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Rainwater harvesting units in Jordan: Assessment of effects

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Rainwater harvesting units in Jordan: Assessment of effects

▶ Foreword

Water scarcity remains one of the most critical challenges facing smallholder farmers in Jordan, undermining both agricultural productivity and the livelihoods of rural communities. In response, the International Labour Organization (ILO), through its Employment-Intensive Investment Programme (EIIP), has demonstrated the transformative potential of a human-centred approach to public investment —one that combines decent job creation with sustainable resource management.

The rainwater harvesting initiative, implemented under the EIIP approach with the support of the Kingdom of Norway, presents compelling evidence of the wide-ranging benefits of employment-intensive investments in green infrastructure. A joint impact study, supported by the Kingdom of the Netherlands through the ILO's Partnership for improving prospects for forcibly displaced persons and host communities (PROSPECTS) and the ILO's Employment in Investments (EMPINVEST) Branch, shows that the construction of 262 rainwater harvesting units across eight governorates helped farmers mitigate seasonal water shortages, reduced irrigation costs, diversified crops, and increased farm incomes. The intervention not only boosted land productivity but also generated over 2,000 workdays and strengthened women's participation in farming, reinforcing its role in advancing inclusive and resilient local economies.

This employment-intensive approach delivered more than just physical infrastructure: it fostered local capacity, sparked community-led innovation, and encouraged local ownership. Nearly half of the beneficiaries inspired neighbouring households to replicate the initiative, resulting in the construction of over 260 additional units. This ripple effect highlights the importance of empowering communities with accessible, practical, and replicable solutions.

The project's experience reaffirms the critical value of aligning decent job creation with sustainable agriculture and water management, which the PROSPECTS Partnership in Jordan aims to achieve through its EIIP interventions in the second phase of the programme (2024-2027). Building on the Norway project's experience, PROSPECTS, funded by the Kingdom of the Netherlands aims to improve to the lives of refugees, forcibly displaced people, and the communities that host them by improving access to education, social protection, decent work, and critical infrastructure. Under EIIP interventions, PROSPECTS will implement labour-based technologies to address water scarcity, promote employment opportunities, and advance sustainable development through green and climate-adaptive initiatives, alongside capacity development to increase employability.

As Jordan and its development partners shape future programming, the insights from this assessment offer a clear pathway for scaling impact across the country—through enhanced technical support, gender-responsive design, and greater investment in employment-intensive approaches that yield both economic, environmental and social gains. Therefore, the ILO, through its programmes, remains fully committed to supporting Jordan, and other countries facing similar challenges, in embedding employment and decent work at the heart of investment strategies. Our aim is to promote a rights-based approach that fosters economic development, resilience, social equity, and environmental sustainability.

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Chief, Employment in Investments (EMPINVEST) Branch

Maha Kattaa

Regional Chief Technical Advisor for PROSPECTS Arab States and Durable Solutions

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▶ Acknowledgements

This report was authored by Shereen Al Abbadi, Consultant to the International Labour Organization (ILO). Data collection was carried out by a team of enumerators including Maram Alzyoud, Amani Alblewi, Aboud Almasoud, and Motasem Alnaimat.

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▶ Abbreviations

Acronym	Definition
CAPI	Computer Assisted Personal Interview
EIIP	Employment-Intensive Investment Programme
EMPINVEST	Employment in Investments
IFC	International Finance Corporation
ILO	International Labour Organization
JOD	Jordanian Dinar
M&E	Monitoring and Evaluation
MOA	Ministry of Agriculture
N	Number of observations
PROSPECTS	Partnership for improving prospects for forcibly displaced persons and host communities
UNICEF	United Nations Children's Fund
UNHCR	United Nations High Commissioner for Refugees

▶ Definitions

Water harvesting unit: for the purpose of this report, a water harvesting unit refers to a water cistern, underground water tank or over ground water tank constructed by farmers with the support of the project.

The project: refers to water harvesting support provided to farmers under phase I or II of the ILO project titled 'Job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry'.

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1. Executive summary

Water scarcity remains a significant challenge in Jordan, particularly for smallholder farmers reliant on agriculture for their livelihoods. To address this issue, the International Labour Organization (ILO), in collaboration with the Ministry of Agriculture (MOA) and with funding from the Kingdom of Norway, provided water harvesting support to farmers under the ILO project titled 'Job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry', between 2016 and 2019 to construct rainwater harvesting units across eight governorates. The initiative aimed to enhance agricultural productivity, reduce irrigation costs, create short-term employment opportunities and improve the socio-economic conditions of Syrian refugees and Jordanian host communities. This assessment evaluates the long-term effects of these interventions.

This joint assessment, conducted in collaboration with the EMPINVEST Branch, falls under the PROSPECTS Partnership established by the Government of the Netherlands in 2019, bringing together five partner organizations, namely IFC, UNICEF, ILO, UNHCR and the World Bank to address three areas where challenges negatively affect the livelihoods and well-being of Jordanians, refugees and other vulnerable groups: education, employment, and protection. The findings from this assessment will be used to inform the design of the Employment-Intensive Infrastructure interventions under PROSPECTS second phase.

▸ Project overview

The project was executed in two phases. Phase 1 was implemented between 2016 and 2018 where 143 cisterns were constructed in the governorates of Ajloun, Jerash, Balqa, Karak, and Tafila. Phase 2 was implemented between 2017 and 2019 supporting an additional 119 units in the governorates of Madaba, Zarqa, Karak and Ma'an. Farmers received a post-construction grant of 1,200 Jordanian Dinars (JOD) per unit, with most investing additional funds to complete construction. The units, primarily cisterns and tanks, were designed to improve rainwater water harvesting and storage for supplementary irrigation purposes during the dry season.

The purpose of this study is to (i) assess the effects of constructing rainwater harvesting units for smallholder farmers in Jordan, on the farm production, the farmers and their families, and (ii) explore the success factors in a systematic and replicable manner. Thus, the research design attempted to reach all beneficiaries supported under the water harvesting component of the project: 'Job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry'. The field work took place between 5–16 December 2024, using Computer Assisted Personal Interviews (CAPI) that were administered face-to-face. Prior to the field work, the enumerators were trained in both a classroom setting and in the field. Following the data collection, interviews with MOA staff took place, in addition to a lessons learnt session.

▶ Key findings

The units constructed during the first phase of the project were assessed in 2019. The assessment back then targeted 143 water harvesting units in the governorates of Ajloun, Jerash, Balqa, Karak, and Tafilah. This assessment confirmed the findings of the previous assessment, including several benefits reported by the farmers on increases in plant variety, saving in irrigation water costs, increased outcome and investments made by investments in infrastructure.

The key findings of this assessment include:

About three quarters of the water harvesting units are still in use. Although a small share of these units is used for domestic purposes only, about 65 per cent of the units supported by the project are in part or in full used for farming activities

The implementation of water harvesting units has resulted in significant improvements in agricultural efficiency and productivity. A total of 91 per cent of farmers reported reduced irrigation costs, with 60 per cent achieving savings between 20 per cent and 60 per cent. Additionally, 79 per cent of farmers observed increased land productivity, leading to improved crop yields. The project also contributed to higher agricultural income, with 73 per cent of farmers experiencing growth in farm revenues. Furthermore, 59 per cent of farmers introduced new crop varieties, and 51 per cent invested in modern irrigation systems, reflecting the project's role in promoting crop diversification and technological adoption. Given that last winter (2023) was relatively dry, combined with the farmers' reporting on rainwater collection, it seems that the water harvesting units were mostly used for irrigation water storage including from other sources, mainly, the water network and water trucks. These findings highlight the project's effectiveness in enhancing agricultural sustainability and economic resilience for smallholder farmers. It also indicates the need to explore pathways to enhance rainwater harvesting.

The implementation of rainwater harvesting units has yielded significant economic and social benefits for smallholder farmers in Jordan. Employment opportunities expanded, with 33 per cent of farmers hiring additional labour, generating a total of 2,045 workdays in a single agricultural season. Gender inclusion was also enhanced, as 55 per cent of farmers' wives actively participated in farming activities, primarily in irrigation and harvesting, contributing to household agricultural productivity. Furthermore, the project facilitated dynamic community expansion, with 46 per cent of beneficiaries influencing neighbouring farmers to adopt similar practices, resulting in the independent construction of 266 additional water harvesting units. These findings highlight the project's role in fostering local economic growth, promoting gender-responsive agricultural practices, and encouraging sustainable water management within farming communities.

The farmers encountered several challenges that affected the overall effects of the units. Some water harvesting units experienced leakage issues, highlighting the need for enhanced construction techniques and soil testing. Financial constraints limited the ability of many farmers to maintain their units, with only 28 per cent performing necessary upkeep. Farmers also expressed concerns about the grant value, suggesting that increased funding and the ability to construct multiple units per farm would better support their needs. Additionally, there was a notable gap in technical guidance for some farmers, a key project element they valued highly. Addressing these challenges will be critical to ensuring the long-term success and sustainability of similar initiatives.

Multiple lessons were defined based on the findings of the assessment and the conversations with the Ministry of Agriculture. These lessons include:

The importance of the technical support component to the farmers. Farmers require ongoing technical guidance to ensure proper construction and maintenance of water harvesting units. Providing detailed construction specifications and training to farmers and contractors can help prevent issues like leakage and structural weaknesses.

Financial constraints limit effectiveness. While the grant of JOD 1,200 was beneficial, many farmers had to invest additional funds to complete their units. Increasing financial support or providing flexible additional funding options can enhance project effectiveness and farmer participation.

Need for maintenance assistance: Only 28 per cent of farmers performed maintenance, mainly due to financial and technical constraints. Future projects should consider incorporating maintenance training and financial incentives to ensure long-term functionality.

Encouraging community adoption: The project's success influenced neighbouring farmers to construct 266 additional water harvesting units of their own. This demonstrates the potential for knowledge-sharing and peer learning, which should be leveraged in future initiatives.

Gender inclusion enhances agricultural productivity: The significant involvement of farmers' wives in farming activities highlights the need for gender-responsive interventions. Providing targeted support to female farmers can further improve agricultural productivity and household income.

Employment creation strengthens rural economies: The project facilitated job creation, generating over 2,000 workdays in one season. Expanding such initiatives can provide sustainable employment opportunities in rural areas.

Tailoring solutions to regional needs: Variations in irrigation cost savings and land productivity across regions suggest that localized solutions and region-specific strategies should be considered to maximize impact.

▶ Recommendations

To maximize the benefits of rainwater harvesting units, the following measures are recommended:

- Enhance technical support and training including through leveraging community expansion and peer learning: Provide farmers and contractors with comprehensive construction guidelines, training workshops and knowledge sharing sessions with other farmers.
- Increase grant value and improve maintenance: Allow for larger storage units and additional funding for maintenance.
- Strengthen monitoring and evaluation: Establish long-term tracking mechanisms to measure continued impact, including collection of some baseline data during project implementation.
- Promote additional water storage solutions: Introduce subsidized options like polyvinyl chloride (PVC) or metal storage units.
- Facilitate access to agricultural innovations: Support investments in modern irrigation techniques, solar-powered pumps, and sustainable farming practices.
- Support gender inclusion: Through targeted support to female farmers and engagement of women in the household, in farm-level assistance. Provide basic labour rights, safe working conditions and occupational safety guidelines and awareness sessions to farmers hiring or planning to hire workers.

▶ Conclusion

In conclusion, the project has successfully contributed to water conservation, improved agricultural productivity, and economic empowerment for farmers in Jordan. Future initiatives should focus on technical improvements, financial support expansion, and sustainable water management practices to ensure lasting impact.

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2. Introduction

Water-related climate adaptation programs, encompassing irrigation, afforestation, soil protection, and water conservation for consumption and domestic use, have long acknowledged the advantages of local-focused strategies for enhanced inclusivity and sustainability. Over the past two decades, the ILO Employment-Intensive Investment Programme's (EIIP) approach has been implemented across several countries to improve community assets while protecting the environment and promoting gender empowerment, and social inclusion.

Between 2017 and 2019 the ILO through its EIIP and with funding support from the Norwegian government[1] supported the government of Jordan to address the labour market impact of the Syrian refugee crisis. The initiative honed in on the agricultural sector, a critical source of income and sustenance for poor communities, encompassing migrant workers, refugees, and vulnerable locals.

The job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry project, in partnership with the Ministry of Agriculture (MOA), sought to enhance the living conditions of Syrian refugees and local communities through the creation of decent jobs, enhancement of agricultural and forestry infrastructure, and improvement of environmental protection. The project's goals were realized through a series of strategic actions, including the construction of rainwater harvesting units built through the EIIP approach in eight governorates over two phases: Ajloun, Jerash, Balqa, Karak, and Tafila in phase 1, followed by Madaba, Zarqa, and Ma'an in phase 2. In the first phase 143 cisterns were built, followed by an additional 119 in phase 2.

In 2019, the ILO conducted an impact assessment of the water harvesting units built during the first phase of the project across the five governorates—Ajloun, Jerash, Balqa, Karak, and Tafila—to evaluate their usage and the subsequent effects on agricultural productivity and the livelihoods of the beneficiaries. This assessment aimed to understand the tangible benefits these structures brought to local farming communities. Five years on, the PROSPECTS Partnership funded by the Kingdom of the Netherlands, aims to reassess the structures established, including those from Phase 2, to evaluate the interventions' effects on beneficiary livelihoods. This review will enhance the comprehension of the long-term outcomes and will provide valuable insights to inform future initiatives, specifically for EIIP activities under PROSPECTS Phase 2.

The project was implemented through MOA, where farmers applied to receive a grant of JOD 1,200 if they meet the eligibility criteria (land area and location). The project followed MOA's long-standing approach to the construction of water harvesting units for smallholder farmers. During the project implementation period, MOA was granting a maximum of JOD 1,200 per unit of a minimum capacity of 30 cubic metres. The support by MOA to the construction of water harvesting units is still ongoing[2], with 1,750 units supported in 2023, 2,880 in 2024 and a waiting list of thousands for 2025 with an estimated annual budget of JOD 5 million.[3] As of few years ago, after the completion of the ILO funded support, MOA set a minimum target for women at 10 per cent of the beneficiaries.[4]

1 Job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry

2 The project is part of MOA's budget, the National Strategy for Agricultural Development 2020-2025 and the National Plan for Agricultural Development 2022-2025.

3 Key informant interviews with the staff of the Projects Unit at MOA.

4 Key informant interviews with the staff of the Projects Unit at MOA.

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3. Approach

▸ Overview

The purpose of this study is to (i) assess the effects of constructing rainwater harvesting units for smallholder farmers in Jordan, on the farm production, the farmers and their families, and (ii) explore the success factors in a systematic and replicable manner. The assessment examined benefits to women and refugees, in addition to what the project's previous evaluations captured, by exploring additional employment, if any, in the benefiting farms. The study also drew lessons learned that will be useful for rural water management, agricultural development and employment creation for Jordanians and refugees.

As indicated by the table below, the research design attempted to reach all beneficiaries supported under the water harvesting component of the project: 'Job creation for Syrian refugees and Jordanian host communities through green works in agriculture and forestry', funded by the Kingdom of Norway. The field work took place between 5 -16 December 2024, using Computer Assisted Personal Interviews (CAPI) that were administered face-to-face. Prior to the field work, the enumerators were trained in both a classroom setting and in the field. Following the data collection, interviews with MOA staff took place, in addition to a lessons learnt session.

▶Table 1. Approach overview

Objective	Target	Methodology	Fieldwork
(i) To assess the effects of constructing rainwater harvesting units for smallholder farmers in Jordan, on the farm production, the farmers and their families, (ii) To explore the success factors in a systematic and replicable manner	The full population of 262 units	• Computer Assisted Personal Interviews (CAPI) – conducted face-to-face • Training of enumerators • Field work – analysis • Interviews with key partner – MOA • Lessons learnt session	5 – 16 December 2024

▶ Limitations

Project and programme monitoring and evaluation frameworks usually support data collection for the assessment of direct project results using a number of indicators. It is assumed that this assessment is complimenting the regular reporting, monitoring and other learning activities conducted by the project.

The approach recognizes that some long-term effects may not be captured, due to lack of baseline data and approach limitations. Yet it attempted to compare some of the benefits realized between the farmers who constructed the unit earlier (2016–17) with these who constructed the units later (2018–19).

There are a number of limitations that affected data collection, as summarized in the following statements.

- Farmers might not be able to recall the exact benefits gained that occurred few years ago, consequently, the data collection tool captured the benefits realized after the construction of the water harvesting unit or during the most recent agricultural production season.
- Given that the project activities were farm-based and targeting smallholder farmers, community-wide effects are not likely to be present. Nonetheless, the assessment explored dynamic expansion – i.e. neighbouring farms that had constructed water harvesting units as a result of the beneficiary farmer's positive experience.
- The database of project recipients included limited information on each beneficiary (governorate, name and GPS location), and incomplete phone numbers. Prior to the field work, it was noticed that a few recipients had shared the same GPS coordinates, and since not all phone numbers were available or recent, it was not possible to reach all beneficiaries. Enumerators attempted to ask neighbours and nearby citizens for recent contact details of the beneficiary but they did not always succeed in reaching the beneficiary farmer.
- Data collection took place during a period where GPS services were not always reliable due to wide service limitations beyond the control of the data collection team.

▶ Sampling

The full list of supported water harvesting units and farmers were targeted. Since phone numbers were not always available or recent, the enumerators reached to local communities, for the updated phone numbers or visited the location directly using the GPS location captured in the project database. If the farmer is not available, the enumerator attempted to schedule an interview time. Each farmer was contacted a maximum of three times, otherwise was dropped from the assessment.

▶ Fieldwork and data collection considerations

Once the data collection tool was approved by the ILO, the M&E Specialist uploaded the data collection tool to Kobo (final data collection available in Annex 2. Data Collection Tool).

ILO hired four enumerators to conduct the field work using tablets or phones. They received both classroom training and field training to ensure the quality of data collection. Field training was also used to test the data collection tool which was amended accordingly. Once the data was collected, the consultant reviewed the data quality and updated the dataset based on additional data collected by the enumerators.

The consultant conducted phone interviews with MOA's staff at the centre and in the field directorates, using semi-structured interview guidelines to capture their perspectives and reflections on the project effect, delivery approach and lessons learned.

The consultant conducted a lessons learnt facilitated work session, that was attended by relevant staff of MOA field staff, MOA central team, the project team from ILO and the enumerators. Since previous project evaluations captured lessons learned, the aim of the session was to draw additional lessons learned stemming from the longer-term effects and benefits to farmers. Consequently, the consultant presented the preliminary findings based on data collected from the farmers, and obtained reflections to define pathways of longer-term effects and how these can be expanded.

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4. Findings

▸ Sample overview

The research attempted to reach all water harvesting units constructed with the support of the project, as indicated in table 2 below. The final sample included 169 completed interviews. There are 89 uncompleted interviews and four interviews that were used during the enumerators' field training as indicated in table 3 below. There are 25 units that are used for domestic purposes only, and for these, the interviews were not completed since the research focus is the utilization of the unit for farming activities. Thus, for the remaining subsections, the findings describe the completed interviews of 169 units, since these are the units that were in part or in full used for farming activities.

There are few cases of duplicate coordinates[5] in the project database and limited valid phone numbers, consequently, some farms were reached by the enumerators, and visited three times, but the farmers were not available nor could be reached. As indicated in table 3 below, only three farms could not be located, and only two farmers were contacted and refused the interview.

5 One duplicate case in each of Balqa and Madaba, two in Ma'an and three in Karak involving a total of 15 units.

▶Table 2. Water cisterns supported by the project (region, governorate and phase) and completed interviews

		Supported during phase 1 Start date: 2016 End date: 2018	Supported during phase 2 Start date: 2017 End date: 2019	Supported across both phases	Completed interviews
Region	**Governorate**	**Number**	**Number**	**Number**	
North	Ajloun	29	0	29	24
North	Jerash	27	0	27	19
Central	Balqa	30	0	30	18
South	Karak	27	30	57	42
South	Tafiela	30	0	30	19
Central	Madaba	0	30	30	15
Central	Zarqa	0	29	29	12
South	Ma'an	0	30	30	20
	Total	**143**	**119**	**262**	**169**

▶Table 3. Sample overview by status of interview completion and reason for non-completed interviews

Status	**Number**
Completed interviews	**169**
Testing and training	**4**
Not completed	89
Not completed - Location visited but farmer could not be reached	24
Not completed - Domestic use only	25
Not completed - Tank not in use or never been used	13
Not completed - Farmer sold the land, died or left the farm	13
Not completed - Not used due to construction issues	8
Not completed - Farm could not be located	3
Not completed - Farmer refused to be interviewed	2
Not completed - Road construction over the tank	1
Total	**262**

The research team confirmed that 75 per cent of the constructed units were still utilized, based on the final number of completed interviews including the units used for enumerators' training and the units that were used for domestic purposes only. Furthermore, based on the final number of completed interviews, the research team was able to confirm that 65 per cent of the constructed units are still either partially or fully used for farming activities.

The interviewees were predominantly male (figure 3), making up 98 per cent of the sample. While they were not always the landowners, they were the individuals most knowledgeable about the farming activities. Most of the water units were used for irrigation, with 28 per cent serving both agricultural and domestic purposes. The majority of these units were built and first used between 2017 and 2019, and most were utilized in the year of construction or the following year (figure 5). Approximately half of the units had a capacity of 30 cubic metres as indicated in figure 2, which is the minimum required to qualify for the full grant amount of JOD 1,200. Furthermore, 57 per cent of the units were cisterns (figure 4).

Figure 1. Number of water harvesting units by governorate

Figure 2. Water harvesting unit by size in cubic metres

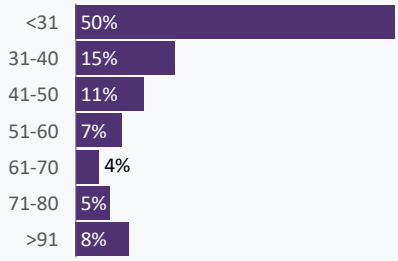


Figure 3. Respondents by sex

Figure 4. Water harvesting unit by type

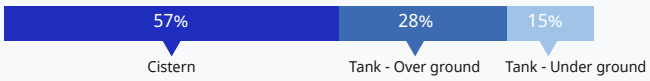


Figure 5. Water harvesting unit by year of construction and year of first use

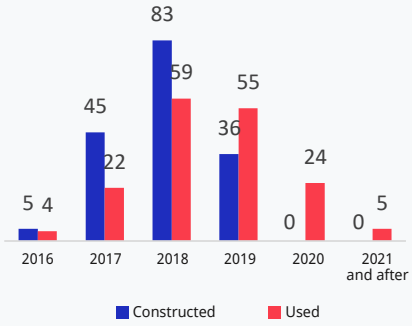
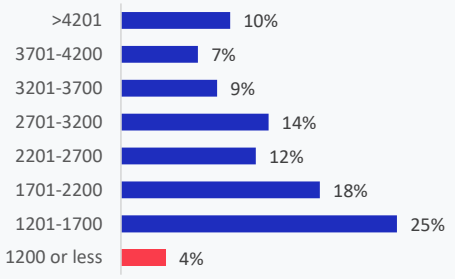


Figure 6. Uses of water harvesting unit

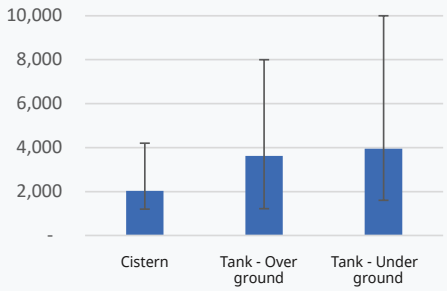
▶ Construction and maintenance

Most farmers (96 per cent) spent more than the grant amount on constructing their water harvesting units, with 43 per cent paying between JOD 500 and 1,000 beyond the grant value (figure 7). Tank construction was more expensive than building cisterns as indicated in figure 8, with notable variations in cost across the sample, which could not be solely attributed to the unit's capacity. Factors such as land type or distance from roads may have influenced the cost. The majority of farmers hired contractors for the construction (figure 9) and half faced challenges during the construction phase as indicated in figure 10, with the most common noted issues being difficulties in digging and financial constraints.

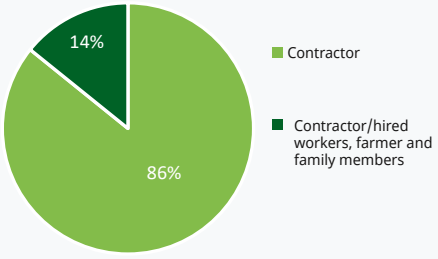
▶ Figure 7. Cost of construction of water harvesting unit in JOD



▶ Figure 8. Water harvesting unit cost in JOD by unit type

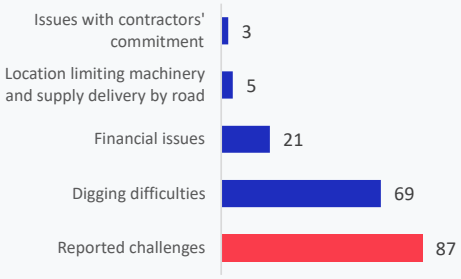


▶ Figure 9. Water harvesting unit by construction arrangement



N=169

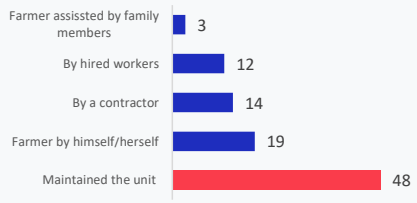
▶ Figure 10. Issues faced during construction



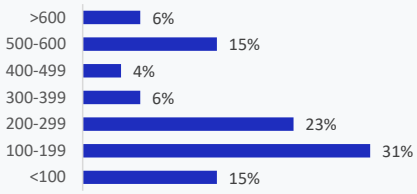
Multiple selection allowed

A total of 28 per cent (48) of farmers performed maintenance on their water harvesting units (figure 11). Of these, 69 per cent spent JOD 300 or less on maintenance as indicated in figure 12. Maintenance activities varied, with some farmers providing regular upkeep to their units (every season or twice annually), although the majority of farmers did not do so. A small number of farmers (5) conducted maintenance to address leakages, with most cases experiencing recurring issues. The materials predominantly used for maintenance included insulation materials such as cement, sand, and acrylic bonding agents. Instances of cleaning were also infrequent.

▶ **Figure 11. Maintenance by farmers and arrangements**



▶ **Figure 12. Maintenance cost per unit in JOD**



Reflections from MOA staff on the reported challenges during construction suggest that despite substantial technical support from the MOA, some farmers still require additional assistance, while others possess advanced knowledge and experience with water harvesting units. Identifying methods to strengthen technical support for farmers who need it would be beneficial. Proposed solutions include updating the technical specifications for tanks and cisterns in consultation with structural engineers, potentially in collaboration with the ILO and the engineering syndicate. Furthermore, there is a recognized need to revise MOA's agricultural resource manual and reintroduce it as the standard operating procedure for providing technical support related to water harvesting. Additionally, creating content directed to farmers illustrating the technical specifications and construction methods of the units was deemed valuable including video content. Organizing knowledge-sharing events where experienced farmers can share their expertise with others who are interested in, or about to build their own water harvesting units could also be useful. The survey revealed that 96 per cent of the farmers are willing to offer guidance to others during the construction of their water harvesting units.

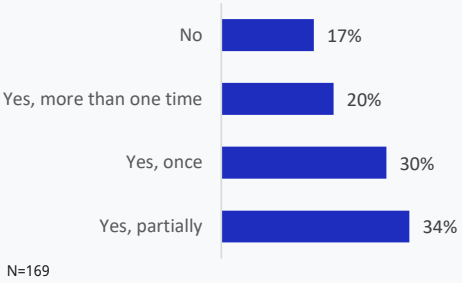
Recurrent leakage issues, reported by a small share of farmers, were also observed by MOA staff among other beneficiaries, particularly with water cisterns, where leaks are difficult to maintain. This highlights the need for additional support in this area. Although farmers expressed a preference for constructing tanks over cisterns due to their ease of construction and maintenance, as indicated in the following subsection, MOA staff believe that cisterns can be just as reliable if properly constructed from the outset and are more cost-effective. Guidance on technical specifications for farmers and contractors could help resolve these issues. Additionally, MOA staff believe that conducting a construction soil test, including soil bearing capacity, can be useful in defining the most suitable water harvesting unit type and its location. Yet, such a test usually comes at an additional cost that is not currently compensated by MOA.

▶ Benefits and changes

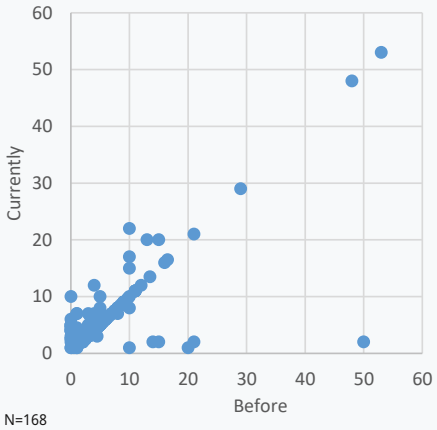
The majority of benefiting farmers are smallholders, consistent with the selection criteria. Only 25 per cent of the farmers regularly hire workers (figure 13), and over 80 per cent cultivate plots smaller than 8.5 donums (figure 14). A total of 84 per cent of farmers reported that their units collected water during the last winter (figure 15), with 20 per cent indicating that the unit was filled more than once. However, 17 per cent of the units did not collect rainwater during the last season, though the reasons for this were not captured by the data collection tool. MOA staff proposed several plausible explanations, including insufficient rainfall during the previous winter and the potential use of the units for water storage rather than harvesting. For future data collection efforts, it would be beneficial to incorporate questions that capture water collection patterns from the most recent good rainy season, and exploring if the farmer is using the catchment area for rain water collection at all.

▶ Figure 13. Farmer regularly hires workers

▶ Figure 15. Unit collected water last winter

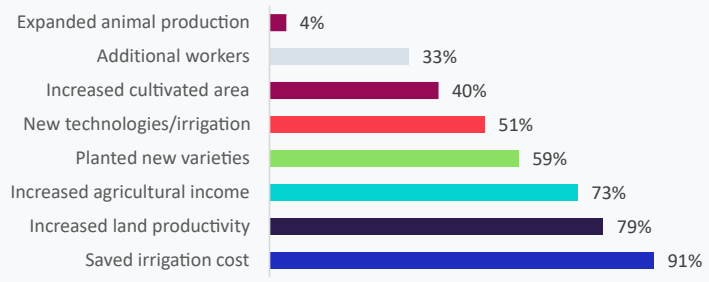


▶ Figure 14. Cultivated land area in donums before unit construction and currently

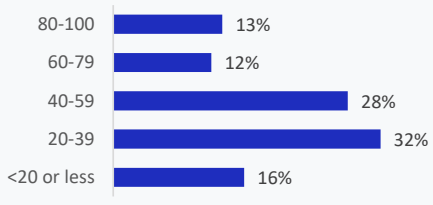


Following the construction of the water harvesting units, several notable benefits and changes were reported by farmers as indicated in figure 16. Forty per cent of farmers expanded their cultivated plot area, while 54 per cent maintained the same plot size and 5 per cent reduced their cultivated area. A significant 91 per cent of farmers reported savings in irrigation costs, and 79 per cent observed an increase in land productivity. Additionally, 73 per cent of farmers saw a rise in agricultural income, while 59 per cent began planting new crop varieties. Over half of the farmers (51 per cent) made investments in new technologies and/or irrigation systems to further optimize their operations. Thirty-three per cent of farmers hired additional workers to support their expanded activities. However, only 4 per cent reported an increase in animal production, which was expected given the focus on crop cultivation. Overall, the introduction of the water harvesting units contributed to both operational and financial improvements for the majority of farmers.

▶ Figure 16. Benefits and changes reported by farmers following the construction of the water harvesting unit

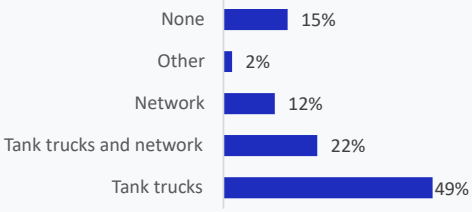


▶ Figure 17. Percentage reduction in irrigation cost



N=145

▶ Figure 18. Used other sources to fill the unit



▶Table 4. Share of farmers reporting reduction in irrigation cost and increase in land productivity by region and year of unit construction

	Percentage reported reduction in irrigation cost	Percentage reported increase in land productivity	Number of observations
North	95%	93%	43
Center	93%	84%	45
South	88%	68%	81
Constructed 2016-2017	96%	88%	50
Constructed 2018-2019	89%	75%	119
Overall	**91%**	**79%**	**169**

A total of 91 per cent of farmers achieved savings in irrigation costs, with 60 per cent of them reducing expenses by between 20 per cent and 60 per cent as indicated in figure 17. Interestingly, no correlation was found between the size of the land area and the level of savings in irrigation. Farmers in the northern region and those who constructed the unit earlier reported a higher incidence of

irrigation savings, possibly because precipitation rates are higher in the northern region. However, this data should be interpreted cautiously due to the small number of observations in each region.

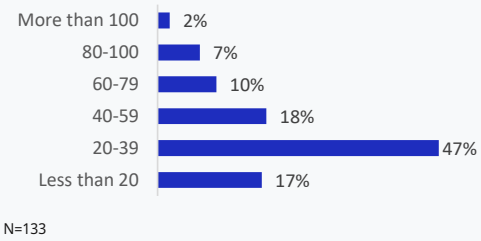
The reported percentage reduction in irrigation costs by farmers (figure 17), along with the reporting on water harvesting (figure 15) suggests that a unit capacity of 30 cubic meters, is insufficient to meet the majority of their irrigation needs. Later in this section, a significant proportion of farmers expressed interest in constructing additional or larger units, primarily to decrease reliance on alternative irrigation sources and to increase the area of cultivated land.

It is evident that the water harvesting unit played a critical role in storing irrigation water, even if not collected through rainwater harvesting. In fact, 85 per cent of farmers utilized the water harvesting unit to store water from alternative sources (figure 18), primarily including water tank trucks and the water network. This additional water storage capacity helped farmers better manage their water resources and further optimize irrigation practices. Observations of MOA staff also indicate a significant need by the farmers to store water, even if filled by water tank trucks, to better plan irrigation and reduce cost. They pointed to their recent observations that many farmers are using PVC/fabric pillow water storage units, and metal tanks to support water storage for irrigation.

▶Photo 1. Field photos: farmers using metal tanks to expand water storage capacity in addition to the water harvesting unit

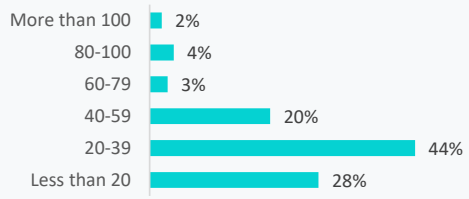
Farmers reported substantial improvements in both land productivity and agricultural income following the installation of water harvesting units. Seventy-nine percent of farmers noted an increase in land productivity, with nearly half of them observing a rise of 20 per cent to 39 per cent (figure 19). Similarly, 73 per cent of farmers experienced an increase in agricultural income as indicated in figure 20, with 44 per cent reporting a growth of 20 per cent to 39 per cent. These gains highlight the positive impact of the water harvesting units on farm efficiency and profitability, enabling farmers to achieve better yields and higher revenues. Farmers in the northern region and those who constructed the unit earlier reported a higher incidence of increased land productivity, in alignment with a similar trend in irrigation costs saving. Though, this data should be interpreted cautiously due to the small number of observations in each region.

▶ Figure 19. Percentage increase in land productivity



N=133

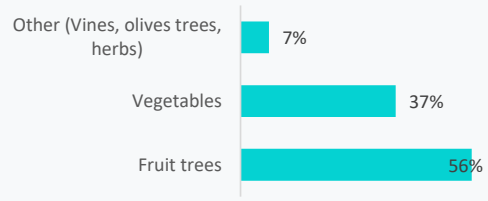
▶ Figure 20. Percentage increase in agricultural income



N=123

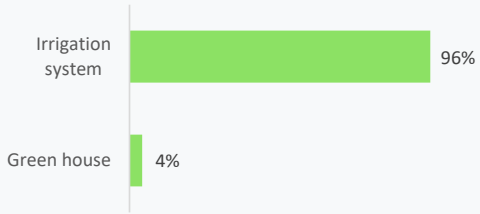
After building the water harvesting units, many farmers reported diversifying their agricultural practices. Fifty-nine percent of farmers planted new crop varieties, with 56 per cent specifically introducing fruit trees. In addition, 51 per cent of farmers invested in new technologies, with 96 per cent of those investments directed toward irrigation systems as indicated in figure 21. However, 49 per cent of farmers did not make new technological investments, with 66 per cent citing a lack of financial resources as the primary barrier (figure 22). These findings reflect how the water harvesting units facilitated both crop diversification and technological adoption, though financial constraints limited further advancements for some farmers.

▶ Figure 21. Farmer planted new varieties



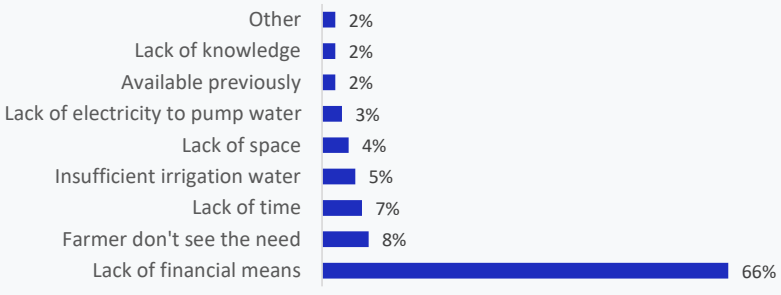
N=100, multiple selection allowed

▶ Figure 22. Farmer invested in new technologies



N=83

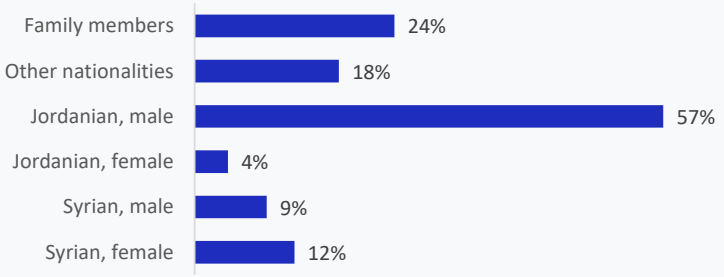
▶ Figure 23. Reasons for not investing in new technologies



N=87

Following the installation of water harvesting units, 33 per cent of farmers hired additional labour to support their activities. During the most recent season, these farmers employed 295 workers for a total of 2,045 workdays. More than half of the workers hired were Jordanian men, while a quarter of the labour force consisted of family members (figure 24). This increase in hired labour reflects the added capacity and expanded activities made possible by the water harvesting units.

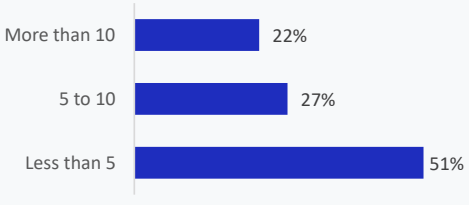
Figure 24. Breakdown of hired additional workers during the last season



295 additional workers hired by 55 farmers, multiple selection allowed

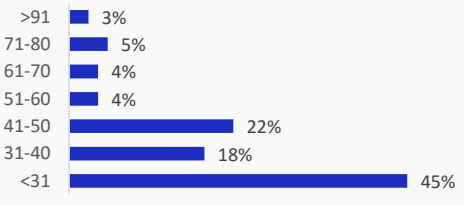
The construction of water harvesting units has led to dynamic expansion, with neighbouring farms following suit due to the positive experiences of beneficiary farmers. Forty-six percent of the beneficiary farmers reported that one or more neighbouring farms constructed a water harvesting unit inspired by their experience, totaling 266 new units. On average, about three neighbouring farms adopted the practice, with two being the most common number (mode). Around half of the units built by neighbouring farms have a capacity of less than 31 cubic metres (figure 26). This spread of adoption highlights the influence of successful experiences on surrounding farming communities. MOA staff indicated that they usually receive several funding applications from neighbouring farms once a water harvesting unit is constructed in any locality. Consequently, some of the units constructed by neighbouring farms may have been constructed with the support of MOA.

Figure 25. Number of neighbouring farmers constructed water harvesting units based on farmer's experience



N=78

Figure 26. Average capacity of neighbouring farmers water harvesting units constructed based on farmer's experience



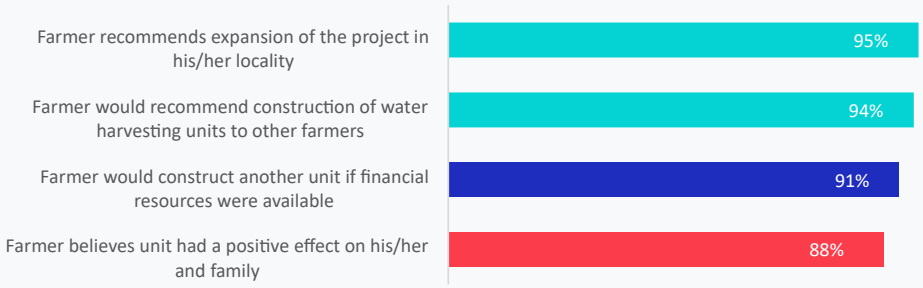
N=266

▶ Farmers perceptions

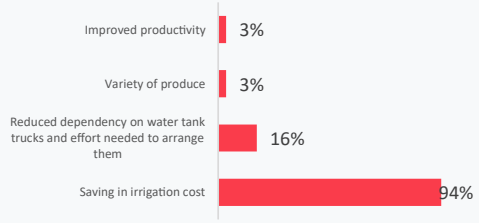
A significant 88 per cent of farmers agreed that the water harvesting unit had a positive impact on both themselves and their families as indicated in figure 28, primarily due to savings in irrigation costs and reduced dependency on water truck tanks, which eased issues related to timing, frequency, and storage of irrigation water. Additionally, 91 per cent of farmers expressed a willingness to construct another unit if financial resources were available, largely to further expand their water storage capacity and reduce reliance on other irrigation sources (figure 29). These responses reflect that farmers recognize the value of water harvesting, understanding its broad benefits not only for themselves but also for other farmers and the environment. The interest in building another unit is driven by a desire to expand farming activities and reduce dependence on external water sources. A few responses also highlighted the unit's importance for domestic water use.

When asked why they would recommend the unit to others, farmers cited the potential to expand agricultural activities, lower irrigation costs, harvest rainwater in areas with low precipitation, overcome limited irrigation water supplies, and encourage landowners to cultivate their land, thus preventing soil erosion.

▶ Figure 27. Perceived benefits by farmers

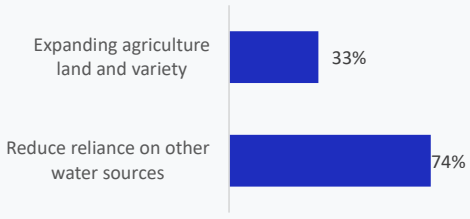


▶ Figure 28. Benefits articulated by farmers



N=148, several farmers reported more than one benefit.

▶ Figure 29. Reason for interest in constructing another unit

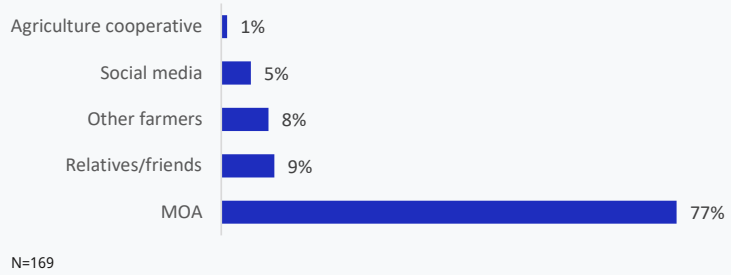


N=153, several farmers reported more than one reason

▶ Reflection on project components

Over three quarters of farmers learned about the project through the Ministry of Agriculture (MOA) local directorates as indicated in figure 30. When reflecting on the most critical elements of the project, farmers often focused on the benefits, and their responses were not always accurate. However, when they did answer correctly, the feedback primarily centered around the grant (cash) and the technical support provided by MOA staff. Farmers also offered suggestions and recommendations for improving the project. Some of these suggestions were related to specific project components, while others reflected a desire for additional support to help expand production.

▶ Figure 30. Distribution of farmers by how they learned about the project.



Farmers provided several suggestions and recommendations to improve the current project. Key suggestions related to project elements included increasing the grant value to better support the costs of construction, as well as funding the construction of larger units to accommodate expanding farming needs. Additionally, farmers recommended allowing the same farmer to construct multiple units to further enhance water harvesting capacity. There was also a preference for supporting the construction of tanks rather than cisterns, as tanks were seen as more suitable for their needs and easier to construct and maintain. Many farmers emphasized the need for additional technical support, particularly in the areas of location selection and ensuring sound construction practices. Furthermore, farmers suggested a faster payment cycle since a few reported a 6-month payment period albeit confirmation from MOA staff that payments are usually processed within a month. Finally, they recommended providing technical and financial support for the ongoing maintenance of the units to ensure their long-term functionality and effectiveness.

As previously mentioned, MOA staff highlighted the need for additional technical support to farmers. Providing maintenance assistance including cash grant and technical support, could potentially enhance the overall benefits for farmers. It was also observed that constructing tanks, as opposed to cisterns, entails a higher cost, which would necessitate an increase in the grant value to accommodate larger unit capacities. While additional water harvesting and storage capacity could significantly benefit many farmers, increasing the grant value will limit the total number of beneficiaries. Furthermore, the data collected during this exercise was insufficient to conclusively determine that tanks are more reliable, easier to construct, or have a longer lifespan than cisterns.

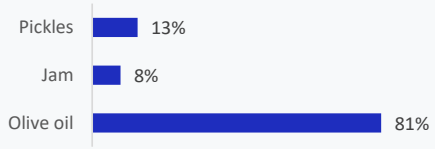
Farmers also provided suggestions and recommendations for additional project elements that could further enhance their agricultural activities. One key suggestion was the provision of grants for agricultural technologies, including greenhouses, irrigation networks, and hydroponics, to help modernize farming practices. They also recommended offering grants for diversifying agricultural production, such as supporting beekeeping and honey production, fish and other animal farming, as well as the planting of fruit trees and vegetables. To improve overall farm management, farmers requested guidance on the effective use of fertilizers and pesticides. Additionally, there was a call for grants to support terracing, which would help prevent soil erosion and improve land productivity.

Finally, farmers emphasized the need for support in electricity supply and electrical connections, particularly for solar energy solutions and energy-efficient pumps, to further reduce costs and improve sustainability on their farms.

Future interventions could consider that more than a third of farmers process and sell their produce, mainly pressing olive oil and preparing pickles and jam (figure 32). Oil pressing and olive pickling are typically done by all family members, with women (wives and daughters) handling the preparation of jam. Additionally, it's important to explore the roles of other family members on the farm and how they influence farming decisions. Notably, 55 per cent of farmers reported that their wives work on the farm (figure 33). Women are involved in tasks such as watering the land (85 per cent) and assisting with picking and harvesting (39 per cent) as indicated in figure 34.

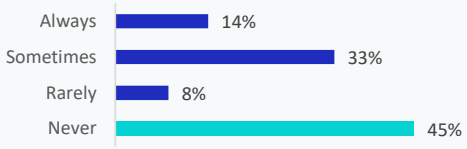
▶ Figure 31. Share of farmers who process farm produce for selling

▶ Figure 32. Products processed and sold by farmers

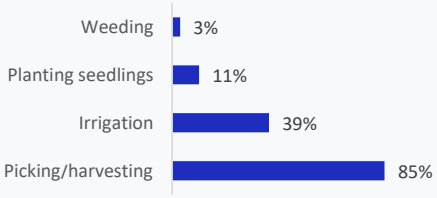


N=63, multiple selection allowed

▶ Figure 33. Share of farmers reporting wife working on the farm



▶ Figure 34. Farming tasks carried by wives



N=93

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5

5. Conclusions and recommendations

The assessment of the rainwater harvesting units constructed under the ILO project in Jordan has demonstrated significant positive impacts on smallholder farmers. The project successfully enhanced agricultural productivity, reduced irrigation costs, and improved the socio-economic conditions of beneficiaries. Despite these successes, several challenges related to maintenance, financial constraints, and technical support remain. The key conclusions derived from this assessment are as follows:

Sustainability and utilization: Approximately 75 per cent of the water harvesting units remain in use, with 65 per cent actively contributing to farming activities. Farmers have effectively integrated these units into their irrigation systems, particularly for storing water from alternative sources, indicating their continued relevance and utility.

Economic and productivity gains: The project facilitated substantial reductions in irrigation costs, with 91 per cent of farmers experiencing savings, and 60 per cent reporting cost reductions between 20 per cent and 60 per cent. Additionally, 79 per cent of farmers observed an increase in land productivity, with corresponding improvements in crop yields and farm revenues.

Technological and crop diversification: A majority of farmers (59 per cent) introduced new crop varieties, while 51 per cent invested in modern irrigation systems. However, financial barriers limited further technological advancements, as 66 per cent of those who did not invest cited cost constraints.

Employment and social inclusion: The project created significant employment opportunities, generating 2,045 workdays in a single agricultural season. Additionally, 55 per cent of farmers' wives actively participated in farming activities, highlighting their role in household agricultural engagement. The initiative had a spillover effect, with 46 per cent of farmers influencing neighbouring farms to construct 266 additional water harvesting units. This demonstrates the project's role in fostering community-driven expansion and knowledge transfer.

Challenges in construction and maintenance: Despite the overall success, 28 per cent of farmers performed maintenance, with leakage being a recurrent issue, particularly for cisterns. Financial constraints further limited the ability of many farmers to conduct necessary upkeep, indicating a need for structured maintenance support.

Farmer preferences: Farmers expressed strong interest in constructing additional or larger units, with 91 per cent willing to invest in another unit if financial resources were available. This demand underscores the need for flexible funding mechanisms and improved grant structures.

The ILO-supported rainwater harvesting initiative has proven to be a valuable intervention in enhancing agricultural sustainability, economic resilience, and rural employment in Jordan. By addressing the identified challenges through enhanced financial support, improved technical assistance, and stronger maintenance frameworks, future initiatives can further amplify the benefits of water harvesting projects. Scaling up these efforts will contribute to long-term agricultural sustainability, community resilience, and economic development in water-scarce regions.

To enhance the long-term effectiveness and sustainability of rainwater harvesting initiatives, the following recommendations are proposed:

Strengthen technical support and training. This can be achieved through multiple means including by developing detailed construction guidelines and training modules for farmers and contractors and providing technical assistance in unit placement, soil testing, and leak prevention. Furthermore, conducting knowledge-sharing events where experienced farmers mentor new beneficiaries and developing digital resources such as instructional videos and manuals.

Enhancing financial support and grant mechanisms is crucial to improving the effectiveness of water harvesting initiatives. Increasing the grant amount would enable the construction of larger and higher-quality units, ensuring greater water storage capacity and durability. Additionally, introducing flexible funding mechanisms would help farmers maintain existing units and expand their water harvesting systems as needed. Providing targeted subsidies for essential construction materials and advanced irrigation technologies would further support farmers in optimizing water usage and improving agricultural productivity.

Improve maintenance strategies. To ensure the long-term sustainability of water harvesting units, structured maintenance programs should be established. Providing financial aid and technical assistance for maintenance would help farmers address issues such as leakage and wear over time.

Regular inspections and training workshops on maintenance best practices should be encouraged to ensure proper upkeep. Furthermore, financial incentives could be introduced to reward farmers who consistently perform necessary maintenance, thereby promoting proactive care and extending the lifespan of the units.

Expand water storage solutions. Diversifying water storage options can improve irrigation efficiency and overall water security for farmers. Encouraging the adoption of alternative storage solutions such as PVC and metal tanks would provide additional capacity for water conservation. Integrating rainwater harvesting units with modern irrigation systems can enhance water distribution and minimize wastage. Additionally, supporting innovations in water conservation techniques, such as the use of solar-powered pumps and drip irrigation, would contribute to sustainable agricultural practices and increased farm resilience.

Support gender inclusion and employment creation. Promoting gender-inclusive policies and employment opportunities within agricultural initiatives is vital for economic empowerment. Targeted support for female farmers, including specialized training and financial incentives, can enhance their participation in water harvesting and farming activities. Expanding employment-intensive investment programmes would create additional rural job opportunities, particularly benefiting marginalized groups.

Enhance monitoring and evaluation. Establishing a robust monitoring and evaluation framework is crucial for assessing the long-term effectiveness of water harvesting projects. Implementing a tracking system to measure the continued impact of the units on irrigation costs, land productivity, and farmer income would provide valuable data for future improvements. Conducting periodic assessments and surveys would allow for the refinement of project strategies and better implementation. Additionally, collecting and analyzing data on rainfall patterns and unit performance would help inform future interventions, ensuring that resources are allocated efficiently and that the project continues to meet farmers' needs.

Leverage community expansion and peer learning. Encouraging farmer-to-farmer knowledge exchange can significantly contribute to the widespread adoption of water harvesting practices. Organizing structured workshops and training sessions where experienced farmers share their insights with new beneficiaries can improve technical skills and problem-solving capabilities. Developing community-based support networks would facilitate the sharing of best practices and troubleshooting advice. Additionally, recognizing and incentivizing farmers who actively promote water harvesting techniques within their communities would further encourage expansion and strengthen local agricultural resilience.

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6. Annexes

▶ Annex 1: Relevant documents and references

1. EIIP. 2019. *Standard Operating Procedures — Cash for Work and Employment-Based Projects in Jordan*.
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▶ Annex 2: Data collection tool

SECTION A: Identification data

Interviewer: Please select your name

- ○ Amani Alblewi
- ○ Aboud Almasoud
- ○ Maram AlZyoud
- ○ Moutasem Alnu'aimat

Good morning/evening, I am from the International Labor Organization.

We are currently conducting a study assess the effects of the construction of water cisterns and on the beneficiary farmers, and I would like you to give me some of your time to answer some questions.

I assure you that all the information we obtain will be treated with absolute confidentiality and no personal information will be revealed. Your participation is completely voluntary, you can withdraw from answering the questionnaire at any time, and we appreciate your participation.

_____

Please select the name of governorate

- ○ Balqa
- ○ Kerak
- ○ Maan
- ○ Zarqa
- ○ Tafileh
- ○ Madaba
- ○ Jerash
- ○ Ajloun

Enter the first name of the water cistern owner (Project info and property certificate)

_____

Enter the first name of the farmer

_____

Enter the second name of the farmer

_____

Enter the last name of the farmer

_____

Select gender

- ○ Male
- ○ Female

Record Site coordinates

_____

latitude (x.y °)

_____

longitude (x.y °)

_____

altitude (m)

_____

accuracy (m)

_____

Please select location type

- ○ Farm Location
- ○ Cistern Location

Address

_____

Respondent Phone number

_____

Date of completion

yyyy-mm-dd

_____

Do you have a water cistern on your farm

- ○ Yes
- ○ No

Item to confirm it was funded by the project

- ○ Yes
- ○ No

Interview result

- ○ Completed
- ○ Not completed – Cistern not used at all
- ○ Not completed – Cistern used for household use only
- ○ Not completed – Farmer/Owner Refused
- ○ Not completed – Others

Specify other

_____

SECTION B: Cistern characteristics

Select Cistern type

- ○ Above ground collection reservoir (concrete)
- ○ Underground (pear shaped)
- ○ Under ground collection reservoir (concrete)

Cistern capacity in cubic meter

_____

Year of construction

- ○ 2016
- ○ 2017
- ○ 2018
- ○ 2019
- ○ 2020
- ○ 2021
- ○ 2022
- ○ 2023
- ○ 2024

For what purposes did you use the cistern

- ○ Domestic use
- ○ Irrigation of agriculture
- ○ Both
- ○ Was not used

SECTION C: Cistern construction cost and labour

We will ask for some details on the labour used during the construction of the cistern

_____

How much did the construction of the cistern cost

_____

How did you construct the cistern?

- ○ Contractor
- ○ Myself
- ○ Myself with help from family
- ○ I used workers
- ○ All of the above
- ○ Other

Specify other

_____

Did you face any challenges during the tank construction phase?

- ○ Yes
- ○ No

Please list the challenges?

- ○ Did you maintain the cistern after construction
- ○ Yes, by a contractor
- ○ Yes, myself
- ○ Yes, myself with help from family
- ○ Yes, I used workers
- ○ All of the above
- ○ I did not maintain the cistern

How much did the maintenance of the cistern cost

_____

Capture additional details, if any, about the maintenance, the supplies purchased, is it asking place regularly.

_____

Do you have a workers on your farm

- ○ Yes
- ○ No

Benefits

What is the land area that is cultivated now?

_____

What is the land area that were cultivated before the cistern was installed?

_____

Did the cistern collected rainwater during last winter?

- ○ Yes, full, once
- ○ Yes, full, two or more
- ○ Yes, partially
- ○ No (Skip to)
- ○ Other

Specify other

_____

What percentage of the land was irrigated using cistern water last season?

_____

Did you use other resources to fill the cistern?

- ○ Yes, public water network
- ○ Yes, paid water tank
- ○ No
- ○ Other

Specify other

_____

Did the water cistern save some of your irrigation cost?

- ○ Yes
- ○ No

If yes, by how much during the last season?

_____

Did your land productivity increase after the construction of the cistern?

- ○ Yes
- ○ No
- ○ Remain the Same

If yes, what is the agriculture production increase percentage?

_____

Did your land income increase after the construction of the cistern?

- ○ Yes
- ○ No

If yes, what is the agriculture income increase percentage?

_____

Did you plant new varieties after constructing the cistern?

- ○ Yes
- ○ No

What new varieties did you grow?

- ○ Vegetables
- ○ Fruit trees
- ○ Other, specify

Specify other

_____

Did the animal production expanded after the construction of the water cistern?

- ○ Yes
- ○ No
- ○ Animal production is for domestic use only
- ○ Never had animal production

How did livestock production expand after building the cistern?

- ○ Bought more animals
- ○ Saving in water costs
- ○ Other, specify

Specify other

_____

Did you add any infrastructure or technology to your farm after cistern construction?

- ○ Yes
- ○ No

What infrastructure or technology did you add to your farm after cistern construction?

- ○ Irrigation system
- ○ Green house
- ○ Other, specify

Specify other

_____

Why didn't you make any investments in infrastructure or technology?

_____

Did you need more workers after the construction of the cistern?

- ○ Yes
- ○ No

How many additional Syrian female workers did you hire during the past season?

_____

How many additional Syrian male workers did you hire during the past season?

_____

How many additional Jordanian female workers did you hire during the past season?

_____

How many additional Jordanian male workers did you hire during the past season?

_____

How many additional workers of other nationalities (male and female) did you hire during the last season?

_____

How many of them were family members?

_____

For how long did you hire them?

_____

Overall, do you think the cistern has had a positive effect on you or your family?

- ○ Yes
- ○ No

What are the most prominent forms of this effect?

_____

If resources were not an issue, would you construct another cistern?

- ○ Yes
- ○ No

Reasons for your answer

_____

Do you recommend generalizing the idea of building tanks/wells in your area?

- ○ Yes
- ○ No
- ○ Maybe

Reasons for your answer

_____

Did farmers in neighboring farms construct water cistern/tank as a result of your experience?

- ○ Yes
- ○ No

If the answer is yes, how many?

_____

What is the average capacity of the cisterns build by neighboring farms

_____

Would you recommend other farmers to build tanks/wells in your area?

- ○ Yes
- ○ No
- ○ Maybe

Do you use farm produce to make products for sale?

- ○ Yes
- ○ No

What are the products that you produce?

_____

Who makes these products?

- ○ Spouse
- ○ My daughters
- ○ My sons
- ○ The family

Familiarity with the project and forward looking

Are you willing to support other farmers in constructing cisterns in your area?

- ○ Yes
- ○ No
- ○ Maybe

Is it a good idea to consider creating shared tanks/wells/rainwater collection systems among a group of farmers?

- ○ Yes
- ○ No
- ○ Maybe

Reasons for your answer

_____

Does your spouse work with you on the farm?

- ○ Always
- ○ Some time
- ○ Rarely
- ○ No (Skip to)

What tasks does your wife perform on the farm?

- ○ Watering
- ○ Collection
- ○ Planting seedlings
- ○ Other, specify

Other please specify

_____

Who shares/advises you on production decisions on your farm?

- ○ Spouse
- ○ My relatives
- ○ My sons
- ○ Other farmers
- ○ Farm Owner
- ○ Others, specify

Other please specify

_____

How did you know about the project

- ○ Through MOA
- ○ Other farmers told me
- ○ Through a cooperative
- ○ Through Social Media
- ○ Other, specify

Other please specify

_____

What is the most important element of the project in your opinion?

_____

Do you have any suggestions or recommendations for expanding this program?

_____

Take a photo for the cistern

Click here to upload file.

CLOSING THE INTERVIEW

Is the interview now completed?

Select yes to finish and proceed to closing the form.

- ○ Yes
- ○ No

Please write any closing comments and remarks.

Please describe your observations during the interview. Do you feel the respondent was providing you reliable responses? Describe any challenges that you may have experienced during the interview. How many persons were present during the interview?

_____

Our survey is now finished. I would like to thank you very much for your cooperation and giving me your time. I would like to assure you that the information you provided us will be used in a confidential manner and only for research purposes. Thank you very much and have a good day!

_____

Non completion INTERVIEW reasons comment

Please write any closing comments and remarks.

_____

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