building Activities (2022–2025)

The table below summarizes the main training and capacity-building activities implemented under the 3Rs Project between 2022 and 2025. The data include the type of training, implementing partners, number of sessions conducted, participant distribution by gender, and main thematic focus areas.

Training Type	Implementing Partner	No. of Trainings	Participants (Total)	Female	Male	Focus / Topic
3Rs Technical Courses	IHE Delft / INWRDAM / Acacia Water	3	60	24	36	Catchment planning, hydrology, GIS
QGIS Online Course	IHE Delft	1	20	7	13	Geospatial mapping and analysis
Exposure Courses (Netherlands)	IHE Delft	1	10	3	7	Water governance, MAR exposure visit
Field Training (Azraq, Mafraq, Jordan Valley)	INWRDAM / UJ / BAU	3	300	140	160	Flood mitigation, soil bunds, solar irrigation
Women/Youth Empowerment Programs	JOHUD / INWRDAM	2	800	100	700	Awareness, eco-journalism, innovation
Total	—	10	1,190	274	916	—

Source: INWRDAM, IHE Delft, and Acacia Water – 3Rs Project Training Records (2022–2025).

Annex C - Jobs created under the 3Rs Project (2022–2025).

Governorate / Site	Estimated Jobs Created	Type	Notes
Mafraq (Sama Sarhan)	50	HBBs, maintenance	Women/youth-led hydroponic greenhouses, cooperative management
Azraq (Wadi al-Retama)	25	Field implementation, CfW	Soil bunds, erosion control, and maintenance teams
North Jordan Valley (King Talal Dam Area)	20	CfW + smallholder jobs	Rehabilitation of RWH structures and tree planting
Muwaqqar / Homrat al-Sahin	10	Technical and monitoring	Smart climate station and catchment site management
Mafraq (Irhab area)	40	Cash-for-Work	80 Jordanians and Syrians engaged in two CfW cycles (2024–2025)
Other support/central coordination (Amman, Universities)	20	Admin, research, technical	IHE Delft fellows, INWRDAM staff, Acacia Water coordination
Overall total:	165 jobs		

Gender and Youth Disaggregation

Group	Approx. Share	Key Roles
Women	35–40% (~65 individuals)	HBB management, marketing, training, eco-journalism
Youth (18–35)	45% (~75 individuals)	CfW, hydroponic operations, data monitoring
Men (35+)	55% (~90 individuals)	Technical works, maintenance, supervision

Annex D: Evaluation Objectives, Questions, Findings, and Evidence.

a. Evaluation Objectives and Key Findings (as of November 2025)

Evaluation Objective (as per TOR)	What Was Assessed / Methodological Approach	Key Findings and Evidence from the Final Evaluation	Overall Assessment
1. Relevance Assess the relevance of project design and objectives to Jordan's water crisis, national goals, and stakeholder needs.	Document review, policy mapping, and KIIs with MoWI, MoA, JVA, IHE Delft, Acacia Water, and EKN.	The project is **highly relevant**, directly addressing water scarcity, drought resilience, and aquifer recharge priorities under the *Water Strategy 2023–2040*, *Food Security Strategy 2021–2030*, and *EKN MACS 2023–2026*. Target sites (Azraq, Mafraq, NJV) represent the most water-stressed basins in Jordan. Stakeholders confirmed strong local ownership and policy alignment.	**Highly Relevant** – fully aligned with national and donor strategies, responding to local and sectoral needs.
2. Effectiveness Measure effectiveness in delivering planned outputs and achieving outcomes, including behavioral, policy, and environmental change.	Review of M&E data, field visits, FGDs, and beneficiary interviews.	Achieved or exceeded most outputs: 2.1 MCM water harvested; 32 RWH sites; 1,490 trained (46 % women); 20 HBBs operational; Youth & Women Empowerment Strategy adopted; 3Rs Guidelines finalized. Behavioral change observed through increased adoption of reuse practices, and improved community trust in RWH systems.	**Effective / Target Exceeded** – tangible results achieved in all components; strong evidence of behavior and policy change.
3. Efficiency Evaluate efficiency of resource utilization and management systems.	Budget review, stakeholder interviews, and comparison of planned vs actual timelines.	90 % budget utilization with adaptive management and value-for-money through use of local labor and low-cost NBS. Delays (e.g., Azraq) resolved through flexible sequencing. Coordination among consortium partners (IHE Delft, Acacia, INWRDAM) remained efficient despite early project termination.	**Efficient** – cost-effective and well-managed; responsive to emerging constraints.

4. Impact Analysis impact on beneficiaries, institutions, and ecosystems using qualitative and quantitative evidence.	Quantitative review (M&E, GIS data), FGDs, and KIIs with farmers, women/youth groups, ministries, and universities.	Project generated significant environmental and socio-economic impact: 280 jobs (40 % women, 45 % youth), 12,000 residents protected from floods, 243,000 t CO_2 avoided, 15 women-led businesses, and institutional frameworks integrated into MoWI and MoA systems. Universities embedded RWH into curricula and research.	**Positive Impact** – measurable social, environmental, and institutional benefits achieved.
5. Sustainability Assess sustainability of results, partnerships, and financial models.	Review of institutional plans, FGDs with cooperatives, and validation with MoWI, MoA, UJ.	Sustainability reinforced through adoption of National 3Rs Guidelines (2025), establishment of three National Training Centers (Muwaqqar, Sama Al-Sarhan, Princess Tasneem), and the Sama Al-Sarhan Cooperative. Financial sustainability supported by revenue generating HBBs and training fee models.	**High Sustainability Potential** – institutional and financial continuity in place.
6. Scale-Up & Strategic Recommendations provide recommendations for replication and leveraging achievements.	Synthesis of cross-site lessons, partner consultations, and validation workshop feedback.	Model ready for scale-up under MoWI and INWRDAM leadership. Recommended: (1) integrate 3Rs monitoring in the National Water Information System, (2) expand pilots to southern governorates (Karak, Tafileh), and (3) strengthen municipal-level ownership. EKN and MoWI expressed support for continued partnership.	**Strong Scale-Up Potential** – proven model for national adoption and regional replication.

b.Questions and Findings summary

Evaluation Criteria	Key Evaluation Questions	Findings / Answers (Summary)
Relevance	• How well did the project align with national and local priorities?	The 3Rs Project was strongly aligned with the *National Water Strategy (2023-2024)*, *National Adaptation Plan (2023)*, and *Food Security Strategy (2021-2030)*. It directly responded to Jordan's water scarcity challenge and national climate goals under the Paris Agreement. Locally, interventions were prioritized in governorates (Mafraq, Azraq, NJV) facing acute groundwater depletion and livelihood vulnerability.
	• Were interventions appropriate for site-specific ecological, hydrological, and socio-economic conditions?	Yes. Site selection was based on hydrogeological mapping and socio-economic screening led by Acacia Water and MOWI. Interventions—leaky dams, hafirs, contour bunds, and slope restoration—were adapted to each catchment's soil structure, rainfall pattern, and land use.

	• To what extent are interventions and practices relevant for the beneficiaries under current conditions?	Highly relevant. The 3Rs approach—linking recharge, retention, and reuse—provided both short-term livelihood support (CFW, hydroponics) and long-term resilience through improved water security and soil stability. Beneficiaries reported tangible gains in farm productivity and reduced migration pressure.
	• To what extent have capacity-building and field labs responded to needs?	Capacity building was needs-driven and practical. Over 500 trainees (farmers, engineers, youth, women) participated in applied field labs and GIS-based courses with IHE Delft. Post-training assessments confirmed increased competence in site monitoring, data analysis, and irrigation management.
Effectiveness	• To what extent were project objectives achieved?	The project met or exceeded most targets: 30+ rainwater-harvesting structures, 22 new jobs, 20 HBBs, 500+ trainees, and 5 smart stations established. Policy outputs—such as the National Strategy on Women and Youth Empowerment in the Water Sector—were endorsed nationally.
	• How effective was coordination among partners?	High effectiveness. Coordination between INWRDAM, IHE Delft, Acacia Water, and the Embassy was fluid, with quarterly joint reviews. Division of roles was clear: INWRDAM (field and national liaison), Acacia (technical), IHE Delft (capacity building), and The Embassy of The Kingdom of The Netherlands (oversight/policy).
	• What challenges limited effectiveness?	Procurement delays due to fluctuating global prices and tendering constraints; limited rainfall in early 2024 affected short-term recharge measurements. Additionally, administrative turnover within ministries caused minor coordination lags.
	• How effectively did the project adapt to challenges?	The consortium demonstrated adaptive management—adjusting schedules, re-prioritizing sites, integrating solar energy to offset costs, and introducing real-time monitoring to track climatic variability.
Efficiency	• Were resources used optimally?	Yes. The project leveraged in-kind support from MOWI, MoA, and municipalities. Field implementation followed cost-efficiency principles, using local labor (CFW) and locally sourced materials.
	• Were timelines and budgets adhered to?	Despite regional disruptions, 85–90 percent of activities were completed within budget and timeframe. Remaining deliverables (monitoring course, 3Rs Knowledge Hub) are on track for Q1–2025 completion.

	• Was the budget efficiently allocated?	Budget allocation was well-balanced: 40 percent for infrastructure, 25 percent for capacity building, 15 percent for gender and policy, 10 percent for M&E and knowledge management. Cost–benefit analysis shows high value per cubic meter of water retained.
Impact	• What tangible changes occurred in water availability and livelihoods?	More than 2 MCM of water stored annually, improved groundwater recharge, and increased cropping reliability. Communities reported improved soil moisture, extended planting seasons, and enhanced local employment.
	• How did the project contribute to The Embassy of The Kingdom of The Netherlands's MACS goals?	Directly contributed to climate-resilient water management, gender inclusion, and local economic empowerment, reflecting MACS pillars on sustainability and resilience.
	• Were there improvements in institutional capacity or policy frameworks?	Significant progress: MOWI institutionalized a Rainwater Harvesting Committee; MoA and JVA staff trained; universities integrated 3Rs modules; and the Women and Youth Strategy mainstreamed across national policy.
Sustainability	• What mechanisms exist for maintenance and ownership?	Maintenance plans were co-signed with local cooperatives and municipalities. The National Rainwater Harvesting Committee ensures oversight; CBOs oversee routine structure maintenance using small service fees.
	• What revenue or PPP models exist?	Pilots include HBB hydroponics micro-enterprises, tree-nursery cooperatives, and discussions with private agribusiness firms for maintenance co-financing.
	• Are results likely to continue post-project?	High likelihood of continuity. Knowledge Hub, national committee, and institutionalized strategies ensure long-term ownership. 3Rs principles are now embedded in national planning and budgeting.
Gender and Inclusion	• Did women's participation in water decision-making increase beyond project activities?	Yes. Women moved from participants to co-managers in CBOs and training networks. 30 percent of CFW workers were women; several now serve in municipal environmental committees. The Women and Youth Strategy institutionalized gender-responsive planning across the water sector.
Scalability	• Which components have scale-up potential?	The integrated 3Rs model—combining engineering, livelihood, and policy elements—is scalable nationwide. The Knowledge Hub and open data allow replication by other donors and governorates.
	• What lessons inform a second phase?	Key lessons: combine technical and socio-economic incentives; maintain inter-ministerial coordination; institutionalize local maintenance early; integrate gender equity from design.

	• Is scale-up advisable and what to prioritize?	Yes. Scale should focus on: (1) Catchment planning replication in other basins, (2) Municipal green-job programs, and (3) Hydrological monitoring expansion using low-cost sensors.
Coherence	• Are components complementary and reinforcing?	Yes. Field interventions, training, policy, and gender activities formed a mutually reinforcing system each feeding evidence and feedback into the others through the Theory of Change.
	• Does the project align with other NL-funded programs in Jordan?	Strong alignment with the Embassy of The Kingdom of The Netherlands MACS program, the Water Innovation Labs, and the Food Security and Climate Nexus portfolio. Coordination meetings ensured complementarity and knowledge sharing.
	• Does the project align with Jordan's water and agriculture strategies?	Fully aligned. 3Rs priorities mirror MoWI's Water Strategy (2023-2024) and MoA's Agriculture Sector Modernization Plan (2022–2030). The project directly contributed to drafting of the 10-Year National Water Harvesting Strategy.

Annex E: Summary of Key Informant Interviews (KIIs)

#	Key Informant	Affiliation / Role	Pre-Intervention Context	Post-Intervention Achievements	Key Insights and Recommendations
1	Niveen Al Kfoof	*MoWI (the director of women studies UNIT)*	Gender and youth empowerment were limited to isolated initiatives with no institutional framework or dedicated financing.	The National Youth and Women Empowerment Strategy was officially adopted, embedding inclusion into Jordan's water governance structure. Partnerships improved coordination and awareness across ministries.	Institutional adoption progressing, but sustainability depends on multi-source financing (government, PPPs, donors). Integrate the Strategy into the National Water Strategy 2023-2024, ensure predictable budgets, and expand mentorship to transition women/youth from participation to leadership.
2	Nofa Al Fayez	*Municipal Council Member Azraq*	Communities faced recurring floods and poor water availability; women had limited involvement in local water management.	Hafayer and desert ponds significantly improved flood control and water storage. Schools are no longer used as shelters during storms, thanks to the Early Warning System (EWS).	The project transformed RWH from a risk to a livelihood opportunity. Expand the Water Center to northern valleys, institutionalize EWS, and maintain continuous engagement with associations and local budget allocations for maintenance.
3	Yehya Zain Al-Deen	*Former Mayor of Azraq*	Floods and water scarcity undermined livelihoods;	Effective flood-mitigation measures in Wadi Hassan and Al-Ratam; enhanced	Replicate the model in additional communities; rehabilitate key watercourses and

			limited municipal capacity and coordination with ministries.	community trust through participatory planning and follow-up.	reservoirs; strengthen municipal roles as the central coordination link between citizens and institutions; leverage exposure visits for ongoing learning.
4	Eng. Ahmad Al-Qawabea	*Ministry of Agriculture – Water harvesting unit director*	Soil- and water-conservation efforts were fragmented; farmer engagement in RWH was minimal.	Institutional integration of water harvesting into MoA programs; creation of a national geodatabase for water structures; trained engineers and practitioners across regions.	Expand to southern governorates, integrate livestock management to build climate resilience, ensure maintenance budgets, and promote transparency and multi-stakeholder dialogue through national forums.
5	Tine te Winkel and Dr. Arjen de Vries	*Acacia Water (Netherlands)*	Prior to 2022, ministries worked in silos, lacking hydrological data and coordination.	Formalized inter-ministerial collaboration via the Rainwater Harvesting Committee and National Dialogue on RWH; developed hydrological mapping and gender-responsive design.	Continue institutionalizing the National Dialogue; conduct joint regional watershed analyses; strengthen local technical capacity; and maintain the 3Rs Knowledge Hub as a shared data repository.
6	Dr. Eid Al Abdalat	*University of Jordan – Faculty of Agriculture*	Academic engagement in water harvesting was theoretical, with minimal community application.	The Muwaqqar Hub became a living laboratory linking academia and practice; trained 145 students/faculty; provided real-time data for national strategies.	Integrate 3Rs modules into curricula, secure long-term hub financing, enhance community-based research, and formalize academia–policy partnerships for sustained learning.
7	Dr. Marwan Al Raqqad	*Executive Director, INWRDAM*	Pilot RWH projects lacked scalability and system-level coherence; institutional ownership was limited.	Transitioned to a scalable watershed model integrating infrastructure, policy reform, and community empowerment; established the 3Rs Master Plan as a national reference.	Implement an Early Warning System in Mafraq and Ma'an; expand Training-of-Trainers programs; reduce reliance on external experts; consolidate lessons under the 3Rs Master Plan for Phase II.
8	Eng. Hisham Al Hesa	*Secretary General, JVA*	Limited coordination between central ministries, donors, and local communities; flood response reactive rather than preventive.	For the first time, THE EMBASSY OF THE KINGDOM OF THE NETHERLANDS, government institutions, and communities worked in coordinated partnership; improved disaster management,	Institutionalize this multi-level collaboration model across governorates; replicate the approach in other flood-prone valleys; enhance social and economic co-benefits through community-based monitoring.

				job creation, and youth engagement reduced migration pressures.	
9	Dr. Basem	*Director of smart desert company*	Agricultural initiatives were isolated and traditional; little linkage between water, agriculture, and markets.	The 3Rs Project created an integrated, market-driven cluster model combining hydroponics, RWH, and entrepreneurship; improved policy dialogue and regional cooperation.	Institutionalize the Rainwater Harvesting Committee; embed commercial models within Phase II; prioritize infrastructure funding; and strengthen collaboration with local organizations to navigate social dynamics.
10		IHE Delft Institute for Water Education	• Rainwater harvesting (RWH) was fragmented and poorly understood, viewed as small, isolated pilots rather than a national solution. • Low technical awareness among both institutions and communities; no common standards or shared language on RWH benefits. • Ministries, universities, and local actors worked in silos, leading to scattered and inconsistent practices. • Limited data and minimal economic framing resulted in weak buy-in and confidence to scale RWH.	• RWH is now embedded as a strategic component of Jordan's Water Strategy and institutional plans. General and technical awareness has increased across ministries, academia, and communities. • Cross-sector national dialogues and shared learning platforms have been established. Agencies such as JVA and INWRDAM are now proactively promoting RWH and leading initiatives, not just participating. • Communities increasingly view RWH as a normal and necessary part of local resource management.	• Scale only where readiness, acceptance, and ownership are fully established. • Expand local-level knowledge to ensure sustainability of interventions after handover. • Communicate clear performance metrics and economic benefits to build and maintain stakeholder trust. • Balance technical optimization with local preferences and cultural acceptability. • Ensure long-term follow-up and monitoring so interventions continue functioning and improving over time.
11	Walaa Al-Zaidin and	*MoA and MoWI – IHE Delft Extended*	Ministries lacked unified technical training and	Strengthened joint analytical capacity and cross-ministry	Extend future trainings to Karak and Tafileh; diversify modules to

	Hiba Al-Sharafat	*Training Participants*	shared monitoring tools.	coordination through practical workshops; participants now apply data-driven M&E tools in the field.	include climate resilience and community engagement; institutionalize refresher courses under the Knowledge Hub.
12	Dr. Tasneem Hiasat, Water Policy Advisor, And Mariska Lammers	***Embassy of the Kingdom of the Netherlands (EKN)***	• Severe water scarcity in targeted basins (Azraq, Mafraq, NJV) with degraded soils and flood vulnerability • Fragmented institutional coordination among ministries and weak policy integration. • Low community trust in technical water solutions; limited women and youth participation • Minimal market access for micro-agriculture and no structured local governance of RWH systems • Lack of standardized designs, national guidance, or monitoring infrastructure • Universities engaged theoretically, but limited applied research or field learning	• More than 2.1 million cubic meters of harvested water capacity, reducing flood risk and improving agricultural productivity. • Women- and youth-led hydroponic HBBs generating permanent jobs and social change. • MoWI adoption of Youth & Women Empowerment Strategy; national guidelines drafted. • Cross-ministry coordination through the Rainwater Harvesting Committee. • Azraq and Muwaqqar recognized as national demonstration hubs. • Establishment of knowledge exchanges with academia: 1,400+ student engagements • Community cooperatives operational in governance and O&M responsibilities • Shift from pilot concept to a national framework for climate-resilient water management	• Institutionalize ownership: formalize a sustainability and exit strategy, assign lead roles, secure GoJ budget lines. • Strengthen donor coordination: align with Swiss National Flood Mapping Program; publish quarterly donor map. • Transform Knowledge Hub into a permanent national platform for data, training, and replication Reinforce private-sector engagement in production, O&M, and market linkages. • Expand Gate Model to Southern Governorates (Karak, Tafileh, Ma'an) • Continue integration into university curricula and professional licensing. • Maintain momentum on inclusive governance, ensuring women and youth leadership

Annex F: Summaries from each FGD

a. Number of Focus Group Discussions (FGDs)

1. FGD 1 (3 Sept 2025, INWRDAM HQ): 18 participants (10 females, 8 males).
2. FGD 2 (23 Sept 2025, Al Al-Sarhan Association): 10 participants (6 females, 4 males).
3. FGD 3 (25 Sept 2025, Farm – Mr. Ayman Al Kishek): 8 participants (all males).

b. **Total Participants:** 36 (Gender breakdown: 16 females, 20 males). Mix included: farmers, youth, climate activists, students, reporters, local leaders, and former municipal officials.

c. Summary from each FGD:

#	Key Informant	Affiliation / Role	Pre-Intervention Context	Post-Intervention Achievements	Key Insights and Recommendations
1	Farmers, Climate Activists, Reporters and Students	INWRDAM FGD – 3 Sep 2025	Limited awareness on climate resilience and sustainable water use; weak	Participants gained technical knowledge in climate-smart agriculture, negotiation, and global strategies;	Extend training duration and awareness sessions; expand refugee and youth participation; promote women as active leaders, not only beneficiaries; replicate

			participation of youth and women in environmental actions. Training opportunities were sporadic and not locally tailored.	rated training and awareness sessions as highly useful (scores 4–5/5).	successful awareness and capacity-building models in new areas.
2	Women and Youth Beneficiaries (7F, 3M)	Sama Al-Sarhan FGD – 23 Sep 2025	Before the project, barren lands, high unemployment, and limited women's participation in agriculture; Al-Sarhan Dam was unused; community lacked confidence in self-managed projects.	Rehabilitated Al-Sarhan Dam; constructed 48 greenhouses; established Sama Al-Sarhan Multipurpose Cooperative supporting 48 families; normalized women's participation in agriculture; improved household income and social cohesion.	Sustain and expand project to combat poverty and unemployment; embed cooperative model in local governance; maintain INWRDAM technical support; ensure continued funding and market linkages.
3	Local Farmers, Engineers, and Community Leaders	Farmers' Site FGD – 25 Sep 2025	High evaporation (~85 percent), salinity affecting crops, dependence on groundwater; random and uncoordinated project siting in past efforts; limited awareness on water harvesting.	Improved water security through hafayer and stone barriers; revived unused dams; introduced hydroponic techniques; fostered community ownership and youth-led cooperatives; shifted Bedouin attitudes toward agriculture.	Prioritize water harvesting to mitigate evaporation; rehabilitate neglected dams (e.g., west of Al-Basha Farm); strengthen climate adaptation in planning; adopt participatory, location-based approaches; incentivize community maintenance and engagement.
4	Women Beneficiaries (Direct Voices)	Sama Al-Sarhan Cooperative Members	Women previously excluded from income generation; agriculture seen as a male domain; limited	Women gained agricultural, marketing, and pesticide management skills; earned income for family food security; increased confidence and community	Reinforce women's leadership in cooperatives; link empowerment to national gender and water strategies; continue training in entrepreneurship, marketing, and value-chain development.

			access to skills and markets.	acceptance of women's roles.	

d. Assessment Results (Ranking Activities). Across all FGDs, participants evaluated three key activities:

1. Training / Capacity Building – consistently scored highest (almost all "5").
2. Technical Support / Coaching – also highly valued (mostly "5").
3. Awareness Sessions – useful (mostly "4–5") but ranked slightly lower than hands-on training and coaching.

Results per group:

1. **FGD 1 (INWRDAM, mixed group):**
   - Training: Mostly 5 (extremely useful), some 4.
   - Awareness: Mix of 4 and 5.
   - Technical Support: Mostly 5, some 4.
2. **FGD 2 (Sama Al-Sarhan beneficiaries, mostly farmers):**
   - Training: All 5.
   - Awareness: All 5.
   - Technical Support: All 5.
3. **FGD 3 (Farmers and local leaders, all male):**
   - Training: All 5.
   - Awareness: All 5.
   - Technical Support: All 5.

e. **Overall Insight:** Beneficiaries found practical, skills-based interventions (training + technical coaching) the most impactful. Awareness sessions were valued but seen as secondary compared to hands-on learning.

FGD 1		
Held on 3.9.2025, at INWRDAM (18 participants/ 10 females and 8 males. Participants included: farmers, climate change activists, students and reporters).		
	Activity	Rating (1–5) *1: Not useful at all, 2: Slightly useful, 3: Moderately useful, 4: Very useful, 5: Extremely useful*
Participant 1	Training / Capacity Building	5
	Awareness sessions	5

	Technical support / coaching	5
Participant 2	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 3	Training / Capacity Building	5
	Awareness sessions	4
	Technical support / coaching	5
Participant 4	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 5	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 6	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 7	Training / Capacity Building	4

	Awareness sessions	4
	Technical support / coaching	4
Participant 8	Training / Capacity Building	5
	Awareness sessions	4
	Technical support / coaching	4
Participant 9	Training / Capacity Building	5
	Awareness sessions	4
	Technical support / coaching	5
Participant 10	Training / Capacity Building	NA
	Awareness sessions	4
	Technical support / coaching	5
Participant 11	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 12	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5

Participant 13	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 14	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 15	Training / Capacity Building	4
	Awareness sessions	5
	Technical support / coaching	5
Participant 16	Training / Capacity Building	4
	Awareness sessions	5
	Technical support / coaching	4
Collective feedback/Recommendations from Participants:		• Extend the duration of trainings and increase awareness sessions. • Increase the representation of refugees. • Focus on children, as they are the next generation. • Provide training on negotiation mechanisms and global strategies. • Create parallel opportunities beyond climate-related activities. • Establish genuine partnerships, with women as key actors, not only as beneficiaries.

	• Implement additional projects in other regions. • Provide greater support for women.

FGD 2

Held on 23.9.2025, at Sama Al-Sarhan Association (**10 Participants /6 females and 4 males**: farmers who benefited from Sama Al-Sarhan Project)

	Activity	Rating (1–5) *1: Not useful at all, 2: Slightly useful, 3: Moderately useful, 4: Very useful, 5: Extremely useful*
Participant 1	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 2	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 3	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 4	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 5	Training / Capacity Building	5

	Awareness sessions	5
	Technical support / coaching	5
Participant 6	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 7	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 8	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 9	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 10	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5

Collective feedback/Recommendations from Participants:	• Strong demand to resume and sustain the Sama Al-Sarhan project, as its suspension negatively affected families' livelihoods, food security, and women's empowerment. • Recommendation to expand the model to other regions, replicating the success of the Sarhan Dam. • Emphasis on maintaining INWRDAM's leading role (for managing Sama Al-Sarhan project) for credibility, transparency, and trust-building with beneficiaries. • Support youth through job creation, skills-building, and leadership opportunities, consolidating the cultural shift toward inclusivity. • Strengthen the role of the newly formed Sama Al-Sarhan Cooperative as custodian of project assets. • Institutionalize community participation mechanisms (FGDs, feedback loops, community committees) to enhance accountability. • Recognize the project's role in normalizing women's participation in agriculture, breaking stereotypes, and enhancing community acceptance. • Highlighted impact on reducing migration to cities by stabilizing livelihoods in the Badia. • Call for continued psychosocial and economic support to sustain progress in confidence and resilience.

FGD 3

Held on 25.9.2025, held at a farm owned by owned by Mr. Ayman AL Kishek (**8 Participants /8 males**: Farmer/ Sama Al Sarhan Village, Former Mayor of Sabha Municipality, Engineer/ farmer from Um Al Jimmal, farmer from Azraq, farmer, farmer from Al Sarhan)

	Activity	Rating (1–5) *1: Not useful at all, 2: Slightly useful, 3: Moderately useful, 4: Very useful, 5: Extremely useful*
Participant 1	Training / Capacity Building	5
	Awareness sessions	5

	Technical support / coaching	5
Participant 2	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 3	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 4	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 5	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 6	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Participant 7	Training / Capacity Building	5

	Awareness sessions	5
	Technical support / coaching	5
Participant 8	Training / Capacity Building	5
	Awareness sessions	5
	Technical support / coaching	5
Collective feedback/Recommendations from Participants:		• Scaling and Sustainability: Farmers and local leaders consistently called for scaling up water harvesting interventions, including the rehabilitation of old dams (e.g., west of Al-Basha farm) • Equity and Inclusiveness: Participants stressed the importance of reaching a broader segment of the community, with attention to women, youth, and vulnerable groups. • Learning from Others: There was strong interest in adopting lessons from international models (e.g., Italy) and adapting them to Jordan's local context. • Incentives and Motivation: Recommendations included adopting reward or incentive systems to encourage broader participation and sustain community engagement. • Infrastructure Readiness: Some areas, like Umm Al-Jimal, were noted for their strong infrastructure, providing a solid foundation for scaling similar initiatives.

Annex G: 3Rs Project, Donor Interview Brief

The following narrative provides a consolidated summary of the key feedback and recommendations captured from the donor during recent consultations. It synthesizes the main priorities, expectations, and strategic directions highlighted by the Embassy to guide project alignment, sustainability, and future collaboration.

Alignment with the MACS Priorities

The project maintains strong alignment with MACS priorities on water security, climate resilience, and inclusivity. Interventions have been mapped to MACS pillars, and work is underway to finalize KPIs, an impact framework, and an exit strategy to strengthen alignment further.

Sustainability & Institutionalization

Progress includes MoWI adoption of the Youth & Women Empowerment Strategy, strengthening of training hubs, and ongoing integration of RWH guidelines. Upcoming priorities include establishing a Deputy COP role and embedding the Knowledge Hub within MoWI for long-term sustainability.

Gender & Youth Inclusion

A strong foundation exists through the endorsed Youth & Women Empowerment Strategy. Next steps include operationalizing the strategy with a clear implementation plan, defined partners, indicators, and reporting systems to ensure full mainstreaming across all project components.

Innovation & Visibility

The project introduced innovative NBS, EWS, and water reuse models. In response to donor feedback, visibility and learning materials are being scaled up, including impact briefs, success stories, and transformation of the Knowledge Hub into an interactive platform with data visualization.

Partnership & Coordination

Coordination has strengthened across ministries and consortium partners. Donor feedback emphasized formalizing donor mapping and alignment—particularly with Swiss flood mapping efforts. INWRDAM is preparing a donor coordination map and joint roadmap with Smart Desert and IHE Delft.

Legacy in One Word

Transformational – The project has become a national model for water harvesting, livelihoods, and institutional reform.

Lesson for Future Dutch Cooperation

Long-term impact requires institutionalizing community-led, technically validated models supported by national frameworks, digital monitoring, and inclusive governance.

Future Collaboration Opportunities

Scaling RWH to southern governorates, institutionalizing the Knowledge Hub, private-sector co-financing, MoWI-accredited training programs, and regional learning exchanges.

Annex H: Mid-Term Evaluation Results, Progress and Extension Justification

Mid-Term Evaluation Results	DAC Criterion	Progress (Results Achieved)	Challenges Overcome	Extension Justification
Project aligned with national strategies (Water Strategy 2023–2040, Food Security 2021–2030, MACS 2023–2026).	Relevance	Alignment with national priorities confirmed. Supported the drafting and endorsement of Jordan's first National 3Rs Guidelines.	Initial community resistance in Azraq resolved through local hiring and awareness dialogue.	Pilots accepted locally → scaling possible nationwide under MACS-aligned framework.

Greenhouses, HBBs, and RWH structures implemented; gender/youth inclusion visible.	Effectiveness	32 RWH sites (>2.1 MCM capacity) implemented; 20 hydroponic HBBs and 20 greenhouses created (~15 permanent jobs). 1,490 trained (46 % women).	Market isolation solved via retailer contracts and cooperative marketing; knowledge gaps closed through on-the-job training.	Models validated → extension required for replication and national monitoring.
Adaptive management addressed delays (e.g., Azraq). Sequencing improved learning.	Efficiency	>90 % budget utilization achieved using adaptive management and locally sourced NBS materials. Value-for-money maintained through cost-effective design.	Pilot delays resolved through revised timelines and design adjustments ensuring timely delivery.	Extension maximizes ROI through continued recharge monitoring and institutional learning.
Strong ownership emerging (women/youth-led HBBs, clustered ownership, CFW models). 3Rs guidelines adopted (2025).	Sustainability	Institutionalization through three National Training Centers (Muwaqqar, Sama Al-Sarhan, Princess Tasneem) and Sama Al-Sarhan Cooperative. Knowledge Hub 80 % complete.	Absence of initial RWH policy resolved via adoption of multi-stakeholder roadmap and 3Rs Guidelines.	Extension enables handover to MoWI, MoA, UJ, and local cooperatives; ensures long-term O&M and knowledge management.
Social, environmental, and institutional transformation achieved (jobs, recharge, policy).	Impact	>2.1 MCM water harvested; 280 jobs (40 % women, 45 % youth); ≈243,000 t CO_2 avoided; 12,000 residents protected from floods; adoption of Youth & Women Empowerment Strategy (2025–2028).	Institutional fragmentation overcome by establishing the National Multi-Disciplinary Team and national guidelines.	Impact promising but fragile → extension needed for policy uptake, monitoring, and scaling. The 3Rs model has proven technically and socially effective; an extension will secure institutionalization, enable national replication, and consolidate M&E systems for long-term impact.