ADAPTATION FUND

Mid-Term Evaluation Report for Jordan's Adaptation Fund Porgram "Increasing the Resilience of Poor and Vulnerable Communities to Climate Change Impacts in Jordan through Implementing Innovation Projects in Water and Agriculture in Support of Adaptation to Climate Change"

Mid-Term final Report

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Define . Design . Deliver

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Abbreviations

AF	Adaptation Fund
AFD	French Development Agency
AJ	Arabtech Jardaneh
CBO	community based organizations
DAC	Development Assistance Committee
ESP	Environmental and Social Policy
E&S	Environmental and Social
GoJ	Government of Jordan
HFDJB	Hashemite Fund For Development Of Jordan Badia
ICT	Information and Communication Technology
JMD	Jordan Meteorological Department
JRV	Jordan Rift Valley
JSMO	Jordan Standards and Meteorology organization
JVA	Jordan Valley Authority
JVWF	The Jordan Valley Water Forum
MoA	Ministry of Agriculture
MoEnv	Ministry of Environment
MOPIC	Ministry Of Planning And International Cooperation
MWI	Ministry of Water and Irrigation
NARC	National Center For Agricultural Research
NGO	Non-governmental organization
NIE	National Implementing Entity
OECD	Organization for Economic Co-operation and Development

PDTRA	Petra Development Tourism Region Authority
PMU	Program Management Unit
RSS	Royal Scientific Society
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
WAJ	Water Authority in Jordan
WUA	Water User Association

EXECUTIVE SUMMARY

A mid-term project evaluation (MTE) was conducted in January to March 2020 in line with the Adaptation Fund Monitoring and Evaluation (M&E) policy with four objectives:

i. to monitor and evaluate results and impacts;
ii. to provide a basis for decision-making on necessary amendments and improvements;
iii. to promote accountability for resource use;
iv. to document, provide feedback on and disseminate lessons learned.

The mid-term evaluation was intended to assess the relevance, performance and design of the project thus far. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It also identified/document lessons learned and make recommendations that might improve design and implementation of this program or other Adaptation Fund programs.

The goal of the program is to adapt the agricultural sector in Jordan to climate change induced water shortages and stresses on food security. This to be achieved through piloting innovative technology transfer in treated waste water reuse, water harvesting and permaculture, policy support and capacity building linked to community livelihoods and resilience utilizing advanced ICT tools and supporting agribusiness sector in policy and governance reform.

The total budget of the program was 9.226 Million U.S. Dollars designated for 9 projects within two mega components; Component 1 addressing climate change adaptation of agricultural and water sector through the use of non-conventional water resources (reuse of treated wastewater, rainwater harvesting and permaculture) while Component 2 dealing with climate change adaptation capacity building, knowledge dissemination, policy and legislation mainstreaming.

The program duration is four years which officially started by conducting workshop in July 2016 and the proposed period is from July 2016 to July 2020, and by now become eligible for an independent mid-term evaluation.

Several data sources were used and implemented to provide constructive and comprehensive for all aspects of the project and achieved in a transparent manor. The data included reviewing original documents of the project proposal, Adaptation Fund evaluation policy, the first and second annual reports, review of the project steering committee minutes and decisions, budgets, work plans, files, reports, and national legislation relevant to the project and any other material considered useful. In addition to above, meetings were executed with the PMU at MOPIC, with the EE officers and heads, and with PMU and the financial office at MOPIC.

The Adaptation Fund evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability were adopted in this report for each activity and task per sub-project. Several tools were used including PMU remarks, EE officers and heads Questionnaire, Beneficiaries satisfaction questionnaire, and field visits.

Based on the mid-term along with the third year progress for the period (July 2016 – July 2019), the program is at critical stage where it needs a full support to reach it goals and to reach the designed objectives by time. Some subprojects are highly halted (please see the overall program progress findings for details). The remaining subproject activities are proceeding slowly, thus a facilitation modality should be identified and implemented to simplify the implementation of the potential projects to be achieved by time.

The first two years (2017 and 2018) of the program showed distinctive delays, where it reflects initiated progress on new works and this is because delivery of the New Works component of the Program cannot commence until tender documents are prepared by executing entities and procurements are made. A lead time was also required for preliminary planning, approvals, consultations, procurement and tendering activities. The executing agencies prepared an ambitious work plans, and this programme is the first attempt to Jordan in the field of climate change adaptation, in addition to lack of local experience in this field.

Currently, the implementation of the activities and tasks for each subproject is pacing relatively faster at the third year. The expenditure rate started to increase sharply due to acceleration in sub-projects execution, however, the amount spent show expenditure variation due to the delay in the progress of some of the activities and cost overrun in others which may cause cost deviation and extend project completion time. These problems are reinforced by the lack of cash budget system with the unpredictability and fluctuations in expenditures.

There exist huge variabilities within subprojects in terms of extent of achievements, however the overall progress is moderately satisfactory. Where none of the subprojects have meet the set milestone targets based on the core indicators yet, but they are likely to be achieved by the time especially after the the no-cost extension for an eighteen-month of the project completion date from 13 July 2020 to 13 January 2022.

The internal composition of the program, its management, components and projects were investigated deeply through questionnaire and meetings with all executive entities, PMU and the steering committee at MoPIC. The PMU facilitate the relevant technical staff of the departments/ministries involved to take on project activities, which would be part of their regular work, and implement them using the budget provided through the project. Also, the collaborative partnerships between MoPIC from one aside and executing entities and downstream partner organizations from the other side is good and supportive.

In terms of project strengths, there many strength points identified in the program, among these were the high implementation (potential) of some institutions that support the projects implementation. In addition to the good synergies and collaborations between the executive agencies and the local communities.

Based on outcomes evaluation, the completion rate until the July 2019 did not achieve the expected completion rate. Achieving and accomplishing the vast majority of activities and implementing the adaptation program was mainly achieved through personal rather than institutional efforts and initiatives.

The program activities are proceeding slowly, and this is because of several delay causes that was explained in detail within the report. Some were external as failure to provide information and lack of cooperation by some official authorities in exchanging information related to their

competence, and others were internal as weak coordination between the steering committee and the EE officers, continuous change of the project officers, slow tendering actions and repeated tendering, etc.

In terms of relevance, all planned activities are within the scope of the objectives and reflects the outcomes precisely. The planned activities were suited to local and national development priorities and organizational policies. On the other hand, the effectiveness of the work is ranging from highly satisfactory to highly unsatisfactory by activity, with overall estimation of moderately satisfactory. This was mainly attributed to many unexpected risks appeared after starting the project that delayed the achievement of the activity and in some cases canceled some activities. This forced the EE and IE to establish new activities to overcome what lost. They tried to create new activities within the same goals, however this pointed to another risk which is allocation of the budget and may require further collaboration with other entities.

In terms of cost effectiveness, the financial data and procurements indicates that the overall project efficiency is ranging from highly satisfactory; since the delivered results were produced from the least costly resources as possible, to moderately unsatisfactory (as some required budget transfers to allocate for high prices or providing shortcomings in activities implementation).

In terms of monitoring, it is achieved through two phases; daily/monthly/quarterly/annually monitoring executed at the executing agency as a request to ensure the progress of the work, and the PMU monitoring unit to follow up activities progress and provide feedbacks on the limitations, status, and needs. There was no evaluation performed on ground after accomplishing any task or activity to quantify the impacts (positive or negative) on the surrounding environment and local communities, thus it is recommended that PMU and the executing agencies to work together in performing the evaluation after completion of each activity

In terms of sustainability, the activities specified in the project plan were set as a nucleus for the future and for the re-establishment of similar projects that is important to beneficiaries and in alignment with national priorities and within the strategies and action plans of the executing agencies. All intervention; if implemented and achieved completely, they are likely able to continue to deliver benefits for an extended period of time after completion.

Since the Ministry of Planning and International Cooperation by 20 April 2020 has received an approval from the Adaptation Fund Board on the request for an eighteen-month no-cost extension of the project completion date from 13 July 2020 to 13 January 2022, this time extension is beneficial to overcome the delays. However, acceleration process of the implementation is of vital concerns.

Several measures could be used by MoPIC and partners to improve the adaptation response in the targeted areas of the program and achieve better outcomes for communities affected by climate change, and to ensure sustainability of the project/program results that are included in detail at the recommendation chapter of each subproject. Among these are empowerment of partnership and synergies between executing agencies, the development of exit strategies, marketing for the products, training and education on the sustainability of the project, etc.

1 INTRODUCTION / BACKGROUND

Jordan is one of the top five driest countries in the world with demand exceeding available water resources. Access to a safe water supply is an essential requirement for all sectors; however, some sectors have excessive claims on the available water resources. Jordan, with a total area of about 88 780 km², lies to the east of the Jordan River and is divided into twelve administrative governorates: Amman, Zarqa, Irbid, Mafraq, Ajloun, Balqa, Madaba, Karak, Tafileh, Ma'an and Aqaba[1].

The country can be divided into four physiographic regions[2]:

- The Jordan Rift Valley (JRV) along the western border of the country, with a total area of around 5 000 km^2, starts at Lake Tiberias in the north (212 m below sea level) and continues south through the Jordan Valley into the Dead Sea on the Israeli–Jordanian border (417 m below sea level). From the Dead Sea southwards, the Rift is occupied by the Wadi Araba, then the Gulf of Aqaba, and then the Red Sea.
- The Highlands to the east of JRV, with a total area of around 5 000 km², run from north to south. They consist of ranges of mountains and plains at an altitude between 600 and 1 600 m above sea level and numerous side wadis sloping towards the JRV.
- The plains, with a total area of around 10 000 km², extend from north to south along the western borders of the Al-Badiah desert region.

Al-Badia desert region in the east, with a total area of around 69 000 km², is an extension of the Arabian Desert. st by Israel and the West Bank. Studies suggest that climate change will exacerbate current aridity and conditions of water shortage in Jordan. This will directly impact food security, where around 67% of all water withdrawals are for agriculture. Introducing affordable technologies will definitely assist the agriculture sector in reducing water losses which may also benefit from technologies that recycle, harvest and conserve water, thus reliving the saved water for industrial and municipal consumers. Farmers should be encouraged to plant higher-value (cash crops) crops and adopt simple changes in operation and maintenance of on-farm irrigation systems to reduce water consumption[3].

The 4-year grant Program "Increasing the resilience of poor and vulnerable communities to climate change impacts in Jordan through implementing innovative projects in water and agriculture in support of adaptation to climate change" is sponsored by the Adaptation Fund of the UNFCCC at an amount of 9.226 Million U.S. Dollars in 2015[4].

The program was planned to be executed from 2015-2019 but due to delay in the start of implementation, which officially started by conducting the Inception Workshop in July 2016, now the new proposed period is from July 2016 to July 2020). The National Implementing Entity (NIE) is Ministry of Planning and International Cooperation (MOPIC) who has signed the agreement with the Adaptation Fund on behalf of the Government of Hashemite Kingdom

[1] Ministry of Water And Irrigation, 2017.: Jordan Water Sector – Facts and Figures. Amman, Jordan.
[2] Ministry of Environment, 2014. Jordan Climate Change Policy. Amman, Jordan.
[3] Ministry of Environment, 2013. Third National Communication Report to UNFCCC. Amman, Jordan.
[4] Ministry of Planning and International Cooperation, 2015. Main Proposal For Jordan Submitted to Adaptation Fund.

of Jordan (GoJ) in May 14th 2015 and the Prime Ministry of GoJ approved the agreement on June 7th 2015.

The Program is being executed by six national institutions, which are: Ministry of Environment (MoEnv), Water Authority of Jordan (WAJ), Jordan Valley Authority (JVA), Petra Development Tourism Region Authority (PDTRA), National Agricultural Research Center (NARC), and the Hashemite Fund for Development of Jordan Badia (HFDJB), in addition to the cooperation with other national organizations like the Royal Scientific Society (RSS), Jordan Food and Drug Administration (FDA), Jordan Metrological Department (JMD) and the Jordan Standards and Metrology Organization (JSMO).

The main objective of the program is to adapt the agricultural sector in Jordan to climate change induced water shortages and stresses on food security. This to be achieved through piloting innovative technology transfer in treated waste water reuse, water harvesting and permaculture, policy support and capacity building linked to community livelihoods and resilience utilizing advanced ICT tools and supporting agribusiness sector in policy and governance reform.

Two mega components comprise the program; Component 1 addressing climate change adaptation of agricultural and water sector through the use of non-conventional water resources (reuse of treated wastewater, rainwater harvesting and permaculture) while Component 2 dealing with climate change adaptation capacity building, knowledge dissemination, policy and legislation mainstreaming.

- **Component 1: Climate Change Adaptation of Agricultural & Water Sector through Technology Transfer (the use of non-conventional water resources – reuse of wastewater, rainwater harvesting & permaculture).**
- **Component 2: Climate Change Adaptation Capacity Building, Knowledge Dissemination, Policy and Legislation Mainstreaming.**

Component 1 consists of 4 sub-projects in treated wastewater reuse in Wadi Musa area (southern Jordan) (executed jointly by PDTRA and HFDJB), Northern Jordan Valley area (executed by JVA), Middle Jordan Valley (executed by WAJ), and North Shounneh area (executed by JVA). The fifth project will handle increasing the resilience of poor and vulnerable communities to climate change impacts through water harvesting technologies in poverty pockets (executed by JVA). The sixth project will work at extending permaculture design and technologies in the Jordan Valley areas and beyond (executed by NARC).

Component 2 on the other hand consists of three sub-projects, which will address raising the awareness and strengthening the capacities of poor and remote communities to better adapt to climate change adverse impacts using ICT as an enabling tool for more effective adaptation (two sub-projects executed by one entity MoEnv through RSS), and water sustainability and agribusiness competitiveness and reform in Jordan Valley as the last sub-project (executed by NARC).

The master program holds nine sub-projects. Table 1 shows the title, responsibility, and beneficiaries of each sub-project.

Component	No	Name of the sub-project	Executive Entity	Direct beneficiaries
Component 1	1.1	Reuse Of Treated Wastewater For On-farm Agricultural Adaptation In Wadi Mousa	The Hashemite Fund for the Development of Jordan Badia (HFDJB) and Petra Development and Tourism Region Authority (PDTRA)	local communities in the very far southern part of Jordan at Ma'an Governorate, farmers, and WUAs
	1.2	The Northern Jordan Valley Wastewater Reuse	Jordan Valley Authority (JVA)	local communities in northern Jordan Valley area, farmers, and WUAs
	1.3	Tal El Mantah Wastewater Treatment Plant - Wastewater Reuse Project	Water Authority of Jordan (WAJ)	local communities in Middle Jordan Valley area, farmers, and WUAs
	1.4	Wastewater Reuse at North Shouneh WWTP	Jordan Valley Authority (JVA)	local communities in northern Jordan Valley area, farmers, and WUAs
	1.5	Community Resilience and Adaptation to Climate Change through Water Harvesting Technologies in Poverty Pockets	Jordan Valley Authority (JVA)	local communities in Sothern Jordan valley areas up to Ghor Al-Safi and farmers.
	1.6	Building Resilient Food Security Systems through Extending Permaculture Design and Technologies in the Jordan Valley and Beyond	National Agriculture Research Center (NARC)	local communities in two permaculture demonstration sites, one at Northern Jordan Valley and the other at Sothern Jordan valley/Ghor Al-Safi region, farmers, and all JVA local community.
Component 2	2.1	Strengthening the Capacities of Poor & Remote Communities to Better Adapt to Climate Change Adverse Impacts	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS)	CBOs, poor families and remote poor communities, farmers, small enterprises, agribusiness industry.
	2.2	Using ICT as an enabling tool for more effective climate change adaptation and development programmes	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS)	CBOs, poor families and remote poor communities, farmers, small enterprises, agribusiness industry.
	2.3	Jordan Valley Water Sustainability and Agribusiness Competitiveness	National Agriculture Research Center (NARC)	CBOs, poor families and remote poor communities, farmers, small enterprises, agribusiness industry.

Table 1: Title, Responsibility, and Beneficiaries of the Nine Sub-Projects

The program duration is four years which officially started by conducting workshop in July 2016 and the proposed period is from July 2016 to July 2020, and by July 2018 become eligible for an independent mid-term evaluation[5].

The program is now for the period of evaluation (July 2016 – July 2019), which is illustrated through the execution of plenty of the different planned activities of the sub-projects of the program. This execution process is now evident through embarking on an extensive tendering process for purchasing technical and engineering consulting services, design, contractor services, supplies services, and training services as well as supply of equipment and needed logistic services for such activities for the purpose of execution of the planned activities of the sub-projects. The lists of activities for the sub-project are listed in the master (project-long) and annual work plans of each sub-project.

The main Project/ Prorgramme Components and Financing at the proposal document (presented in Table 2, was used as tracker to delineate for the progress of the project in terms of achieved outcomes and outputs. The project progress in terms of components and subproject targets achievements were also evaluated based on agreed set of Adaptation Fund core outcome indicators (Table 3).

In terms of program implementation progress, three annual reports were developed; 2016/2017, 2017/2018, and 201/2019 where the first showed shed light on the status of implementation at the starter year of the program, which also documents barriers and challenges of implementation and present an update of status of risks listed in the program document.

By understanding the delays in the subproject performance, a request for extension of project completion date was submitted by Ministry of Planning and International Cooperation. By 20 April 2020, the Adaptation Fund Board decided to approve the request for an eighteen-month no-cost extension of the project completion date from 13 July 2020 to 13 January 2022[6].

[5] Adaptation Fund, 2011. ProjectPerformance and Reporting. https://www.adaptation-fund.org/projects-programmes/project-performance/

[6] Adaptation Fund, April 2020. Approval of request for extension of project completion date. https://www.adaptation-fund.org/wp-content/uploads/2020/04/AFB.-Intersessional-Decision-B.35.a-35.b_1-MOPIC_Jordan.pdf

PROJECT/PROGRAMME COMPONENTS	EXPECTED CONCRETE OUTPUTS &TARGETS	EXPECTED OUTCOMES	AMOUNT (US$)
Component 1: Climate Change Adaptation of Agricultural & Water Sector Through Technology Transfer (The Use of Non-Conventional Water Resources (Reuse of Wastewater, Rainwater Harvesting & Permaculture). Sub-Component (A): **Climate change adaptation of water sector through reuse of treated wastewaterll under (subprojects 1.1, 1.2, 1.3, 1.4) with the following objectives** ❖ **Providing a unique, efficient, simple and cost effective climate change adaptation systems to people in arid regions who suffer from water scarcity, and food insecurity.** ❖ **Deployment of advanced innovative irrigation methods such as drip, spray and micro-sprinkler irrigation.** ❖ **Limit the impact of climate change on water supplies of Jordan by reusing treated wastewater and rainwater harvesting and thereby reducing the consumption of the scarce ground water.** ❖ **To implement a holistic approach for integrated water management in remote arid regions.** ❖ **Releasing fresh water sources for potable water supplies and other priority uses and replacing it with treated wastewater for irrigation purposes.**	Treated wastewater complying with national standards used in irrigated agriculture to augment available fresh water resources available as a means for CC resilience in agriculture **Target**: (22,193,200 m^3/yr) of treated wastewater reused in irrigated agriculture to augment existing irrigation water supply). ❖ WUAs trained on safe handling and use of new irrigation water quality (treated wastewater) in agriculture **Target** 48 WUAs in JV and 1 WUA in Wadi Mousa ❖ Increased family income of vulnerable groups as a result of enhanced crop production through augmenting irrigation water supply with treated wastewater **Target**:(240) Families with enhanced Livelihoods (average family size is 6) "960 males, 480 female"	Increased water availability and efficient use through wastewater reuse Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	**5,900,000**
Component 1: Sub-Component (B): **Climate change adaptation of Agricultural Sector through rainwater harvesting& Permaculture, subprojects (1.5,and 1.6) with the following objectives** ❖ **To Implement Low-cost, low-technology yet sustainable and practical water collection and reuse programs for rural community livelihoods.** ❖ **Enhance water distribution services and increase irrigation network efficiency.** ❖ **Assessing the vulnerability vulnerable communities and ecosystems and planning food security and programs**	❖ Harvesting rain water through construction of earthen check dams. Target: (300,000 m^3/Year of rainwater harvested). ❖ Improved community preparedness to CC through farmers adopting permaculture techniques. Target (48 farms) ❖ Enhanced livelihoods of farming communities through sustainable practices which increase crops productivity **Target**: (410 families with average family size of 6) "3160 male, 1580 females"	Increased water availability and efficient use through rainwater harvesting Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	

Component 2: Capacity Building at Both The National and Local/Community Levels Respectively, Knowledge Dissemination, Policy and Legislation Mainstreaming. **Capacity Building at both the national and local/community levels, knowledge Dissemination, policy and legislation mainstreaming through subprojects (2.1),(2.2),(2.3) with the following objectives** Objectives: ❖ **Strengthened ability of remote poor communities to make informed decisions about climate change-driven hazards affecting their specific locations.** ❖ **Involve and educate the engaged local community in all the phases of the project.** ❖ **Reduce the health risks associated with irrigation practices.** ❖ **To motivate the targeted communities to work, cooperate and support each other.** ❖ **Reinforce the concept of participatory water & agriculture development and management approach that involves users, planners and policy makers at all levels.** ❖ **Enhance the quality of life and food security in arid regions and contribute to climate change adaptation.** ❖ **Developing a competitive, inclusive and sustainable agribusiness industry.**	❖ Develop and implement awareness sessions to disseminate knowledge tools to adapt to climate change and of appropriate response measures. **Target**: (6 seminars per year)	Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**1,900,000**
	❖ Empowering WUAs through developing an early warning system which inform farmers of impeding hazards of cold/ frost fronts and heat waves in the Jordan Valley **Target**: (16 WUAs)	Increased ecosystem resilience in response to climate change and variability induced stress	
	❖ Creating new micro- enterprises linked to Agribusiness Industries. **Target** : (300 enterprise)		
	❖ Creating new direct& indirect jobs related to agribusiness in Jordan Valley. **Target** (19800 Jobs) aggregated by gender (5400 for Females, 14400 Males)		
Project/Programme Execution cost			**703,000**
Total Project/Programme Cost			**8,503,000**
Project/Programme Cycle Management Fee charged by the Implementing			
Entity (if applicable) (8.5%)			**723,000**
Amount of Financing			**9,226,000**

Table 2: Project/ Prorgramme Components And Financing

Component (1): Sub-Component (A): Climate Change Adaptation OF Water Sector "Reuse of treated wastewater" (Project (1.1, 1.2, 1.3, 1.4):				
Projects Outcome	Core Outcome Indicator	Baseline	Milestone	Project/Target
Increased water availability and efficient use through wastewater reuse	Quantity (m^3) of Supplementary water available for agriculture, or number of families benefiting from the project	Subproject (1.1): 1,022,000 m^3	1,250,200 m^3/yr	1,317,200 m^3/yr
		Subproject (1.2): 17 MCM	18,500,000 m^3/yr	20,000,000 m^3/yr
		Subproject (1.3): 0	219,000 m^3/yr	438,000 m^3/yr
		Subproject (1.4): 0	219,000 m^3/yr	438,000 m^3/yr
		Total for all projects 18,022,000 MCM	Total= 20,188,200 m^3/yr	Total= 22,193,200 m^3/yr
Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Increased income, or avoided decrease in income	Subproject (1.1) $398 /household/month	$602/household/month	$806/household/month
		Subproject (1.2) $ 170 /household/month	$250/household/month	$330/ household/month
		Subproject (1.3): 0	$150/household/month	$300 / household/month
		Subproject (1.4): 0	$150/household/month	$300 / household/month
	Number of beneficiaries *Average family size is 6 (2 Females, 4 Males)	Subproject (1.1): 40 families	55 Families "330 persons" (220 Males, 110 Females)	70 Family "420 persons" (280 Males, 140 Females)
		Subproject (1.2): 16 Families	23 Families "138 persons" (92 Males,46 Females)	30 Families "180 persons" (60 Females, 120 Males)
		Subproject (1.3): 0	35 Families "210 persons" (140 Male, 70 Female	70 Families "420 persons" (280 Male, 140 Female)
		Subproject (1.4): 0	35 Families "210 persons" (140 Males, 70 Females)	70 Families "420 persons" (280 Male, 140 Females)

Component (1): Sub-Component (B): Climate change adaptation of Agricultural Sector through rainwater harvesting& Permaculture, Projects "1.5,1.6")				
Increased water availability and efficient use through Rain water Harvesting	Quantity (m^3) of Supplementary Fresh water available for agriculture,	Subproject (1.5): 0	150,000 m^3/Year	300,000 m^3/Year
Increased adaptive capacity within relevant development and natural resource sectors	Natural Assets Protected or Rehabilitated	Subproject (1.6): 0	24 Farms	48 Farms
Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Increased income, or avoided decrease in income	Subproject (1.5): 0	$1000 Farm/ Year	$2000 Farm/ Year
		Subproject (1.6): 0	$2500/ Farm/ Year	$5000/ Farm/ Year
	Number of beneficiaries Average family size is 6 (2 Females, 4 Males) benefit & participate in project activities	Subproject (1.5): 0	205 Families "1230 persons" (820 Males, 410 Females)	410 Families "2460 persons" (1640 Males, 820 Females)
		Subproject **(1.6):** 0	190 Families "1140 persons" (760 Males, 380 Females)	380 Families "2280 persons" (1520 Males, 760 Females)

Component 2: Climate Change Adaptation Capacity Building, Knowledge Dissemination, Policy and Legislation Mainstreaming (projects "2.1","2.2" &"2.3")				
Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Number of Targeted population groups aware of Climate change risks on natural resources and the ecosystem.	Subproject (2.1): 0 *Assume each WUA has around 80 member, around 17% are women	24 WUA: "1920 persons" Aggregated by gender (326 Females, 1593 Males)	48 WUA "3840 persons" (3187 Males,653 Females)
Increased ecosystem resilience in response to climate change and variability-induced stress	Number of registered farmers in the Jordan valley will be registered users in the System Database (Each family has 6 members,2 women&4 Men)	Subproject (2.2) 16 WUA 26 Farmer family	23 WUA "1840 persons" (312 Females, Males 1528) & 33 Farmer Families "198 persons" (132 Males, 66 Females)	30 WUA "2400 persons" (1992 Males, 408 Females) & 40 Farmers Families "240 persons" (160 Males, 80 Females)
	Early Warning Systems installed	Subproject (2.2): 0	1	3
	Number of new micro-enterprises created linked to Agribusiness Industries	Subproject (2.3): 0	150	300
	Number of New direct & indirect Jobs related to Agribusiness in Jordan Valley	Subproject (2.3): 0	9000 Jobs (2700 for Females, 6300 Males)	19,800 Jobs (5400 for Females, 14400 Males)

Table 3: Project Framework, including Milestones, Targets and Indicators

2 PURPOSE, SCOPE AND METHODS

The mid-term evaluation covers the period from July 2016 to July 2019, with a focus on the actual implementation of the programme.

The main objectives of the midterm report are:

1. To assess the extent to which the program has succeeded in meeting its set short-term and mid-term objectives and its core goal of increasing the resilience of poor and vulnerable communities to climate change impacts in Jordan through implementing innovative projects in water and agriculture in support of adaptation to climate change

2. To assess the internal composition of the program, its management, components and projects, and to identify whether the current structure of its management has led to effective achievement of its objectives and goals.

To ensure that this assessment will cover all its intended objectives, and would yield the most comprehensive results and recommendations, given the contextual differences across the two main geographical areas/eco-systems of the program (Jordan Valley from North to south and Wadi Mousa in the south), the AJ team draw conclusions in the following perspectives:

1. The geographical areas/eco-systems level: Addressed whether the objectives set for each of the two components have been achieved, and if so, to what extent.
2. Holistic view of all aspects of the program, as well as cross-cutting issues of interest to MOPIC, Executing Entities, partners including:
    - value for money
    - adaptive management
    - gender
    - coordination with other actors
    - accountability to affected populations
    - use of monitoring and evaluation information

These perspectives were carefully handled while scanning the internal processes of the program, and while identifying the expected results of its different components on Increasing the Resilience of Poor and Vulnerable Communities to Climate Change Impacts in Jordan.

Being understandable of the aim of conducting this evaluation is not merely to judge the success or failure of the program/projects, but more importantly to identify existing weaknesses and to explore means and methods to improve them as well as strengths and means to build on them in order for the Program to produce a profound positive effect on human development.

The AJ team ensured that the assessment should cover the following corresponding to the above mentioned two perspectives:

1. An assessment of the management of the program including structure, operations, processes, strategies, monitoring and evaluation, etc. The assessment review and assess the capacity of the PMU of MOPIC to carry out its responsibility of the program coordination, including monitoring project status and reporting on project progress. In addition to recommendations on possible improvements including a time frame for the implementation of these improvements.
2. An assessment of the program relevance, efficiency, effectiveness, impact and sustainability, identifying challenges, constraints and success factors and providing clear conclusions, lessons learnt and recommendations for ways forward.

The AJ team ensured the guiding principles and values presented at Figure 1 are met during the Mid-Term Review as much as possible:

Figure 1: Guiding Principles and Values of Concern During the Mid-Term Review

2.1 Adopted methodology

The midterm evaluation of the Programme was carried out in accordance with UNEG Evaluation Norms and Standards of Evaluation and Ethical Standards as well as OECD/DAC evaluation principles and guidelines and fully compliant with the DAC Evaluation Quality Standards (2006)[7].

The evaluation was started in March 2020, but due to COVID 19, there were few delays and thus the evaluation concluded by beginning of August 2020. The final report will be drafted upon stakeholder meeting (workshop) incorporating stakeholder comments and reactions to the draft final report. The main goals of the midterm evaluation were:

i) to monitor and evaluate results and impacts;

ii) to provide a basis for decision-making on necessary amendments and improvements;

iii) to promote accountability for resource use;

iv) to document, provide feedback on and disseminate lessons learned.

A mid-term evaluation was intended to assess the relevance, performance, program management, effectiveness and efficiency of the whole program and the sub-projects thus far. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It also identified and documented lessons learned and provided set of recommendations that might improve design and implementation of this program or other future programs.

[7] OECD, 2010. Quality Standards for Development Evaluation: DAC Guidelines and Reference Series. https://www.oecd.org/development/evaluation/qualitystandards.pdf

2.2 Data Source

To ensure that the evaluation is constructive and comprehensive for all aspects of the project and achieved in a transparent manor, the evaluation is designed to capture and analyze both qualitative and quantitative data (mainly expenditure data). The data was obtained from the various resources presented at table 4.

Number	Data Resources
1	Review of the original project document[8] that has been agreed and signed by both MOPIC and Adaptation Fund (i.e. project document). The review include the main components objectives, agreed indicators and outputs, proposed risks and its management plan, timeframe of the work, and the budget plan.
2	Review of the Adaptation Fund evaluation policy.
3	Review of the first[9] and second[10] performance reports sent to Adaptation Fund that include the progress of the work.
4	Review of the project steering committee minutes and decisions, budgets, work plans, files, reports, and national legislation relevant to the project and any other material considered useful.
5	Meetings with the PMU at MOPIC to identify the management strategies and the monitoring actions implemented. Identify any new risks that were not mentioned in the main proposal form. And identify new actions required to ensure the sustainability and progress of the project towards acheivements of its main goals.
6	Meetings with the executive bodies/entities and project officers for the nine sub-projects to identify the progress and limitations of each activity based on the objective, task, and target indicators. Each excuting agency stakeholder/beneficiaries will be evaluated separately. The meeting will identify any lesson learned or obstacles to overcome.
7	Meetings with local communities and beneficiaries to identify their satisfaction of the implemented work.
8	Meeting with PMU and the financial office at MOPIC to evaluate the budget status of the implemented activities.

Table 4: Suggested Data Resources for the Midterm-Program Evaluation

[8] Main Project Document that was submitted and approved by Adaptation Fund, https://www.adaptation-fund.org/wp-content/uploads/2015/09/AFB.PPRC_.16.11-Proposal-for-Jordan_0-1.pdf

[9] First Project Performance Report submitted to Adaptation Fund. https://www.adaptation-fund.org/wp-content/uploads/2015/09/36ForWebsiteJordanMoPICAFPPR1Jul16Jul17revised2-2.xlsx

[10] Second Project Performance Report submitted to Adaptation Fund. https://www.adaptation-fund.org/wp-content/uploads/2015/09/36WEBJordanMoPICJuly2017July2018v6.xlsx

2.3 Adopted Methodological Strategies

The framework of the evaluation was based on the 5 steps. The objectives and outputs of each step are listed on Table 5.

Step #	Relevance	Objective	Outputs
Step 1	Meeting with the PMU at MOPIC	to define in a practical way, the framework of action, to review and agree on the midterm objectives and scope, to identify all the data sources availability, to agree on the working methodology, to agree on the interview questionnaire.	Revised version of the inception report
Step 2	Meeting with the PMU at MOPIC	Evaluate the following aspects: • Managerial framework (structural framework assessment), • Adopted strategies, operations, and actions, • Coordination of the project, • Monitoring project status, • Reporting on project progress, • Financial Management, • Risk assessment and management, • Capturing of any lessons learned stories.	An assessment report of the PMU current arrangements to carry out its responsibility of the program coordination. In addition to recommendations on possible improvements including a time frame for the implementation of these improvements.
Step 3	Meeting with the executive bodies/entities and liaison officers for the nine sub-projects	Evaluation based on quantitative and qualitative measures through field visits and questionnaires for the following aspects: • Output achieved of each activity (progress %) • Implemented actions as compared to target indicators • Adapted management plans and actions • Financial accounting • Gender and youth mainstreaming • monitoring and evaluation actions • challenges, constraints and risks assessment and management	An assessment report of the program relevance, efficiency, effectiveness, impact and sustainability, challenges, constraints and success factors. The assessment will identify the existing weaknesses and to explore means and methods to improve them as well as strengths and means to build on them in order for the Program to produce a profound positive effect on human development.

		• Beneficiaries satisfaction • value for money • Sustainability (step for exit strategy) • Time management • Future plans and activities	
Step 4	Meeting with the local communities and beneficiaries for the nine sub-projects per activity.	Evaluation based on qualitative measures through field visits and questionnaires for the following aspects: • The appropriateness of the selection criteria of beneficiaries • Appropriateness of each activity based on local communities' needs. • Beneficiaries satisfaction of the implemented activities. • Efficiency of the implemented tools. • Sustainability of the implemented actions. • Gender and youth mainstreaming • Future plans and activities. • Challenges, constraints, risks assessment and management Innovations and scaling up potentials.	This will provide verification truth to the program effectiveness and sustainability. The outputs will be incorporated within the evaluation itself (evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability), and will provide further outputs in the innovations and scaling up potentials chapter, and the exit strategies and further recommendations.
Step 5	Assessment and analyses	This include analyses of the questionnaires into comprehensive results and recommendations	Final report including implementation stage versus planned achieved, conclusions, lessons learnt, and recommendations for the project.
Step 6	Validation workshop	Setting the first draft report and conducting a stakeholder meeting with the PMU and all stakeholders to validate the report.	

Table 5: Evaluation Framework Steps List.

3 EVALUATION WORK PLAN

3.1 Mid-Term Evaluation Criteria

The mid-term evaluation addressed the evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability **(Figure 2)**[11]. This aid the objective of Mid-Term Evaluation of the Jordan's adaptation fund program for determining the extent to which the Programme objectives as outlined in the programme documents have been achieved.

Figure 2:Program Mid-Term Evaluation Criteria

In general, the evaluation was explored through the following criteria:

- Relevance: the extent to which the planned activities were suited to local and national development priorities and organizational policies, including changes over time;
- Effectiveness: the extent to which an objective has been achieved or how likely it is to be achieved;
- Efficiency: the extent to which results have been delivered with the least costly resources possible, also called cost effectiveness or efficacy;

[11] Adaptation Fund. 2015. Guidelines For Adaptation Fund Project/Programme Evaluations. https://www.adaptation-fund.org/wp-content/uploads/2015/01/Guidelines%20for%20Proj_Prog%20Final%20Evaluations%20final%20compressed.pdf

- Results: the positive/negative and foreseen/unforeseen changes to and effects produced by a development intervention to date. In Adaptation Fund terms, results include direct project outputs, short-to-medium-term outcomes and longer term impact, including global environmental benefits, replication effects and other local effects;
- Sustainability: the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

The project progress was compared to the main project component outcomes identified at the proposal document. The targets and outcomes were checked if achieved. In case of no achievements, the evaluation focused on reasons behind delays and provided further recommendations to accelerate the progress as much as possible.

In cases where the performance against planned milestones or preliminary targets has been sub-optimal, the evaluation strives to identify the roadblocks and barriers preventing the projects to move forward. Likewise, the evaluation will probe for hints and ideas to accelerate and/or enhance the quality of implementation even in cases of activities that were implemented according to the initial plan.

Possible gaps, challenges and lessons learnt for the scope, design and implementation modalities of the programme going forward during the remaining two years of the projects life span were looked into. Synergies and catalytic effects realized, be they planned for or unforeseen, were duly noted. Similarly, unforeseen negative effects will also be recorded. Data-driven observations and findings will serve as evidence to present actionable recommendations. Moreover, the evaluation has collate and analyze lessons learnt, challenges faced and best practices obtained during implementation period which will inform the second phase of implementation of the programme.

The evaluation assessed the programmes' design, scope, implementation status and the capacity to achieve the expected outcomes. it also captured lessons learnt and provide information on the nature, extent and where possible, the potential impact and sustainability of the programme. The evaluations assessed the performance of the programmes against planned results. The degree to which this has been achieved in its final design was also part of this imminent mid-term review. The programme is thus expected to contribute to the adaptation of the agricultural sector in Jordan to climate change induced water shortages and stresses on food security.

The mid-term evaluation assessed the effectiveness of the chosen innovative technology transfer in treated wastewater reuse, water harvesting and permaculture, policy support and capacity building linked to community livelihoods and resilience utilizing advanced ICT tools and supporting agribusiness sector policy and governance reform. This included the implementation modalities, and the financial arrangements, it will also look at issues of coordination, partnership arrangements, institutional strengthening, beneficiary participation, replication and sustainability of the programme.

The evaluation included review of the project design, and assumptions made at the beginning of the programmes development process. The team assessed whether the programme's results are on track; capacities built, and cross cutting issues of gender have been addressed. The evaluation also assessed whether the programme's implementation strategy has been optimal and recommend areas for improvement and learning.

The submitted Draft Mid-term Programme Evaluation report is subjected for validation. After validation, the final report will include the final set of recommendations, policy options and conclusions. Through amending, adding or eliminating content in line with comments received, it will address and/or incorporate feedback provided by the different stakeholders.

3.2 Mid-Term Evaluation Tools and Analytical approaches

The tools used for the evaluation were:

1. PMU staff remarks
2. Executive bodies/entities and liaison officers Questionnaire
3. MOPIC remarks
4. Beneficiaries satisfaction questionnaire
5. Field visits
6. Comparison tools to benchmarks (if required).

The mid-term evaluation approaches were based on the following three steps:

(1) Feedback collection from all related agencies (including but not limited to executing entities and focal points);
(2) Verification through comparisons with annual programme performance reports (PPR), feedbacks from PMU staff, MOPIC, beneficiaries and local communities;
(3) Validation through meetings with all stakeholders at the end of the evaluation process.

The evaluation criteria were extracted from the Project/ Programme Mid-term evaluation guidelines adopted by Adaptation Fund based on the approved 14th Board meeting (AFB/EFC.5/5). Although the project/programme performance report (PPR) meet technical requirements, the information is reported by year and its format is not ideal to convey the overall information and knowledge to wider and more general audiences. Therefore, the PPR was considered the main key guide for submitting the midterm and final project completion report, which represents the minimum requirements of the Fund for undertaking terminal evaluations.

The project was evaluated based on above criteria (including Relevance, Effectiveness, Efficiency, Impact, and Sustainability) for each activity and task per sub-project for midterm period (i.e. 2016/2017, 2017/2018 and 2018/2019) (Table 6). Then

the evaluation was scored to provide an evaluation for the progress of each subproject. ***The weight scoring technique was based on assigning values from 0 to 5 (Low to High) based on the ranks used by Adaptation Fund Guidelines. The overall average score was then re-assigned to represent the overall evaluation of each subproject and consequently the overall program progress.***

Project Number	Activities	Subactivities	Details	Objective	Responsibility	Duration	Target	Indicators	Progress	Outcomes	Allocated	How much	Identified risks	Risk measures	Delay	Unexpected	Recommendati	Lesson learn	Gender	Sustanability	Monitoring	Exit strategy

Table 6: General Framework of the Evaluation Matrix

The relevance was rated as relevant or not, however the project formulation, outcomes, effectiveness, efficiency, impact, M&E were rated as highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, and highly unsatisfactory. On the other hand, the sustainability of the project was rated as likely, moderately likely moderately unlikely, and unlikely (Tables 7 and 8).

In terms of the implementation progress, the delays were justified. The identified and un-identified risks were determined with recommendations for handling to ensure the sustainability of the project. For each sub-component, the defined indicators, milestone, and target values and dates were reviewed to ensure that the progress evaluation is achieved as planned.

Effectiveness Rate	Symbol	Description
Highly Satisfactory	HS	Project actions/activities planned for current reporting period are progressing on track or exceeding expectations to achieve all major outcomes/outputs for given reporting period, without major shortcomings. The project can be presented as “good practice”.
Satisfactory	S	Project actions/activities planned for current reporting period are progressing on track to achieve most of its major outcomes/outputs with only minor shortcomings.
Moderately Satisfactory	MS	Project actions/activities planned for current reporting period are progressing on track to achieve most major relevant outcomes/outputs, but with either significant shortcomings or modest overall relevance.
Moderately Unsatisfactory	MU	Project actions/activities planned for current reporting period are not progressing on track to achieve major outcomes/outputs with major shortcomings or is expected to achieve only some of its major outcomes/outputs.
Unsatisfactory	U	Project actions/activities planned for current reporting period are not progressing on track to achieve most of its major outcomes/outputs.
Highly Unsatisfactory	HU	Project actions/activities planned for current reporting period are not on track and shows that it is failing to achieve, and is not expected to achieve, any of its outcomes/outputs.
Efficiency Rate	**Symbol**	**Description**
Highly Satisfactory	HS	Project actions/activities were delivered with the least costly resources possible.
Satisfactory	S	Project actions/activities were delivered with low cost resources but with minor cost shortcomings.
Moderately Satisfactory	MS	Project actions/activities were delivered with the moderate cost resources but with shortcomings.
Moderately Unsatisfactory	MU	Project actions/activities were delivered with high cost resources that acquired budget transfers.
Unsatisfactory	U	Project actions/activities were partially delivered with high cost that acquired budget transfers or external resources.
Highly Unsatisfactory	HU	Project actions/activities were partially delivered with high cost that acquired budget transfers and external resources.
Relevance ratings	**Symbol**	**Description**
Relevant	R	planned activities were suited to local and national development priorities and organizational policies
Not relevant	NR	planned activities were not suited to local and national development priorities and organizational policies
Results/Impact Ratings	**Symbol**	**Description**
Significant	S	Significant positive/negative and foreseen/unforeseen changes to and effects produced by a development intervention to date.
Minimal	M	Minimal positive/negative and foreseen/unforeseen changes to and effects produced by a development intervention to date.

Negligible	N	Negligible positive/negative and foreseen/unforeseen changes to and effects produced by a development intervention to date.
Sustainability Ratings	***Symbol***	***Description***
Likely	L	negligible risks to continue to deliver benefits for an extended period of time after completion
Moderately Likely	ML	moderate risks to continue to deliver benefits for an extended period of time after completion
Moderately Unlikely	MU	significant risks to continue to deliver benefits for an extended period of time after completion
Unlikely	U	severe risks to continue to deliver benefits for an extended period of time after completion

Table 7 : Evaluation Criteria based on Adaptation Fund Evaluation Policy (based on Adaptation Fund – Project Performance and Reporting - Project/ Programme Performance Report template and guidelines)

Rate	Description
Highly Satisfactory (HS)	Project actions/activities planned for current reporting period are progressing on track or exceeding expectations to achieve all major outcomes/outputs for given reporting period, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project actions/activities planned for current reporting period are progressing on track to achieve most of its major outcomes/outputs with only minor shortcomings.
Moderately Satisfactory (MS)	Project actions/activities planned for current reporting period are progressing on track to achieve most major relevant outcomes/outputs, but with either significant shortcomings or modest overall relevance.
Moderately Unsatisfactory (MU)	Project actions/activities planned for current reporting period are not progressing on track to achieve major outcomes/outputs with major shortcomings or is expected to achieve only some of its major outcomes/outputs.
Unsatisfactory (U)	Project actions/activities planned for current reporting period are not progressing on track to achieve most of its major outcomes/outputs.
Highly Unsatisfactory (U)	Project actions/activities planned for current reporting period are not on track and shows that it is failing to achieve, and is not expected to achieve, any of its outcomes/outputs.

Table 8 : Description of the Evaluation Rates[12]

[12] Adaptation Fund. 2015. Guidelines For Adaptation Fund Project/Programme Evaluations. https://www.adaptation-fund.org/wp-content/uploads/2015/01/Guidelines%20for%20Proj_Prog%20Final%20Evaluations%20final%20compressed.pdf

Generally, the fund outcome and output indicators were used and evaluated based on the Adaptation Fund Monitoring and Evaluation matrix. The evaluation was based on the agreed and signed work-plan components at the final matrix obtained from the Adaptation fund. In terms of the financial management, the allocated budget was evaluated in terms of how many was spend and how much was over estimated or under estimated. Is the financial budget is allocated correctly, if not then how it can be managed later on? The financial assessment was achieved through meetings with the PMU and the financial office at MOPIC.

3.3 Questionnaire and Evaluation Matrix

Since the evaluation should capture and analyze both qualitative and quantitative (mainly expenditure) data, in addition to mega data at MOPIC PMU, data were also collected from stakeholder key informants and beneficiaries/local communities through interviews, group discussions and other formal and informal consultative processes.

3.3.1 Interview Tools

In terms of the applied tools to be capture both quantitative and qualitative data, Table 9 shows the adopted implementation tools for each of the target meetings.

Target Meeting	Evaluation Tool	Evaluation type	Data Collection Method	Types of questions	Goals
Meeting with the executive bodies/entities and liaison officers for the nine sub-projects	Key Information	Qualitative	In-depth Interview (IDI)	Semi-structured (with open ended questions)	Feedbacks on project activities (based on tables 3 to 6)
		Quantitative		Tables of progress (regarding budget, time, progress indicators, etc.).	
Meeting with the executive bodies/entities and liaison officers for the nine sub-projects	Focus Group	Qualitative	Focus Group Discussion	Reasons, opinions, and motivation of the implemented activities. Pros and Cons, recommendations	Exploring, descriptive, and interpretation
		Quantitative		Size and percentages of improvements	Validation and setting success stories

Table 9: Adopted evaluation tools

As for the stakeholder identification, the AJ team drafted the project stakeholders during the study period (July 2017- July 2019), and their key groupings and sub-groupings, entail Identification of stakeholders that are directly and indirectly affected by the project; and identify project stakeholders and group them into relevant categories. A detailed log of stakeholder views was kept and can be provided to MoPIC upon request.

These stakeholder consultations were carried out with agreed local communities and interested / relevant stakeholders in order to understand the potential impacts on the surrounding area; as well as the benefits that communities will gain from the project. interviews with the affected people and focus groups or whichever is culturally and gender sensitive, and fits with the nature of impacts and type of stakeholder groups/characteristics and their vulnerability. Outcomes were recorded in the report.

The stakeholder groups informed and consulted about the project included the individuals or groups identified during evaluation process and also:

- Directly and/or indirectly affected by the project.
- Have interest in the project that determine them as stakeholders.
- Have the potential to influence project outcomes.

For each group of beneficiaries/local communities, the group was gathered and interviewed as focus group discussion (FGD). The discussion started by identifying the problems associated at the region, the implemented activities as its relation to solve these problems, the appropriateness of these activities, the degree of satisfaction, the advantages and disadvantages, the sustainability, the gender and youth participation, the resulted indicators and outputs, the future plans, capturing a success stories, recommendations, etc. Unfortunately, only two of them showed up at the meeting and the others were interviewed by phone

In terms of Key Interviews, the key engagement activity was held via face to face meetings with a semi structured questionnaire. Each interview was taken approximately 1 hour, and the interviewer followed a flexible scheme of the questionnaire. This method of work allowed to follow a well-defined structure while not bind the respondent in replying in a rigid way to the questionnaire.

All means of ethics, and comfortability was used in all interviews and group discussions to capture all required information. Taking into account the privacy of the individual, voluntary nature of participation, consent and possible deception of participants, maintenance of confidentiality of data provided.

3.3.2 Proposed Questionnaires

Based on the ToR, the Main Criteria and Key Questions listed in Annex 2 were implemented to generate a set of two questionnaires. Proposed interview questionnaires are listed at Annex 3 and 4 for the Key Informative Interviews and Focus Group Discussions, respectively.

In order to use existing sources/information and avoid duplication, data was mainly collected from various information sources through a continuous comprehensive desk review that included the analysis of relevant documents, information, data/statistics devoted to the study of the different projects. In order to evaluate in a fair and rigorous approach the several projects, they questionnaires were analyzed against the reference grid that allowed to grasp the main elements for the evaluation. Each grid evaluated separately to indicate how the project was progressed to fulfil its original targets.

3.3.3 Cost Effectiveness Analyses

Cost effectiveness was evaluated through analyzing the costs of expenditure with original assigned budget for each activity. The analyses were further validated with the PMU to ensure that delivered activities were built on least cost resources. In addition, the following points were also evaluated as much as possible:

- Budget and expenses in terms of each activity/project. This including tenders, services, others.
- Cost effectiveness indicators as percentage of expenses.
- Direct and indirect allocated budget, shares and contributions.
- Other costs.

3.3.4 Lessons' Learned Documentation

In terms of Lessons' Learned, the AJ team evaluated the program based on the adaptation fund template (Table 10) and based on the signed project documentation. The survey is reported in terms of:

1. Implementation and Adaptive Management
2. Lessons for Adaptation:
   - Climate Resilience Measures
   - Concrete Adaptation Interventions
   - Community/National Impact
   - Knowledge Management
   - Innovation
   - Complementarity/ Coherence with other climate finance sources

QUALITATIVE MEASURES and LESSONS LEARNED	
Please complete the following section every reporting period	
Implementation and Adaptive Management	**Response**
What implementation issues/lessons, either positive or negative, affected progress?	
Were there any delays in implementation? If so, include any causes of delays. What measures have been taken to reduce delays?	
Describe any changes undertaken to improve results on the ground or any changes made to project outputs (i.e. changes to project design)* Have the environmental and social safeguard measures that were taken been effective in avoiding unwanted negative impacts?	
How have gender considerations been taken into consideration during the reporting period? What have been the lessons learned as a consequence of inclusion of such considerations on project performance or impacts? List lessons learned specific to gender, detailing measures and project/programme-specific indicators highlighting the role of women as key actors in climate change adaptation.	

*Inform promptly the secretariat of any changes in the budget or project results framework in accordance with the Project Implementation Policy https://www.adaptation-fund.org/wp-content/uploads/2017/11/OPG-ANNEX-7-Project-Programme-Implementation-Approved-Oct-2017.pdf

Please complete the following section at **mid-term** and **project completion**

Lessons for Adaptation	**Response**
Climate Resilience Measures	
What have been the lessons learned, both positive and negative, in implementing climate adaptation measures that would be relevant to the design and implementation of future projects/programmes for enhanced resilience to climate change?	
What is the potential for the climate resilience measures undertaken by the project/programme to be replicated and scaled up both within and outside the project area?	
Readiness Interventions (Applicable only to NIEs that received one or more readiness grants)	
What have been the lessons learned, both positive and negative, in accessing and implementing climate finance readiness support that would be relevant to the preparation, design and implementation of future concrete adaptation projects/programmes?	
How have the outputs (such as manuals, guidelines, procedures or the experience from providing peer support, etc) from employing readiness grants been used to inform institutional capacity needs, gender issues, and environmental and social aspects in developing and implementing concrete projects/programmes for enhanced resilience to climate change?	
Concrete Adaptation Interventions	
What have been the lessons learned, both positive and negative, in implementing concrete adaptation interventions that would be relevant to the design and implementation of future projects/programmes implementing concrete adaptation interventions?	

What is the potential for the concrete adaptation interventions undertaken by the project/programme to be replicated and scaled up both within and outside the project area?
Community/National Impact
What would you consider to be the most successful aspects for the target communities?
What measures are/have been put in place to ensure sustainability of the project/program results?
What measures are being/could have been put in place to improve project/program results?
Knowledge Management
How has existing information/data/knowledge been used to inform project development and implementation? What kinds of information/data/knowledge were used?
Has the existing information/data/knowledge been made available to relevant stakeholder? If so, what channels of dissemination have been used?
Please list any knowledge products generated and include hyperlinks whenever possible (e.g. project videos, project stories, studies and technical reports, case studies, training manuals, handbooks, strategies and plans developed, etc.)
If learning objectives have been established, have they been met? Please describe.
Describe any difficulties there have been in accessing or retrieving existing information (data or knowledge) that is relevant to the project. Please provide suggestions for improving access to the relevant data.
Has the identification of learning objectives contributed to the outcomes of the project? In what ways have they contributed?
Innovation
Describe any innovative practices or technologies that figured prominently in this project.
Complementarity/ Coherence with other climate finance sources
Has the project been scaled-up from any other climate finance? Or has the project build upon any other climate finance initiative?
If you answered yes above, kindly specify the name of the Fund/Organization.

Table 10: Qualitative Measures And Lessons Learned Template (based on Adaptation Fund)

3.4 Detailed Meeting Agenda

Table 11 shows the detailed meeting agenda for the period of the assignment including schedule of activities/ time frame and schedule of engagement with executing entities, meetings with MOPIC for the Program Management component, and key stakeholders and local communities for the subprojects (if required).

Sub-project #	Date	Entity
PMU	2020/1/16	Ministry of Planning and International Cooperation (MoPIC) / PMU
1.2	2020/1/22	Jordan Valley Authority (JVA) focal point
1.4	2020/1/28	Jordan Valley Authority (JVA) focal point
2.3	2020/1/16	National Agriculture Research Center (NARC) focal point
1.6	2020/1/16	National Agriculture Research Center (NARC) focal point
1.1	2020/1/29	The Hashemite Fund for the Development of Jordan Badia (HFDJB) focal point
	2020/2/3	Petra Development and Tourism Region Authority (PDTRA) focal point
2.1	2020/2/6	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS) focal point
2.2	2020/2/6	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS) focal point
1.5	2020/2/10	Jordan Valley Authority (JVA) focal point
1.3	2020/2/12	Water Authority of Jordan (WAJ) focal point
-	28/7/2020	Ministry of Planning and International Cooperation (MoPIC) / PMU Staff
-	3/6/2020	Ministry of Planning and International Cooperation (MoPIC) Head Unit
(1.2/1.4/1.5)	14/7/2020	Jordan Valley Authority (JVA) Head Unit
1.6/2.3	26/7/2020	National Agriculture Research Center (NARC)
1.1	22/7/2020	The Hashemite Fund for the Development of Jordan Badia (HFDJB) Head Unit

Sub-project #	Date	Entity
1.1	20/7/2020	Petra Development and Tourism Region Authority (PDTRA) Head Unit
2.1/2.2	16/7/2020	Ministry of Environment (MoEnv) Head Unit
2.1/2.2	21/7/2020	Royal Scientific Society (RSS) Head Unit

Table 11: Proposed Meeting Agenda

4 LIMITATIONS

There were few limitations in conducting the Mid-Term evaluation assignments. Among those were the following:

1. Unexpected risks of COVID 19 that hits internationally the planet and delayed the steering committee meeting and the financial office for three months.
2. The change of the liaison officer of the executing agencies and thus lack of knowledge of the new assigned officer on the goals, tasks, and activities progress of the subprojects.
3. Diversity of the data, risks, and management from different project officer and implementation agency due to the differences of the rules, capabilities, and experience of the agencies staff in performing and progressing the required tasks.
4. Few limitations on the monitoring and sustainability aspects by each executing agency due to lack of exit strategies and delays in implementations.

5 STRUCTURAL ARRANGEMENT OF THE PROJECT AND THE PREPAREDNESS PLANNING

Based on the meeting with the PMU at MoPIC, the structural arrangement is good and doesn't need any restructuring. The PMU falls within the responsibility of MoPIC, in which the PMU personnel are responsible for direct guidance, monitoring, and evaluation of the projects at various executive agencies. The Program Management arrangements at all levels (MOPIC and executing entities) are appropriate.

The PMU consist of a project manager, technical and administrative assistant, project accountant (financial matters, small purchases and bids), monitoring and evaluation officer, and visibility officer. The PMU works under Director of the Directorate of Productivity Enhancement at MoPIC lead by Eng. Mohammed Al-Adayleh. The whole PMU is guided by the Director of the Directorate of Productivity Enhancement at MoPIC, and steered by steering committee led by the Ministry's Secretary General, and through the Minister's approval.

The PMU facilitate the relevant technical staff of the departments/ministries involved to take on project activities, which would be part of their regular work, and implement them using the budget provided through the project.

Members PMU	Responsibility
Dr. Ahmed Abdel-Fattah	Project Manager
Maysam Mahadin	Technical and administrative assistant
Ali Talafha	Project Accountant (financial matters, small purchases and bids)
Sirin Al-Adwan and	Monitoring and evaluation Officer
Anas Talhouni	Visibility Officer

Table 12: The PMU staff and their responsibilities

In terms of the internal operations, processes at all levels inside MoPIC and outside MoPIC as relevant to the function of the committees serving the program (Steering Committee and Special Tendering Committees/Technical Tender Evaluation Committees) related to the implementation of the Program as well as monitoring and evaluation plan and procedures affecting the implementation and progress of the program.

The steering committee is made up of 6 members that includes the Ministry of Environment, Water Authority of Jordan, the Ministry of Agriculture, the Ministry of Planning, General Director of the National Agricultural Research Center, the Director of the Hashemite Fund, and the Petra Regional Authority. The steering committee meetings are organized for project progress decisions, financial decisions, and meetings as needed. During this project, 15 meetings were held to find solutions to the problems facing the project.

The Tendering Committee for the Program for Promoting Economic and Social Productivity (involving under this directorate) and its duties are responsible for any bid submitted by the MoPIC above 10 thousand dinars and from the various executing agencies. The tender submitted technically by the PMU is reviewed to verify its achievement of the project objectives.

The committee is composed of different departments and ministries and the Audit Bureau. A special technical committee is formed to evaluate the technical and financial tender from the competent authorities (water, agriculture, etc.) As for monitoring and auditing operations, this process is carried out monthly by following up projects with subproject officers and field visits to projects in order to prepare annual reports, prepare a work plan for them, and follow up the project's implementation, annually by preparing a progress report by Monitoring and evaluation Officer and Project Manager and then sent to the steering committee to be discussed in a meeting and put notes on it, which is returned to Project Manager and Monitoring and evaluation Officer and then presented again to the committee for approval, the sent to FA.

6 OVERALL PROGRAM PROGRESS RESULTS

6.1.1 Program Effectiveness

The program performance is classified as "**moderately satisfactory**" due to the following facts:

1. There are many delays in initiating project activities. The first two years accomplishment was consumed in preliminary planning, approvals, consultations, procurement and tendering activities, where delivery of the new works component of the Program cannot commence until tender documents are prepared by executing entities and procurements are made. After the first two years, the program is progressing but with minor delays in implementation plans and repetitive change in subproject action plans' time tables.
2. The entire main project objectives and outcomes were not achieved; however, some are on track to be achieved while other are unlikely to be achieved at all. The executing agencies prepared an ambitious work plans, and this programme is the first attempt to Jordan in the field of climate change adaptation, in addition to lack of local experience in this field.
3. Although there is repetitive change in action plans and time tables justified by associated risks (as lack of enough budget, long detailed surveys, etc.), minor shortcomings were identified (especially in those related to climate change adaptation of agricultural and water sector through reuse of treated wastewater and water harvesting).

Literally the following points justifies these facts based on comparison to designed milestones, indicators and targets of each outcome:

1) For the Component 1, Sub-Component (A) "Climate Change Adaptation of Agricultural and Water Sector Through Reuse of Treated Wastewater" executed by subprojects 1.1, 1.2, 1.3, and 1.4 are still not accomplished. The designed target is to reuse 22,193,200 m^3/yr of treated wastewater in irrigated agriculture to augment existing irrigation water supply. There are no on-ground accomplishments so far rather than tendering phases (including planning and surveying). The following point elaborates more on the current achievements:
   a. For the subproject 1.1 titled "Reuse of Treated Wastewater for on-farm Agricultural Adaptation in Wadi Mousa" executed by PDTRA and HFDJB should reach a milestone of 1,250,200 m^3/yr. However, nothing has been accomplished yet. The PDTRA is working slowly, where most of the activities are still at tendering phase (e.g. cultivation of native trees along the road to the WWTP, establishment new nursery for native plants and herbs based on plant varieties resistant (adaptive) to climate change technologies, development of sustainable eco-friendly water efficient & demonstration picnicking and strolling areas for the Jordanian citizens and supporting the development of a local nature and environmental tourism activity in Al-Hisha Forest). The complete delay in implementations were due to political/financial status of selecting the "Sad Al Ahmar" Water User Association and its administrative and financial

inability. Although there was a replacement with “Green Petra Association” for pursuing the designed activities for PDTRA, however the work is not initiated yet. On the other hand, some activities were accomplished as (establishment/rehabilitation of 35,000 meters of uncovered irrigation canals), however other activities as the annual maintenance needs of the filtration systems feeding the pilot with treated wastewater and maintenance and rehabilitation of 3 national parks in the Petra region were postponed to the end of the project in 2020 after execution of previous activities. The rehabilitating watermill in Wadi Mousa's spring area is still not accomplished, where so far only the acquisition of 6 dunums at watermill was achieved along with all necessary approvals from both MOPIC and Department of Antiquities.

b. On the other hand, the PDTRA is sharing the implementation risks by co-financing the subproject activities especially at establishment/rehabilitation of 35,000 meters of uncovered irrigation canals, the development of sustainable eco-friendly water efficient and demonstration picnicking and strolling areas for the Jordanian citizens and supporting the development of a local nature and environmental tourism activity in Al-Hisha Forest, and the acquisition of the water mill nearside area to be used as national parks. Most of the designed work will be executed by the PDTRA own expenses.
c. All activities executed by HFDJB progress were completely delayed. Nothing so far was initiated. The HFDJB planned activities were canceled and replaced by two activities; (1) activity to support the cooperatives at wadi araba to establish water harvesting structures, and (2) Activity to Support the Water User Association (Cooperative) Bier As-Sadder to rebuild the damage caused by flash floods. So far accomplishment is just negotiations to replace Sad Al Ahmar Association with another association named “Green Petra Association”.
d. For the subproject 1.2 titled “The Northern Jordan Valley Wastewater Reuse” executed by Jordan Valley Authority should reach a milestone of 18,500,000 m^3/yr. Nothing so far is accomplished. The time was consumed through the tendering preparations, process, and cycle. The accomplishments so far were performing survey and design for rehabilitation and upgrading of on-farm irrigation infrastructure and maintenance of the systems, and also survey and design the irrigation networks and deliver tender documents for “Installation of the Best Available Technology of Water Filtration Systems and Link irrigation systems to storage facilities and Installation of New Irrigation Systems”. Due to unexpected high estimation costs of the rehabilitation program, several planned activities were canceled as follow-up on field readings, on job training for farmers and final workshop, while the designs and outputs of on-farm surveys are being downscaled. Similarly, the “Water Quality Monitoring Enforcement and Support” is still not accomplished, thus baseline are not yet established. Finally, the “soil survey in relation to soil quality baseline data and soil salinity and soil salinity management” is subjected towards cancelation due to lack of enough budget for the implementation.
e. For the subproject 1.3 titled “Tal El Mantah Wastewater Treatment Plant - Wastewater Reuse Project” executed by Water Authority of Jordan should reach a milestone of 219,000 m^3/yr. So far, the track towards milestone accomplishment is close, but not achieved yet. Accomplishments include

purchase of all needed spare parts and devices for the rehabilitation and maintenance of Tal El Mantah WWTP. However, the upgrade/new construction works of the WWTP (such as installing aeriation tank, paving the tankers lot, receiving tank, sedimentation tank, blower room, etc.) including design study and execution is still in progress since the pilot land turned to be unsuitable for building the expansion, thus forced to have Variation Order that requires more time for approvals. Due to this delay, other activities were postponed as Evaluation of the quality and suitability of the reuse pilot soil for the future plantation and Installation of irrigation system at the reuse land plot, yearly operational & maintenance cost for WW reuse filtration, irrigation and pump systems & New Items If needed that include contracting to install a fence around the drying beds and purchase health and safety tools and equipment to be used in the WWTP.

f. For the subproject 1.4 titled "Wastewater Reuse at North Shouneh WWTP" executed by Jordan Valley Authority should reach a milestone of 219,000 m^3/yr. Instead of using TWW to irrigate and planting the farm near the WWTP in North Shouneh and carry on off-farm preparations, the project was replaced by establishment a pilot research farm-unit for the JVA within an area of 8.5 dunums. Neither the WWT target of reuse nor the beneficiaries number will be met using the new designs taking into account that the site is allocated at restricted border sites that acquire even further permission to access. In accordance, all other activities were delayed or even postponed as installation of on-farm irrigation infrastructure for the farm and other farms around the vicinity of the pilot farm, performing comprehensive water quality monitoring and soil survey in relation to soil quality, technical assistance support (training) of farmers to adapt to new water quality (wastewater) to deal with water quality related issues.

2) In terms of diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas along Sub-Component (A) within Component (1) titled "Climate Change Adaptation of Water Sector "Reuse of treated wastewater" that are executed within project (1.1, 1.2, 1.3, and 1.4), the designed outcome is to (1) Increase income, or avoided decrease in income, and (2) Involve and educate the engaged local community in all the phases of the project indicated by number of beneficiaries (Average family size is 6 consisting of 2 Females and 4 Males). The expected output of these projects are to train 48 WUAs in JV and 1 WUA in Wadi Mousa. Unfortunately, nothing so far was accomplished. Only consultant was hired to assess training needs, design a tailored training course and conduct training courses on use of reclaimed water for agricultural irrigation to replace fresh water supplies (includes public health, hygiene, management and O&M of irrigation network on farm). However, due to diversity of the training material, the PMU decided to provide a consistent training course by themselves for all beneficiaries that are related to wastewater management and handling. In terms of increasing family income of vulnerable groups as a result of enhanced crop production through augmenting irrigation water supply with treated wastewater, it is designed to enhance at least (240) families with enhanced livelihoods (i.e. 960 males and 480 female). Unfortunately, due to the delays in the implementation of the WWTPs' upgrades and rehabilitation, nothing was delivered

to the farmers. Also based on shortcomings of the designs' quantities of treated wastewater generation, it is clear that number of beneficiaries will be reduced.

a) The sub-component B titled "Climate Change Adaptation of Agricultural & Water Sector through rainwater harvesting & Permaculture" is designed to harvest rain water through construction of earthen check dams with a target of 300,000 m^3/Year of rainwater harvested. Based on subprojects (1.5 and 1.6) titled "Community Resilience and Adaptation to Climate Change through Water Harvesting Technologies in Poverty Pockets" executed by JVA and "Building Resilient Food Security Systems through Extending Permaculture Design and Technologies in the Jordan Valley and Beyond" executed by NARC, the designs of two dams were developed but however only one earth dam implementation work was initiated with a capacity of 140,000 m^3, and the second one was delayed till budget is allocated. The improper estimation of construction works (i.e. lack of enough budget) forced to cancel other important activities as conducting a study to determine other diversion weir combination areas along the entire Jordan Valley, purchasing a "Mobile Lab" for water quality monitoring, and designing and installation of new irrigation and filtration system on farms run by WUAs.
b) he sub-component B titled "Climate Change Adaptation of Agricultural & Water Sector through rainwater harvesting & Permaculture" is also designed to improve community preparedness to CC through farmers adopting permaculture techniques targeting 48 farms, and to enhance livelihoods of farming communities through sustainable practices which increase crops productivity targeting 410 families (3160 males and 1580 females). The two permaculture pilot areas were designed but after long delay, however the implementation have started and likely to be achieved by time. On the other hand, there is a shortage on the trainings programs was noticed 200 participants have been trained on permaculture concepts for three weeks. Based on interviews with participants, 80% of the beneficiaries declared the usefulness of the information and helped them think differently. However, speculations and lack of trusts of the permaculture concept and sustainability are dominating most of the participants unless the pilot sites and the center are established. Due to the delays in the permaculture sites, other activities were postponed as establish a one new permaculture /organic farming organization in JV to administer a revolving fund and set-up four regional Farmers/WUAs Revolving Funds, training of trainers/experts to obtain international standardized Permaculture Design certificate, support permaculture/organic farms to obtain permaculture certificates both locally and internationally. Therefore, there is no clear evidences so far for any increase in beneficiaries' income and the beneficiaries number are below targets expectations.

3) The component 2 titled “Capacity Building at both the National and Local/Community Levels respectively, Knowledge Dissemination, Policy and Legislation Mainstreaming” are being executed through three subprojects (2.1), (2.2), and (2.3) by Ministry of Environment (MoEnv)/ Royal Scientific Society (RSS), and National Agriculture Research Center (NARC), respectively. The seven aims mentioned at Table 13 can be summarized into two main points as (a) Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level, and (b) Increased ecosystem resilience in response to climate change and variability induced stress. The main designed outputs are to (1) Develop and implement awareness sessions to disseminate knowledge tools to adapt to climate change and of appropriate response measures by targeting 6 seminars per year, (2) Empowering WUAs through developing an early warning system which inform farmers of impeding hazards of cold/ frost fronts and heat waves in the Jordan Valley with a target of 16 WUAs, (3) Creating new micro-enterprises linked to Agribusiness Industries targeting 300 enterprises, and (4) Creating new direct and indirect jobs related to agribusiness in Jordan Valley through targeting 19800 Jobs aggregated by gender (5400 for Females, 14400 Males).

   a) The subproject 2.1 titled “Strengthening the Capacities of Poor & Remote Communities to Better Adapt to Climate Change Adverse Impacts” milestone is to target 24 WUA (1920 persons of 326 Females, 1593 Males). Detailed two surveys were prepared to assess knowledge of CBOs that is related to climate change and CC adaptation, and to assess knowledge of farmers that is related to climate change and CC adaptation. Training of trainers (TOT) material were prepared. Several partnerships were engaged as a team, those were MoEnv, JVA, CBOs, WUAs, Farmers, and Directorate of Agriculture. Synergies were made with the JVA and the NARC through their experiences in agriculture. Till now, only 4 seminars were delivered for both Wadi Musa and Jordan Valley with a total number of attendance were just 186 attendees from JVA, CBOs, WUSs, and Farmers. Thus, milestone target was not met, however it is likely to be achieved. All other activities are still under implementation where a baseline analysis was initiated in 2019 for promoting wastewater reuse and adaptation to climate change measures and two adaptive measures were identified and to be implemented soon. Also
   b) Also, the infrastructure preparation and the design phase for the use of Information and Communication Technology (ICT) tools to empower farmers of poor and remote communities to better adapt to climate change adverse were initiated, and the implementation phase is likely to be achieved soon.

c) The subproject 2.2 titled “Using ICT as an enabling tool for more effective climate change adaptation and development programmes” milestone is to target 23 WUA (1840 persons, 312 Females and 1528 Males) and 33 Farmer Families (198 persons, 132 Males and 66 Females). Also, the subproject should establish at least 1 Early Warning System. So far, poverty pocket survey was done for purpose of selecting of the study areas, and a MoUs with the key stakeholders were prepared to guarantee smooth implementation. However, the same persons were used as at subproject 2.1 and thus only 168 attendees from JVA, CBOs, WUSs, and Farmers. The same comment as above concerning the Information and Communication Technology (ICT) tools in which not achieved yet. Thus, the EWS in not established yet as well as farmers’ trainings.

d) The subproject 2.2 titled “Jordan Valley Water Sustainability and Agribusiness Competitiveness” milestone is to provide new direct and indirect Jobs related to Agribusiness in Jordan Valley for 9000 persons (2700 for Females, 6300 Males). Based on subproject progress, no job was created till the midterm period but however the progress is tracking towards targets achievements. A unit for handling Green was created to work in coordination with JVWF. However, after an organized workshop for identifying the bottlenecks of central market trading, food & produce supply chain analysis, define the main obstacles & difficulties, determine the priorities, targeting groups & setup the way of working, new action plans were created. These new action plans were initiated after the timescale of this midterm (i.e. after July 2019) where three topics were implemented regarding harvesting activities, transportation, cold chain management, and socio-economics activities. Several workshops were implemented as: 1) a workshop on organic farming, good agricultural practices and farming cooperatives, 2) communication skills workshop, 3) wicking beds workshop, and 4) good agricultural practices, global GAP workshop. New activities were added to the action plan and about 16 farms were chosen for implementation (please see the subproject activities for details).

Component (1): Sub-Component (A): Climate Change Adaptation OF Water Sector "Reuse of treated wastewater" (Project 1.1, 1.2, 1.3, and 1.4):				
Projects Outcome	**Core Outcome Indicator**	**Baseline**	**Milestone**	**Program Progress**
Increased water availability and efficient use through wastewater reuse & water	Quantity (m^3) of Supplementary water available for agriculture, or number of families benefiting from the project	Subproject (1.1): 1,022,000 m^3	1,250,200 m^3/yr	Nothing achieved yet, and unlikely to be achieved
		Subproject (1.2): 17 MCM	18,500,000 m^3/yr	Nothing achieved yet, but likely to be achieved
		Subproject (1.3): 0	219,000 m^3/yr	Nothing achieved yet, but likely to be achieved
		Subproject (1.4): 0	219,000 m^3/yr	Nothing achieved yet, but likely to be achieved
Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Increased income, or avoided decrease in income	Subproject (1.1) $398 /household/month	$602/household/mon	Nothing achieved yet
		Subproject (1.2) $ 170 /household/month	$250/household/month	Nothing achieved yet
		Subproject (1.3): 0	$150/household/month	Nothing achieved yet
		Subproject (1.4): 0	$150/household/month	Nothing achieved yet
	Number of beneficiaries *Average family size is 6 (2 Females, 4 Males)	Subproject (1.1): 40 families	55 Families "330 persons" (220 Males, 110 Females)	Under progress
		Subproject (1.2): 16 Families	23 Families "138 persons" (92 Males,46 Females)	Under progress
		Subproject (1.3): 0	35 Families "210 persons" (140 Male, 70 Female	Under progress
		Subproject (1.4): 0	35 Families "210 persons" (140 Males, 70 Females)	Under progress

Component (1): Sub-Component (B): Climate change adaptation of Agricultural Sector through rainwater harvesting& Permaculture, Projects 1.5 and 1.6)				
Increased water availability and efficient use through Rain water Harvesting	Quantity (m^3) of Supplementary Fresh water available for agriculture,	Subproject (1.5): 0	150,000 m^3/Year	140,000 m^3/Year but not yet delivered to farmers
Increased adaptive capacity within relevant development and natural resource sectors	Natural Assets Protected or Rehabilitated	Subproject (1.6): 0	24 Farms	Nothing achieved yet, but likely to be achieved
Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Increased income, or avoided decrease in income	Subproject (1.5): 0	$1000 Farm/ Year	Not achieved yet
		Subproject (1.6): 0	$2500/ Farm/ Year	Not achieved yet
	Number of beneficiaries Average family size is 6 (2 Females, 4 Males) benefit & participate in project activities	Subproject (1.5): 0	205 Families "1230 persons" (820 Males, 410 Females)	Still under progress
		Subproject **(1.6):** 0	190 Families "1140 persons" (760 Males, 380 Females)	200 participants were trained

Component 2: Climate Change Adaptation Capacity Building, Knowledge Dissemination, Policy and Legislation Mainstreaming (projects 2.1, 2.2, and 2.3)				
Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Number of Targeted population groups aware of Climate change risks on natural resources and the ecosystem.	Subproject (2.1): 0 *Assume each WUA has around 80 member, around 17% are women	24 WUA: "1920 personsǁ" Aggregated by gender (326 Females, 1593 Males)	Only "186 persons" were trained
Increased ecosystem resilience in response to climate change and variability-induced stress	Number of registered farmers in the Jordan valley will be registered users in the System Database (Each family has 6 members,2 women&4 Men)	Subproject (2.2) 16 WUA 26 Farmer family	23 WUA "1840 persons" (312 Females, Males 1528) & 33 Farmer Families "198 persons" (132 Males, 66 Females)	No registration yet
	Early Warning Systems installed	Subproject (2.2): 0	1	0 but likely to be installed soon
	Number of new micro-enterprises created linked to Agribusiness Industries	Subproject (2.3): 0	150	Still under progress
	Number of New direct & indirect Jobs related to Agribusiness in Jordan Valley	Subproject (2.3): 0	9000 Jobs (2700 for Females, 6300 Males)	Still under implementation

Table 13: Project Progress based on Designed Milestones, Targets and Indicators

6.1.2 Program Impacts

The program fully abides with provisions of the Jordan's Environmental Protection Law (EPL) No. 6 of the Year 2017 (to which the Program Manager was one of the main national experts participated in its development and enactment when he was serving at Ministry of Environment 2011-2015) with particular abidance with the Environmental Impact Assessment (EIA) By-Law of 2005. Some of the activities of the Programme are classified as Category A under the mandate of By-Law thus they require conducting full EIA prior to execution. Other activities are classified as Category B under the By-Law thus require conducting Initial EIA prior to execution.

Full or Preliminary EIAs are and will be conducted accordingly on the due date of execution of design activities for relevant tasks elaborated in each sub-project's action plan.

The activity under Sub-Project 1.1 to install drip irrigation networks along the roadsides of Petra Region to utilize treated waste water for irrigation of ornamental trees was subjected to such "Full EIA" requirement compared to the activity to construct a livestock barn in the area to foster local consumption of alfalfa grown locally on treated wastewater, to be tendered soon, will follow a preliminary EIA procedure requirement.

To ensure the environmental and social safeguard measures were taken been effectively in avoiding unwanted negative impacts, an ESIA study was conducted to eliminate any potential negative effect of installing a treated WW-based drip irrigation system along the roads of Petra Area due to the sensitive heritage value of the area.

Moreover, the activity of the Sub-project 1.5 for the design and construction of the earthen dam to harvest rainwater at Southern Jordan Valley for irrigation was subjected to the full EIA requirement. This is all on top of following the provision pf the master ESIA pre-conducted for the program prior to obtaining the fund from AF (at the blueprint phase).

In terms of access to equity, all activities are oriented towards poverty pockets and vulnerable socioeconomic groups of farmers and beduins. All EEs are trying to access these groups with the cooperation of WUAs. All activities and funding initiatives are being and will be published in local media. All communication channels are open with the farmers for their input on the activities or their interest in receiving support from the programme's EEs.

In terms of marginalized and vulnerable groups, all project activities has not generated any adverse impacts on marginalized and vulnerable groups (women, poverty pockets, farmers, beduins in remote areas of Wadi Mousa, Syrian and Iraqi refugees who are living in project areas, children and youth). The project is targeting and monitoring the participation of poverty pockets, women, vulnerable local groups, and beduins that ensures the benefit of vulnerable groups living in the project areas and to create jobs for the people with disabilities.

In terms of gender equity and woman's empowerment, both EEs and IE are working on fair and equal implementation of activities between men and women, however more orientation is still required. Some initiatives oriented to promote the active involvement of women groups in order to achieve enhanced empowerment.

For the protection of natural habitat, the IE and EE are closely monitoring initiatives taking place on a natural habitat and closely monitoring the designs to be implemented on these lands as well as taking the necessary approvals for these initiatives and designs. Also, the programme activities are focusing on Ecosystems Rejuvenation based Adaptation, including recovery of biodiversity and agroecological practices at the farm level

There are no activities that have been identified as big consumers of natural resources and therefore would require measures for their efficient use. On the contrary, most of the programme's activity are oriented towards the better use of available resources, especially fresh water. Also, none of the activities has caused a problem regarding public health. Both IE and EE are following safe practices and standard operating procedures, and ensuring that all workers have basic safety training and implementing the water reuse activity according to Jordanian regulations on safe reuse and in accordance with JS893/2006.

Finally, the implementation process of programme activities (e.g. 1.1 and 1.5) avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. In addition, all activities in the programme are oriented towards the conservation and use of soil however there exists a risk that during the application of good practices technical errors might occur that generate degradation of land and soil.

6.1.3 Relevance

In terms of relevance of the designed activities of this whole project is highly relevant to the main objectives and in alignment with national priorities and strategies. The planned activities were suited to local and national development priorities and organizational policies especially with water resilience and drought management plans along the all EEs. For example, but not limited to MPOIC, Jordan’s Water Strategy for the period of 2008-2022, Ministry of Water and Irrigation, 2018. (National Water Strategy of Jordan 2016-2025, Third National Communication Report to UNFCCC (2014), the JVA 2015-2020 strategy, Jordan Response Plan for the Syria Crisis 2020-2022, Jordan’s’ Poverty Reduction Strategy (2012-2020), Jordan National Employment Strategy (2011-2020), Jordan Strategy and Vision 2025 (A National Vision and Strategy), the National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020, Intended Nationally Determined Contribution (2015), etc.

Taking into account that all planned activities are being extracted from the national action plans of the EEs and modified to raise capacities in the concept of adaptation to climate change and find solutions to compensate for the shortfall and fill the demand for water crops in the Jordan Valley region. In addition to relevance with climate change policy, national priorities, and national adaptation plan.

6.1.4 Efficiency

In regards to cost effectiveness, only achieved activities can be analyzed, and in this project its partially fulfilled. The estimation of the ratio of relative costs and outcomes is not easy especially when dealing with climate change adaptation and capacity building at both the national and local/community levels.

Even if the percentages of project expenditure is very low, this doesn't reflect indicator for the achievements or cost benefits, taking into account that cost benefit of all implemented activities are considered vital since outcomes are related to better climate change resilience in all aspects and enhancing the quality of life and food security in arid regions.

In terms of benefits of the project, the implemented project activities are not only targeted to increase water availability and efficient use through wastewater reuse and efficient use through rainwater harvesting, but also to diversify and strengthen livelihoods and sources of income for vulnerable people in targeted areas. The later targets true values cannot be estimated. As indicated by the targets, the project is aiming towards providing new direct and indirect jobs related to agribusiness, creating new micro- enterprises linked to Agribusiness Industries, improve community preparedness to CC through farmers adopting permaculture techniques, increase income of vulnerable communities, and enhance livelihoods of farming communities through sustainable practices which increase crops productivity.

There are some projects that will generate money after completion that can cover their expenses or provide returns for their continuation (e.g. Gree Agribusiness Unit, Permaculture Center, etc.).

Based on financial data and procurements, the overall project efficiency is ranging from highly satisfactory; since the delivered results were produced from the least costly resources as possible, to moderately unsatisfactory (as some required budget transfers to allocate for high prices or providing shortcomings in activities implementation). The following points justifies these rates:

1. All activities follow the tendering process that ensure the transparency and effectiveness in assigning any tender or contract, taking into account not only the cost issue but also the alternatives if exist, and the quality of the work. Based on the tendering actions, most wining tenders are the least price, meeting all pre-requirements and in compliance with all technical requirements. Only for "Design of two (2) pilot permaculture sites in Jordan", the Tender No.: EPP-CCP-04/2017 was awarded to Giuseppe Tallarico Professional Agriculture office + Eco Consult + IBES based on highest score (88/100) according to the technical and financial evaluation. Tenders are formed and agreed based on the actual environment (soil tests, EIA, local needs, project targets, etc.) with specialties of the EE and monitoring of PMU. After accepting the tender forms by the MoPIC tendering committee and the steering committee, the tender is advertised and announced through official newspapers. The committee is composed of different departments and ministries and the Audit Bureau. A special technical committee is formed to evaluate the technical and financial tender from the competent authorities (water, agriculture, etc.). The tender technical committee will only open tenders if at least three offers are existed, and if not, it is

subjected to re-announcement. Also, the Tendering Committee for the Program for Promoting Economic and Social Productivity are responsible for any tenders submitted by the MOPIC above 10 thousand dinars and from the various executing agencies.

2. There are many shares and contributions to the project such as PDTRA (Sub-Project 1.1) has pledged around 0.5M JOD to finish phase 1 of the environmental park being designed by Ruqn Al Handasa Consulting Engineers and to hire new workers as the work on the sub-projects' activities demand. In addition to the labor work for cultivation of native trees along the road to the WWTP.
3. There are co-financing pledged by MOPIC as in-kind contribution, such as: (1) In-kind contribution to cover the PMU office running costs (electricity, water and heating) which is hard to estimate as cost is imbedded in the total corporate's overall bills, and (2) In-kind contribution by GoJ to cover the cost of secondment of an Environment Specialist to join the MOPIC PMU operations team to follow-up implementation of EMP, which is hard to estimate as cost is imbedded in the staff's overall salary paid by the government.
4. At the first year, 200,288 $ were spent as Project Proposal preparation grant, Operational Expenses, PMU Salaries, and Advanced payment for sub-project 1.1 executing entity (PDTRA). Project proposal preparation grant was spent for the consultant (Dr. Amal Hijazi) as fees. The project proposal is considered the main document that holds all the work plans details signed and agreed by all EEs.
5. For the second year, 715092 $ (about 8.5% of the disbursement of AF grant funds) was spent as advance payments to the EEs to initiate the subproject activities. However, based on the EEs' disbursement, nothing was achieved and the money were spent on employee rewards rather than operational expenses and implementation expenses. Therefore, the MOPIC decided not to pay any advance costs with evidences of disbursement. The effective cost was noticeable at the Initial Payment for sub-projects' 2.1, 2.2 according to the tripartite agreement, Ruqn Al Handasa Consulting Engineers first payment (sub-project 1.5), Overall IT, Administration and Support cost, and PMU Capacity Building. All winning bids were least price, meeting all pre-requirements and in compliance with all technical requirements (Table 14). Also, sometimes the awards may split between two vendors if there are many sub-activities to handle separately with least price (e.g. RFQ- Supply of needed spair parts and devices for Tal Al Mantah WWTP, Tender No. EPP-CCP-05/2017).

Contract Type	Agency / Contracted party	Contract Value/Amount (USD)	Signature Date	Payment till July 2018	Selection Justification
Design-fixed price contract	Ruqn Al Handasa Consulting Engineers	120,269	10/3/2017	43246.107	least price in compliance with all technical requirements
technical services - fixed price contract	Dar AL Omran	24,866	25/2/2018	0	least price in compliance with all technical requirements
supply-Fixed price contract	Al Omaria Contracting Co	28,138	13/3/2018	0	least price in compliance with all technical requirements (*awarding was split between two vendors)
supply-Fixed price contract	Nabil Ayoub Wakileh & Co.	102,962	13/3/2018	0	least price in compliance with all technical requirements (*awarding was split between two vendors)
Supply-Fixed price contract	T.Gargour & Fils Co.	99,436	24/3/2018	0	least price in compliance with all technical requirements
Design-fixed price contract	Mostaqbal Engineering and Environmental consultation	67,955	6/6/2018	0	least price in compliance with all technical requirements
Supply-Fixed price contract	OFFTEC	3,371	24/9/2017	3,371	least price in compliance with all technical requirements
Supply-Fixed price contract	International Office Suppliers	2,666	24/9/2018	2,666	least price in compliance with all technical requirements

Table 14: Program Financial and Procurement for the second year

7. Most of expenditure was presented on the third year, in which 915714.73 $ were spent on actual implementation activities (Table 15). All winning bids were least price, meeting all pre-requirements and in compliance with all technical requirements (Table ??). Only for “Design of two (2) pilot permaculture sites in Jordan”, the Tender No. EPP-CCP-04/2017 was awarded to Giuseppe Tallarico Professional Agriculture office + Eco Consult + IBES based on highest score (88/100) according to the technical and financial evaluation.
8. For the subproject 1.1 executed by both PDTRA and HFDJB, most of the accomplished work was addressed on performing EIA for the selected sites for the cultivation of Native Trees along the road to the WWTP including soil tests and also allocating sites and conducting archaeological surveys for establishment new nursery for native plants and herbs based on Plant Varieties Resistant (Adaptive) to Climate Change Technologies. The actions so far were delivered with the least costly resources possible as there were no alternatives for pursing so and can be categorized as improved climate risk information. The estimation for the development of sustainable eco-friendly water efficient & demonstration picnicking and strolling areas for the Jordanian citizens and supporting the development of a local nature and environmental tourism activity in Al-Hisha Forest was very high, thus PDTRA decided to finance the rest of the project by their own expenses. The activity will be delivered from internal resources (in-kind contribution, full cost contribution, labor, etc.) to implement the required tasks.
9. On the other hand, the subproject 1.3 for the Tal El Mantah Wastewater Treatment Plant - Wastewater Reuse Project, there was a problem identified by soil examination conducted on the pilot land inferring unsuitability of the adjacent land for building the expansion for Tal El Mantah WWT Plant. This forced to have a Variation Order (VO) that may acquire more expenses than planned.
10. The subproject 1.5 titled “Community Resilience and Adaptation to Climate Change through Water Harvesting Technologies in Poverty Pockets” is classified as moderately unsatisfactory with shortcoming since the project should construct two water harvesting pools (water dams) with solar cells to transfer water to adjacent fields. Although the tendering was implemented in the right action, however due the high cost of the water dams’ construction, only one pool was established so far by the “Mostaqbal Engineering and Environmental Contracting Company” with a capacity of 140,000 m3, and the second one was delayed till budget is allocated. This may force other assigned activities to JVA to be cancelled or downscaled. Although the percentage of expenditure is high (70%), however the current financial imbalance to perform all activities are still not settled.
11. For the sub-project number 1.6 titled “Building Resilient Food Security Systems through Extending Permaculture Design and Technologies in the Jordan Valley and Beyond”, the allocate budget was changed to perform the establishment activities of 2 pilot areas of permaculture. This may force some activities to be downscaled to overcome the budget shortage.

Contract Type	Agency / Contracted party	Contract Value/Amount (USD)	Signature Date	Payment till July 2019	least price, meeting all pre-requirements and in compliance with all technical requirements
Design-fixed price contract	Ruqn Al Handasa Consulting Engineers	120,269	10/3/2017	120,269	least price, meeting all pre-requirements and in compliance with all technical requirements
Technical services -fixed price contract	Dar Al Omran Consulting	24,866	25/2/2018	24866.01	least price, meeting all pre-requirements and in compliance with all technical requirements
Supply- fixed price contract	Al Omaria Contracting Co	28,138	13/3/2018	28138.22	least price, meeting all pre-requirements and in compliance with all technical requirements
Supply- fixed price contract	Nabil Ayoub Wakileh & Co. Contracting	102,962	13/3/2018	102,962	least price, meeting all pre-requirements and in compliance with all technical requirements
Supply- fixed price contract	T.Gargour & Fills Co.	99,436	24/3/2018	99,436	least price, meeting all pre-requirements and in compliance with all technical requirements
Design-fixed price contract	Mostaqbal Engineering and Environmental consultation	67,955	6/6/2018	16,700	least price, meeting all pre-requirements and in compliance with all technical requirements
Technical services (study and design) - fixed price contract	East Consulting Engineering Center	44,035	18/11/2018	0	least price, meeting all pre-requirements and in compliance with all technical requirements
Supply, operate and transfer - fixed price contract	Horizons Engineering Switchgear Manufacturing Co.	632,581	13/3/2018	0	least price, meeting all pre-requirements and in compliance with all technical requirements
Design-fixed price contract	Madi & Partners Consulting Engineers Co.	35,119	10/10/2018	33,363.08	least price, meeting all pre-requirements and in compliance with all technical requirements
Design-fixed price contract	Giuseppe Tallarico Professional Agriculture Office + Eco Consult + IBES	77,405	16/10/2018	15,480.96	Highest score according to the technical and financial evaluation (88/100)
Design-fixed price contract	Ruqn Al Handasa Consulting Engineers	93,089	12/12/2018	27,926.65	least price, meeting all pre-requirements and in compliance with all technical requirements
Construction (supply, install) - fixed price	Wael Al Ezza Contracting Firm	209,873	21/7/2019	0.00	least price, meeting all pre-requirements and in compliance with all technical requirements
Construction (supply, install, farming) - fixed price	Omar Mohammad Al Omari & partner Co.	138,054	19/6/2019	0	least price, meeting all pre-requirements and in compliance with all technical requirements

Table 15: Program Financial and Procurement for the second year

12. For the sub-projects 2.1 and 2.2 with RSS and MoEnv, most of the expenses are made through the tripartite agreement. Taking into account that most of the work is related to engagement with community engagement and education to strengthened ability of remote poor communities to make informed decisions about climate change-driven hazards affecting their specific locations, and motivate the targeted communities to work, cooperate and support each other. The expenditure is very high (94%), and based on interviews with participants and beneficiaries, the overall trainings usefulness is high but however not improved or assist so far in job creation or income generation. The number of participants is still low; this might imply on satisfaction of the trainings in terms of beneficiaries' number.
13. For the subproject 2.3 titled "Jordan Valley Water Sustainability and Agribusiness Competitiveness" had several budget translocations since the activities were changed, tuned, and added based on communities' needs. The overall project progress is slow thus the expenditure since most of the work still under implementation. Cost expenditure is within the least price bidding, meeting all pre-requirements and in compliance with all technical requirements.
14. From the financial status of the program, the percentage of expenditure till the end of this evaluation is only 17.6%. The figure below shows how the activities are progressing very slowly in a critical stage. However, it also shows the diversity of the different projects in their progress, where some shows higher capabilities in conducting their tasks in a financial efficient manner.

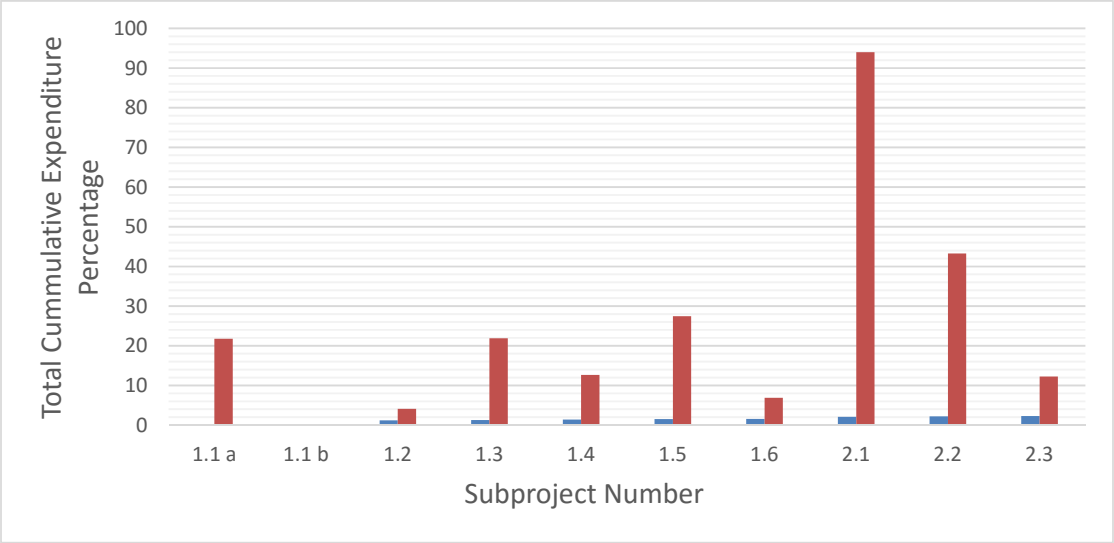

Figure 3: Total Cummulative Expenditure Percentages per subproject.

6.1.5 Monitoring and Evaluation

The monitoring action is achieved through two phases; daily/monthly/quarterly/annually monitoring executed at the executing agency as a request to ensure the progress of the work, and the PMU monitoring unit to follow up activities progress and provide feedbacks on the limitations, status, and needs.

Unfortunately, and since most of the project activities were delayed and not accomplished yet, the monitoring is basically concentrated on tender actions, resolving activities progressing problems, and performing surveys and designs. There was no real evaluation of the implementation actions rather than having feedbacks from the executing agency either by direct contact (most dominantly), and through progressive reports to PMU.

Both EE and IE should provide real on ground evaluation on the impacts of implemented activities on the environment, economics, and community. The PMU monitoring unit is recommended to ask each EE feedbacks on the limitations, progress status, and full assessment of each activity taking into consideration the project and sub-project targets and indicators.

6.1.6 Sustainability

In terms of sustainability, the activities specified in the project plan were properly set as they are being extracted from the EE strategies and action plans, thus all intervention; if implemented and achieved completely, they are likely able to continue to deliver benefits for an extended period of time after completion. However, some projects were added and changed during the implementation phase. Therefore, the sustainability depends on the future continuity, and ensuring farmers acceptance. The following points are highlighted:

1. All activities will certainly become sustainable if monitoring action is continued in the right manor along with exit strategy to define the responsibility of sustaining the projects environmentally as well as financially and socially.
2. For the trainings, the course materials should be published and transferred through various knowledge transfer tools to ensure its sustainability.
3. Collaboration initiatives with the research centers (e.g. NARC, RSS, other) and academia (e.g. universities, colleges, etc.) to manage and sustain implemented activities after the project ends.
4. There is a have high implementation (potential) of some institutions that support the projects implementation. In addition to the good synergies and collaborations between the executive agencies and the local communities.
5. Also, it is recommended to start working on future proposals to replicate and scaled up project climate resilience interventions and measures both within and outside the project area.

6. Synergies between EEs resilience measures and intervention along with climate change governmental strategies and policies helps to sustain the project outcomes. For example investment on renewable energy system to generate electricity required to transfer water to farmers which considered a vital factor in such high poverty region that coincide with national determined contributions. Also, the formulation of website, SMS application, and other ICT tools can exchange experiences and allow knowledge banks to be gathered and transferred easily.
7. The EEs should guarantee the management (including running and maintenance) of the project activities 2 years after the completion of the project and/or handling the authorities to its competent body.

6.1.7 Lessons' Learned

There are many learning outcomes can be reported from the progress of implementation of this program activities. The following tables summarize most of them.

Implementation and Adaptive Management	Response
What implementation issues/lessons, either positive or negative, affected progress?	The programme is continuously generating lessons learned. The programme has generated a strong commitment from national institutions, which work together to achieve the results of the project and are likely to be sustained over time, since this programme implies a great experience at the Regional and National level. Several factors have affected the program progress negatively (look at delays reasons), while many good signs have improved the progress, such as the strong commitment of the PMU to monitor and support the implementation agencies for the work. In addition, gain experience in preparing ToRs for tenders will ensure the budget estimate is tackled with most cost effective way while serving the desired requirements. Although the PMU trained the executing agencies' officers on how to write tenders according to their specialties before falling in the dilemma of delays, still the problem exists.
Were there any delays in implementation? If so, include any causes of delays. What measures have been taken to reduce delays?	Yes there are delays explained below.

Implementation and Adaptive Management	Response
Describe any changes undertaken to improve results on the ground or any changes made to project outputs (i.e. changes to project design)	This was described earlier at progress findings. It is not easy to provide a contingency plan for all possible risks while road mapping for alternatives for each activity. Some risks appear by time and thus, the contingency plan should be always fixable and updated as much as possible. Budget transfers between subproject activities, change in time-plan duration, and changes in some indicators were made to simplify and speedup the implementation processes based on the current activities status. There were few changes in the project outcomes based on the provided detailed surveys and designs. Generally, several scenarios are produced to select from based on the actual site situations and conditions. In addition, some activities are subjected to cancellation or downscaling due to insufficient budget and transfers between budgets of subprojects were achieved to cover a deficit in tenders awarding. To ensure the consistency of the trainings for all beneficiaries, the training activity at component 1 will be delivered by the PMU directly. There were also few changes in some activities since it as designed improperly especially the use of TWW for irrigating citrus trees. Based on current situation, several alternative scenarios were produced.
Have the environmental and social safeguard measures that were taken been effective in avoiding unwanted negative impacts?	As mentioned above, an ESIA study was conducted to eliminate any potential negative effect of installing a treated WW-based drip irrigation system along the roads of Petra Area due to the sensitive heritage value of the area. There were no direct or indirect impacts to this point is subjected from the activities of this project, and thus no need to implement any environmental and social safeguard measures so far, but however it may be required later at the implementation phase.
How have gender considerations been taken into consideration during the reporting period? What have been the lessons learned as a consequence of inclusion of such considerations on project performance or impacts? List lessons learned specific to gender, detailing measures and project/programme-specific indicators highlighting the role of women as key actors in climate change adaptation.	In terms of designing phase, the gender and vulnerable groups were taken into consideration through defining the baseline and target beneficiaries. So far and as mentioned above, gender was mainstreamed through training activities, however and based on stakeholder analysis, gender will be further mainstreamed at the implementation phases of this subproject activities.

Table 16: Lesson learned for Implementation and Adaptive Management

Lessons for Adaptation	Response
Climate Resilience Measures	
What have been the lessons learned, both positive and negative, in implementing climate adaptation measures that would be relevant to the design and implementation of future projects/programmes for enhanced resilience to climate change?	There were no clear direct positive indicators identified so far. However, all implemented climate adaptation measures will positively impact the environment, and the community in the region. Initial results of the wastewater reuse and water harvesting have good signs for positive lessons that can be adopted for future planning. Any adaptation measure to water in Jordan in general is considered an achievement due to the tragic water crises of the country. Therefore, adaptation interventions will certainly to be replicated and scaled up both within and outside the project area. Negative indictors that were inferenced at this project is the lack of awareness of the local communities of the climate change impacts and the importance of adopting climate change measures. Thus, it is important before starting any project is to perform awareness companions for the local communities detailing their climate change risks and benefits from the implemented climate adaptation measures. This will ensure the local community acceptance towards development of resilient community, especially known that TWW is not acceptable for use at the majority of the population. Due to mistakes on the consultation studies, a good study and planning of any project document must be carried out in terms of elements, components, objectives set and the body responsible for implementation. This has to be well defined from the project designing phase, which is partially lacked here. Due to improper estimation of the construction prices, good study and planning of any project document must be carried out in terms of elements, components, objectives set and the body responsible for implementation. Most of the activities are consequent and depend on each another, thus if the first step was not accomplished, the others will fail. First recommendation is to diversify the activities as much as possible. The new concept of permaculture needs special design, and preparation. The developed design can be a lesson learned on how to promote the farmers into adopting the permaculture practices through demonstration pilot sites, trainings, and collaboration with farmers own farms. Finally, any practice that ensure sustainability of the vulnerable agriculture sector in Jordan and to provide source of income to farmers is considered a successful aspect. Agribusiness and the Good Agricultural Practices (GAP) including harvesting activities, transportation, cold chain management, and socio-economics activities are considered the nuclei for improving agriculture sector in Jordan.

What is the potential for the climate resilience measures undertaken by the project/programme to be replicated and scaled up both within and outside the project area?	Based on accomplished and on-going implementation actions, there are many potentials to replicate and scale up the adaptation measures within and outside the region, especially related to plantation of trees along roads and rehabilitation programs, construction of earth dams, WWTPs, etc. All activities are within top national priorities. Thud, there is a huge need for several awareness programs for local communities and training programs for developing the capacities of the executing agencies as related to climate change adaptations. Generally, most of the WWTPs in Jordan needs upgrade. Due to water scarcity conditions, the reuse of TWW is becoming the main source for agricultural practices. Therefore, the currently implemented measures of use of non-conventional water is of high priority that can be replicated and scaled up both within and outside the project area.
Concrete Adaptation Interventions	
What have been the lessons learned, both positive and negative, in implementing concrete adaptation interventions that would be relevant to the design and implementation of future projects/programmes implementing concrete adaptation interventions?	All water related measures in Jordan is vital and considered of first priority. All designed and implemented activities are considered positive concrete adaptation interventions. However, this should be combined by trainings and awareness campaigns to ensure the acceptance of the local community.
What is the potential for the concrete adaptation interventions undertaken by the project/programme to be replicated and scaled up both within and outside the project area?	There is a good potential for these measures to be replicated and upscale at the same region and different regions, especially in a scares water country like Jordan where each water droplet have its environmental/financial/and social impact. All measures of water related availability, protection, purification, management, and monitoring are applicable for replication and upgrading. The only limit is the availability of fund. However, detail analysis of the partner capability should be performed before writing the proposal. This can be achieved through the proposal writing phase by which it should investigate the political/financial/structural and capacities requirements to fit the designed adaptation measure.

Community/National Impact	
What would you consider to be the most successful aspects for the target communities?	The designed activities fall within the community needs. Since water shortage is increasing by time, the amount of water availability and its quality are vital for providing source of income through agricultural practices.
What measures are/have been put in place to ensure sustainability of the project/program results?	Although all designed activities were driven from the national strategies and plans of the executing agencies, thus all measures are originally sustainable based on their action plans, however there should be an exit strategy established for each subproject activities to ensure their future sustainability. A mandate and committee was established to lead the Green Agribusiness in Jordan along with developing a government guarantee mechanism of Airfreight space for produce exports through detailed studies.
What measures are being/could have been put in place to improve project/program results?	The selected measured are actually defined by community, thus they fit the community needs. However, more training programs could be also vital to enhance community acceptance for the rehabilitation and monitoring programs. The selection of the adaptation measures should fit and flexible to executing entities priority needs and capabilities. Include more provinces in the country with urgent need to adapt to climate change impacts.

Knowledge Management	
How has existing information/data/knowledge been used to inform project development and implementation? What kinds of information/data/knowledge were used?	Based on the progress of the implementation of this and other subprojects, the indicators used and defined were based on experts' judgment rather than on actual field survey of the target area. Beneficiaries personal information should be actually driven through the proposal phase, and thus this should be accomplished on detailed analysis to ensure that the set indicators and targets are applicable, which unfortunately was not in this program. For the second component of the project, there were detailed studies for extraction of the data on four regions. Awareness programs at the initial stage, helped in providing acceptance for the local communities to share with the executing agency. There are many studies were conducted to provide solid information on the market, farmers situation, airfreight involved workforce, and operator for airports. Also, actuarial study for an insurance of the company of Agricultural Risk Management Fund. In addition to training need assessment (TNA) mainly on Agribusiness and the Good Agricultural Practices (GAP) including harvesting activities, transportation, cold chain management, and socio-economics activities. Others like feasibility study packing & grading center for fruits in Gour Safi, introducing new tropical crop varieties, and installation of composting units.
If learning objectives have been established, have they been met? Please describe.	So far, the final learning objectives are not well articulated, they are scattered and accumulated by the program progress. They can be per activity after the achievement of the implementation phases and based on project objectives and outcomes. It is recommended that these lessons should be transferred to other programs through various knowledge transfer tools as local media, awareness campaigns and events, awareness materials, publications, pilot programs, trainings, and developing M&E system.
Describe any difficulties there have been in accessing or retrieving existing information (data or knowledge) that is relevant to the project. Please provide suggestions for improving access to the relevant data.	There was no major problems in retrieving data till this stage.

Has the identification of learning objectives contributed to the outcomes of the project? In what ways have they contributed?	Yes, to some extent. However, the outcomes are believed to be reached if and only if the implementations were achieved as proposed. The programs' learning objectives articulated above will help achieve outcomes of the projects (especially those related to community briefs on vulnerable regions to climate change and potential impacts, integrated water resources management, use of reclaimed water for irrigation according to national standards, conservation agriculture, drought-resilient cropping patterns, climate-resilient post-harvest practices; etc.; preparing and delivering training workshops and short courses on climate change and sustainable land management for non-governmental community leaders and local government institutions; implementation of concrete adaptation actions through pilot programs to foster learning experience, which will feed into all awareness, training and knowledge management actions facilitated and conducted by the project).

Table 17: Lesson learned for Adaptation

7 PROGRAM RISK ANALYSIS

Based on meetings with PMU, and EEs' head and officers, there are many risks that may hinder the program progress work. Table 18 below articulate and analyze these factors.

Identified Risk (as in the project document)	Current Status	Example
Improper legal and financial planning and estimation at the main project document causing cost escalation problems. Also, most of the infrastructure for adaptation projects requires a large budget in addition to the expansion of the project's tasks and activities (expanding scope) that were not taken into account and financial transfers from projects to other projects are currently underway to compensate for the shortage.	High	High cost of rehabilitation activities at subproject 1.2, El Mantah Wastewater Treatment Plan at subproject 1.3, high cost of Khenizra Dam at subproject 1.5, permaculture costs at subproject 1.6
Inadequacy of the financial and administrative status of the beneficiary.	High	Sad Al Ahmar" Water User Association and its administrative and financial inability at subproject 1.1
Mistakes by the consultant for baseline studies for civil constructions or piot designs.	Moderate	Improper designs based on land examination for WWTP upgrades at subproject 1.3, and design and establishment of 2 pilot permaculture sites at subproject 1.6
Beneficiaries lack of knowledge or fear to implement the suggest climate change measures	Low	Delays and beneficiaries comments on subproject 1.6, 2.1, 2.2
Wrong site selection as being under military control, which requires security clearances to enter.	Moderate	Construction of WWTP at North Shouneh located at restricted sites.
Poor coordination between governmental agencies for decision making (e.g. workshops' scheduling dates),	Moderate	Delayed workshops at subproject 2.1, 2.2, and 2.3
Continuous change of the project coordinator.	Moderate	Subprojects 1.2, and 1.6
Delays in document reviews, and approvals,	Low	Subprojects 2.1, and 2.2,
Weak incentives for stakeholders, farmers and local communities to cooperate due to time lag for fruition of results, may reduce stakeholder engagement and participation	Low	Beneficiaries and EEs justifications for low community engagements in awareness programs at subproject 1.6, 2.1, 2.2
Lack of projects monitor workflow (template) at AF where most of the templates are concerning reporting and evaluation	High	All subprojects
Delay in steering committee meetings which contributes to delaying important decisions that impede the progress of the project.	High	Delay in VO approval at subproject 1.3, approval on Implement a Comprehensive Soil Survey in Relation to Soil Quality, Baseline Data and Soil Salinity at subproject 1.4,

Tendering problems including long and slow tendering routine actions and processes, Lack of knowledge in tendering procedures and requirements, submitting the tender documents past their due date, Re-tendering some of the advertised tenders due to high prices submitted by the tenderers or the tendered do not satisfy the requirements or less than three tendered which oblige the MoPIC to retender.	High	All subprojects as inferred from the delays in the first two years.
Delays in payments reimbursements	Low	All subprojects
Sudden risks of the “Dissolution of the Tendering Committee”, or changing secretaries’ general in ministries and institutions	Moderate	All subprojects especially 1.3
Long path for taking direct decision due to formal organizational structure,	Low	All subprojects especially Implement a comprehensive soil survey in relation to soil quality baseline data and soil salinity at subproject 1.2,
Unexpected environmental risks (e.g. extreme events, COVID 19, etc.)	High	This based on new status

Table 18: Identified Risk and their potentials.

8 CONCLUSIONS

Based on project's progress from the execution till now is "**moderately satisfactory**" and considered at critical stage if not supported fast. The first two years' progress were humbled by many delay obstacles that slowed the progress significantly. After reaching the midterm of the program, and along the third year of progress, the implementation of the activities each subproject is pacing relatively faster. However, the implementation advancing rate is still low.

Some activities within the program subprojects are expected to be halted even further if not accelerated (please see subproject activities sections), others expected not achieve by time (please see subproject activities sections in red color). Therefore, it is recommended to speed up the implementation processes for each executing agency (Please see the recommendations settled on each subproject).

The analysis of the midterm program along the third year of progress indicates that most of the designed activities are sequenced which reflects that if the first activity is not achieved, then others will systematically and consequently fail. Since all the activities started by conducting surveys and designs that requires preparation of tenders, then the delays in consultation will force the project to slow and could not be achieved by time. Thus a support modality is a must to provide a facilitation to support the implementation phases as much as possible.

Other important problem is the unpredictability and fluctuations in expenditures due to improper estimation of the activity required tasks' prices. This forced the executing and implementing entities to reallocate the budget as much as possible to cover the cost overrun within the same project or other project.

There are some strength points identified in this project, including but not limited to:

- The existing collaborative partnerships between MoPIC and executing entities and downstream partner organizations is good, thus support the enhancement of the relevance, effectiveness, sustainability, efficiency and impact of the project.
- Several measures were implemented and were in place to ensure sustainability of the project/program results, among these are the partnership with some beneficiaries, synergies between different entities subproject actions.

There are many points the MoPIC, executing entities, and partners can make to improve the adaptation response in the targeted areas of the program and achieve better outcomes for communities affected by climate change. There are individual cases of communication for development, adapting to the program, and resolving outstanding problems, including a project of elderly women from the National Center, which always seeks to market and support adaptation.

On the other hand, the following recommendations could be advanced to accelerate progress and achievement of program:

1- Recommendation to make marketing for the products,
2- Synergy works between projects to implement and achieve project goals,
3- Development (Exit Strategy) of project support and sustainability,

4- Training and education of cooperative societies on the sustainability of the project and adapting to climate change before the end of the project to be in the future helping farmers and beneficiaries of the project and ensuring their continuity, and
5- The training needs of the project beneficiaries must be determined.

Although individual projects may not reach the desired outputs or provide effective outputs, the combination of projects together might give the appropriate effect for this project if and only if implemented reaching towards the intended impact (Goals).

9 RECOMMENDATIONS

Based on above findings, there are many recommendations can be implemented to improve and sustain the Program progress to achieve its main goals. These recommendations include:

1. Maximize the benefits of the following sub-projects/activities that would have a great impact on the beneficiaries, stakeholders and executive entities.
   - Local community, farmers, and WUAs awareness programs and information/knowledge on climate change theory and impacts, possible adaptation measures, wastewater reuse, irrigation water management, soil management,
   - Rehabilitation, maintenance and upgrades of WWTP to increased water availability and efficient use through wastewater reuse as at subproject 1.1, 1.3, and 1.4.
   - Establishment of earth dams “Rain water Harvesters” to increase water availability and efficient use for farmers.
   - Upgrading of on-farm irrigation infrastructure and maintenance of the irrigation systems through installation of best available technology of water filtration and fertigation systems, and through training services on soil-water management.
   - Establishment of local training center for water reuse from WWTPs
   - Establishment of permaculture center to continually train and educate WUAs and farmers about permaculture technology, organic farming, and conduct TOTs for supporting permaculture/organic farms to obtain permaculture certificates both locally and internationally.
   - Install early warning systems through the use of information and communication technology tools (e.g. web portal and SMS informative system) to empower farmers to better adapt to climate change adverse impacts.
2. The following master plan is proposed for the remaining 14 months of the programme lifespan including critical activities, aiming to boost the implementation of such activities:
   - For project 1.1, it is recommended to (1) Assign all HFDJB activities to PDTRA since it is more financially and logistically applicable to perform the required tasks, taking into account that the activities related to increased income or avoided decrease in income should target $806/household/month for vulnerable people in targeted areas, (2) Accelerate the maintenance work for the site existing pilot in terms of infrastructure to ensure the target of “Increased water availability and efficient use through wastewater reuse” is achieved s planned for 1,317,200 m^3/yr, (3) Accelerate the operation of the “Green Petra Association” instead of “Sad Ahmar Revolving Fund” to serve farmers, and (4) Initiate local community awareness programs on the possible adaptation measures.
   - For sub-project 1.2, it is recommended to (1) Speed-up the implementation process for all activities through modality plans to ensure that targets are met by the end of the project especially for “Rehabilitation and Upgrading of On-Farm irrigation infrastructure and maintenance of the systems”, and “Installation of the best available technology of water filtration systems and link irrigation systems to storage facilities and installation of new irrigation systems” to ensure reaching a supplementary water available for agriculture of 20,000,000 m^3/yr, (2) Initiate as soon as possible the technical assistance support trainings for farmers to adapt to new water quality (wastewater) to deal with water quality related issues, and (3) perform monitoring for the target beneficiaries to ensure that the strengthened livelihoods and sources of income for vulnerable people in targeted areas has reached $330/ household/month.

- For sub-project 1.3, it is recommended to (1) Speed-up the decisions for VOs to continue the upgrading works of the Tal El Mantah WWTP taking into account that the target is to reach a supplementary water available for agriculture of 438,000 m^3/yr, (2) Speed-up the rehabilitation of the adjacent building to the WWTP to become a local training center on water and wastewater treatment plants and reclaimed water irrigation systems, (3) Accelerate the awareness raising services about safe use of TWW for WUA and local NGOs, and (4) Perform monitoring for the target beneficiaries to ensure that the strengthened livelihoods and sources of income for vulnerable people in targeted areas has reached $300/ household/month.
- For sub-project 1.4, it is recommended to (1) Speed-up the implementation of "the improvement and planting farm unit area near the WWTP in North Shouneh and carry on off-farm preparations", and "Install on-farm irrigation infrastructure for the farm and other farms around the vicinity of the pilot farm (for farmers switching to reclaimed water -purple irrigation pipes-) based on success story and lessons learned from pilot farm ensuring that the target is to reach supplementary water available for agriculture of of 438,000 m^3/yr, (2) Initiate the "Implement a Comprehensive Soil Survey in Relation to Soil Quality, Baseline Data and Soil Salinity", (3) Accelerate the technical assistance support training of farmers to adapt to wastewater to deal with water quality related issues, and (4) Perform monitoring for the target beneficiaries to ensure that the strengthened livelihoods and sources of income for vulnerable people in targeted areas has reached $300/ household/month.
- For sub-project 1.5, it is recommended to (1) Speed-up the earth dam water harvesting unit construction and operation with the solar panels at the Khnizerah site, (2) Allocate budget to construct the second earth dam taking into account that the target to collect 300,000 m^3/Year of supplementary fresh water available for agriculture, (3) Allocate budget to design and install new irrigation and filtration system on farms run by WUAs taking into account that the targeted beneficiaries are 410 families "2460 persons" (1640 males, 820 females), (4) Implement awareness program for agriculture advisory service to farmers in terms of watershed management, and (5) perform monitoring for the target beneficiaries by the end of the project taking into account that the target is diversify and strengthening livelihoods and sources of income for vulnerable people in targeted areas up to $2000/farm/year
- For sub-project 1.6, it is recommended to (1) Speed-up the implementation process for establishment of 2 pilot areas of permaculture; one for the middle and North JV (Sharhabeel Stations in the North of JV owned by NCARE) and one for the Ghor Alsafi/Khnezera-private site (the same site for project 1.5), (2) Speed-up providing technical support and capacity building, field applications and materials for change from mono to polyculture systems for eight selected farms, (3) Initiate the trainings on permaculture BMPs in duration of 5 days per training section (one training per quarter) taking into account that the target is 380 families "2280 persons" (1520 males, 760 females), (4) Initiate as soon as possible the establishment of at least one new permaculture /organic farming organization in jv to administer a revolving fund and set-up four regional farmers/WUAs Revolving Funds, (5) Initiate and speed-up the training of trainers/experts for at least 5 candidates to obtain international standardized permaculture design certificate, and (6) Perform monitoring for the target beneficiaries by the end of the project taking into account that the target is farmers increased income to $5000/farm/year
- For sub-project 2.1, it is recommended to (1) Speed-up the implementation process for the promoting wastewater reuse and adaptation to climate change measures and for the promoting several adaptive agriculture practices that will help farmers maximize

their production, (2) Accelerate the establishment of Information and Communication Technology tools to empower farmers of poor and remote communities to better adapt to climate change adverse impacts, (3) Perform more workshops for farmers for the "Tools to better adapt to climate change adverse impacts on agriculture activities" to ensure the project targets are met (48 WUA "3840 persons", 3187 males, and 653 females), and (4) Perform a monitoring plan to identify the actual benefits from the implementations taking into account the gender type.

- For sub-project 2.2, it is recommended to (1) Speed-up the implementation process for the establishment of "Information and Communication Technology (ICT) tools to empower farmers of poor & remote communities to better adapt to climate change adverse impacts", and the "Installation of three Early Warning Systems" as indicated by the project targets, (2) Ensure that 30 WUAs of about 2400 persons and 40 farmers families "240 persons" (160 males and 80 females) are registered in the jordan valley in the system database, and (3) Perform a monitoring plan to identify the actual benefits from the implementations especially for the farmers and WUAs taking into account gender issues.
- For sub-project 2.3, it is recommended to (1) Speed-up the implementation process for the "The expansion and support of an Agricultural Risk Management Fund", (2) Speed-up the development of a government guarantees mechanism of airfreight space for produce exports, (3) Speed-up the "Deployment of advanced innovative irrigation methods", "performing feasibilities studies", "Implementing protection measures along the king Abdullah Canal at JV to prevent pollution from local activities", and new planned activities as "establishment of the agribusiness and services company including cold storage (middle ghor)", (4) Initiate and speed-up the awareness programs on the agricultural risk management fund in Jordan/ focus on JV, and the trainings based on training need assessment mainly on Agribusiness and the Good Agricultural Practices including harvesting activities, transportation, cold chain management, and socio-economics activities, (5) Perform a monitoring plan to identify the actual benefits from the implementations taking into account that number of new micro-enterprises created linked to Agribusiness Industries should be 300, and the number of new direct & indirect Jobs related to Agribusiness in Jordan Valley are 19,800 jobs (5400 for females and 14400 males).

3. For sustainability of the program after it came to close, the programme steering committee to consider sub-project/activities in their operating projects:
   - PDTRA to involve sub-project 1.1
   - JVA to involve sub-project 1.2, 1.4, and 1.5
   - WAJ to involve sub-project 1.3
   - NARC to involve sub-project 1.6 and 2.3
   - MoEnv to involve sub-project 2.1
   - RSS to involve sub-project 2.2
4. After screening the new involved activities (not included in the programme PAD) based on implementation duration, their high impact, the following activities is advising to delete for the programme action plan:
   - For the sub-project 1.1, The two new added activities of "Maintain and rehabilitate 3 national parks in the Petra region" and "Development of sustainable eco-friendly water efficient & demonstration picnicking and strolling areas for the Jordanian citizens and supporting the development of a local nature and environmental tourism activity in al-hisha forest" are not directly related to diversification and strengthening livelihoods and

sources of income for vulnerable people in targeted areas, thus it can be implemented outside the programme budget.

- For the sub-project 1.3, the new added activity of “Evaluation of the quality and suitability of the reuse pilot soil for the future plantation and Installation of irrigation system at the reuse land plot” should be canceled and replaced by “installation of a tertiary irrigation network and a filtration unit”.
- For the sub-project 1.5, it is optional to cancel the “Purchase a Mobile lab for water quality monitoring” activity if there is no enough budget to perform this activity.
- For the sub-projects 1.2 and 1.4, it is optional to cancel the “Implement a Comprehensive Soil Survey in Relation to Soil Quality, Baseline Data and Soil Salinity” activity upon availability of enough budget.

5. It is highly important to take a decision by the PS to re-allocate the programme budget according to the above recommendations.
6. Adopt modality actions to facilitate the implementation processes such as but not limited to:
   - Allow the executing entity to perform its own bids through a develop committee consisting from various ministries.
   - Speed-up the tendering cycle as much as possible through providing some-source of facilities and monitoring of the process. Or by assigning some tasks to the executing agency itself (variation orders).
   - Engage parallel synergies between several projects and/or programs,
   - Provide political clearance to facilitate different implementation actions,
   - Any other filling executing gaps techniques.
7. Perform detail evaluation plans and monitoring actions to ensure that the designed indicators and targets are met taking into account gender, youth, vulnerable groups, etc.
8. Improve communication exchange between MoPIC steering committee, PMU and the project EE officers through annual meetings.

ANNEX 1: THE MAIN CRITERIA AND KEY QUESTIONS

Program Management	1. Are the Program Management arrangements at all levels (MOPIC and Executing Entities) appropriate? 2. What is the nature of management and accountability arrangements? 3. How are the internal operations, processes at all levels inside MoPIC and outside MoPIC as relevant to the functions of the committees serving the program (Steering Committee and Special Tendering Committees/Technical Tender Evaluation Committees) related to the implementation of the Program as well as monitoring and evaluation plan and procedures affecting the implementation and progress of the program. 4. To what extent are collaborative partnerships between MoPIC from one aside and Executing Entities and downstream partner organizations from the other side enhancing the relevance, effectiveness, sustainability, efficiency and impact of the project? Specifically, what measures are/have been put in place to ensure sustainability of the project/program's results? 5. What changes could MoPIC, Executing Entities, and partners make to improve the adaptation response in the targeted areas of the program and achieve better outcomes for communities affected by climate change? 6. What recommendations could be advanced to accelerate progress and achievement of program?
Relevance	1. How able was the Program to react to external factors during implementation? 2. To what extent each of the two program's components contributing towards the intended impact (Goals)?

Effectiveness	1. Is the program at this middle stage on-course to successfully solve or contribute to solving the problem it is aiming to solve as intended in the propjet/program document? 2. Is the program on-course to successfully achieve Key Milestones, Indicators (Outputs, Core Outcome Indicator) as set in the propjet/program document in light of complexity of administrative systems controlling the execution process, progress made so far, and results achieved of each sub-project individually and the program as a whole? 3. What measures are being/could have been put in place to improve project/program results? 4. Were there any unintended outcomes of the actions executed so far? 5. What effect did any intended outcomes have on overall effectiveness? 6. What internal and external factors may be affecting the program progress in achieving the targets/objectives? 7. What external factors have led to delays in some activities launching? 8. Are the risks identified in project preparation phase still hindering the progress of the program and are the steps and measures took so far/being taken to mitigate them alleviating the impact of such risks?

Efficiency	1. Is the program in the right track to succeed in utilizing the least costly resources possible in order to achieve the desired results 2. Is the program in the right track to succeed in achieving the set outputs on-time and implementing the sub-projects in the most efficient way compared to alternatives? 3. What evidence demonstrates the program has achieved or is in the right track to building climate change adaptation resilience capacities? What other measures are needed to build capacity to cope and build adaptation capacity with potential impacts of climate change?
Impact	1. What have been the lessons learned so far in implementing concrete adaptation interventions that would be relevant to the design and implementation of future projects/programs implementing concrete adaptation interventions? 2. What have been the lessons learned so far in implementing climate adaptation measures that would be relevant to the design and implementation of future projects/programs for enhanced resilience to climate change? 3. What is the potential for the concrete adaptation interventions undertaken by the Program to be replicated and scaled up both within and outside the project area based on results achieved so far? 4. To what extent has the program and sub-projects' activities implemented so far been able to facilitate other on-going private or public sector activities, institute successful partnerships with beneficiaries from local communities, individuals and NGOs (facilitation and partnership)? 5. What recommendations could be put to develop a clear exit strategy designed at the outset of this program to sustain the impact of the program and to help succeeded climate resilience measures undertaken by the program/ sub-projects to be replicated and scaled up both within and outside the projects' area?
Sustainability	1. Were the actions undertook and results obtained so far owned by the users and/or beneficiaries?

	2. Was capacity (people, organization, systems, and institutions) built through the actions of the Program or in the right track to be built by closure phase of the program? 3. What is the potential for the climate resilience measures undertaken by the Program to be replicated and scaled up both within and outside the project area? 4. What evidence demonstrates the program is in the right track to building climate change adaptation resilience capacities? What other measures are needed to build capacity to cope and build adaptation capacity with potential impacts of climate change? 5. Are the actions and results co-planed and owned by the users and/or beneficiaries to guarantee sustainability of results?

ANNEX 2: THE BENEFICIARIES / LOCAL COMMUNITIES QUESTIONNAIRE

This questionnaire examines a number of issues related to Jordan's Adaptation Fund Program titled "Increasing the Resilience of Poor and Vulnerable Communities to Climate Change Impacts in Jordan through Implementing Innovation Projects in Water and Agriculture in Support of Adaptation to Climate Change". The responses will be gathered in form of Group Discussions in a guided semi-structured manor as "qualitative measures" for the following parts:

1. The appropriateness of the selection criteria of beneficiaries
2. Appropriateness of each activity based on local communities' needs.
3. Efficiency of the implemented tools.
4. Sustainability of the implemented actions.
5. Gender and youth mainstreaming
6. Future plans and activities.
7. Challenges, constraints, risks assessment and management
8. Innovations and scaling up potentials.

Name:
Gender:
Affiliation / Job:
Experience:

1. The appropriateness of the selection criteria of beneficiaries

1. What were the main problems you were facing in your career/corporation that is limited or impacted by climate change derivers as related to water and agriculture issues?
2. How common is this problem in your field?
3. How you were selected as a beneficiary? How did you hear about the program?
4. Did you had any contact or engagement with any governmental entity regarding these problems before establishing the program?

2. Appropriateness of each activity based on local communities' needs.

1. What kind of services were provided to you by the program?
2. Do you think these activities has increased your capacity towards climate change resilience? Why?
3. Are you satisfied by the services provided (rank if possible)?
4. If you were asked to have another solution, can you advise for different one?
5. Did the provided activities fulfilled your needs regarding your mentioned problems? To what degree it served you?
6. In terms of service quality, is it above or below your expectation? Why?
7. Considering yourself or organization, what do you see the most useful program/project achievements is most useful?

3. Efficiency of the implemented tools.

1. How was the program implemented to deliver the required services?
2. How do you evaluate the used implementation tools? Why?
3. Do you think that the implemented tools are required?
4. If you were asked to use other implementation tools, can you advise any?
5. Have you been impacted negatively during the program implementation? How?
6. What measures are being/could have been put in place to improve project/program results?

4. Sustainability of the implemented actions.

1. Do you think that the provided activity will continue to deliver benefits for an extended period of time after completion? Why?
2. To what degree do you think these activities will be sustained by the executive agency? Why?
3. Do you advise to a mechanism that ensures the sustainability of the services?
4. Can your corporation/association/others can secure the services provided after the program completion? Why?
5. Is there any knowledge products generated (e.g. project videos, project stories, studies and technical reports, case studies, training manuals, handbooks, strategies and plans developed, etc.)?

5. Gender and youth mainstreaming

1. How many women engaged/benefitted from the provided services?
2. Do you think the provided services are appropriate in terms of gender equity and equality? Why?
3. How do you improve the gender mainstreaming in these services provided?

6. Future plans and activities.

1. Based on provided services, what are your future plans?
2. Do you feel that the services provided is progressing towards climate resilience? Why?
3. Do you envisage to continue your contact with the project partners after completion of the program?
4. Do you envisage to undertake any joint activities with the project partners after completion of the program?

7. Challenges, constraints, risks assessment and management

1. What kind of challenges you faced in the program?
2. Do you feel these challenges are more of risks/constrains/barriers that may affect the sustainability of the provided services?
3. How can you lessen these risks?
4. Are there any management plans to ensure risk reduction actions are active?
5. Do you think these risks can be managed by the provider entity? Why?

8. Innovations and scaling up potentials.

1. Do you feel that the provided services can be a success story? Why?

2. What implementation issues/lessons, either positive or negative, affected the provided services?
3. Do you think the undertaken measures by the project/programme can be replicated and scaled up within and outside the project area? Why?
4. Can you rate the provided services is or acting towards innovative practices or technologies that figured prominently in this project? List any practice or technology that you have adopted from the provided services.

Conclusions
1. What are in your opinion the most useful points you received or delivered from the program? Why?
2. What are in your opinion the weakest points you received or delivered from the program? Why?
3. In overall, how do you rate your satisfaction from the program? Why?

ANNEX 3: Key Informative Questionnaire

This questionnaire examines a number of issues related to Jordan's Adaptation Fund Program titled "Increasing the Resilience of Poor and Vulnerable Communities to Climate Change Impacts in Jordan through Implementing Innovation Projects in Water and Agriculture in Support of Adaptation to Climate Change". The responses will be gathered in form the key-person in a guided semi-structured manor as "quantitative and qualitative measures" for the following criteria:

1. Program Design
2. Relevance.
3. Effectiveness.
4. Efficiency.
5. Impact.
6. Sustainability
7. Gender and youth mainstreaming
8. Beneficiaries satisfaction of the implemented activities.

Name:
Gender:
Affiliation:
Title:
Date and time of meeting:

1. Program Design

1. What is the adopted organizational structure of the project?
2. Explain all details: all employees, roles, committees in charge.
3. Do you think the current structure is enough to ensure the program progress? If not explain how it can be improved.
4. What are the accountability arrangements for project management? Do you think it is enough? Is there any accountability from MOPIC? How is your accountability is linked to overall program?
5. How are the internal and external operations, process, and links at all are managed?
6. What kind of communication tools are available?
7. Is there any monitoring and evaluation for the project within the entity?
8. How is the monitoring is achieved from the PMU?
9. How do you deal with problems documentation and providing relevant solutions?
10. What sustainable solutions to maintain the project results sustainability procedures after finishing the project? Is there any exit strategy?
11. Do you think the current project activities were designed perfectly to meet beneficiaries / local community's needs? Why?
12. How were the beneficiaries been selected? Is there any criteria of selection?
13. Have you been questioned before establishing the program on the project activities?

2. Relevance.

1. Do you think the current project activities are in-line with the agencies plans and goals? How?
2. Do you think that the current activities have synergies with other programs/projects? Explain?
3. Do you think the current project activities were suited to local and national development priorities and organizational policies? Has it changed over time?

3. Effectiveness

1. What are the accomplished tasks/activities been implemented so far?
2. To what degree do you feel that the project is being progressed? Why?
3. Are the activities accomplished till the mid period will successfully solve and fulfill the project objectives?
4. Will the project achieve the milestones and indicators on time? if Yes how and what is the evidence, if No why what are the barriers?
5. What kind of services were provided to end-users so far?
6. Are there any activities that raised the institutional capacities towards climate change resilience? Why?
7. Is there any impact from the internal or external factors on the progress of the project? If yes how, and how this will impact the future progress?
8. How your entity handled or going to handle the internal or external factors?
9. What are the measures used to improve project results? If not, what measures could have been put in place to improve project/program results?
10. Are there any unintended results for the projects (good or bad)? And how it affected the effectiveness of the project?
11. Are there any factors affecting the project negatively?
12. Are there any factors affecting the project positively?
13. Are there any delays in the project implementation? Why?
14. What are the risks that hindered or might hinder the progress of the project?
15. Where these risks were explained and listed from the beginning at the proposal? If not, who is handling these risks?
16. Regarding unexpected project delays, what are the suggested changes in the plan is recommended to accelerate the progress of the work?

4. D: Efficiency

1. Is the project in the right track to succeed to achieve results and outputs in terms of costs and expenses? How?
2. How do you evaluate the used implementation tools? Why?
3. How did you ensure that the least costly resources were implemented?
4. Show evidences of the achieved so far or as a track towards the cost efficient achievement of the building climate change resilience capacities.
5. Were there any alternatives used to reduce the cost? If yes, how it was implemented?
6. Where there any improvements in the capacity building towards climate change resilience? Show evidences.
7. What other measures needed to build capacity to potential impact of CC?
8. What measures are being/could have been put in place to improve project/program results?

5. Impacts

1. What lessons have been learned so far in implementing the project activities in general as related to adaptation interventions?
2. Do you feel that the provided services can be a success story? Why?
3. What implementation issues/lessons, either positive or negative, affected the provided services?
4. Do you think the undertaken measures by the project/programme can be replicated and scaled up within and outside the project area? Why?
5. Can you rate the provided services is or acting towards innovative practices or technologies that figured prominently in this project? List any practice or technology that you have adopted from the provided services.
6. If you were asked to design future projects/programs implementing concrete adaptation interventions, what lessons can be used from the current project activities? Why?
7. Are there any lessons learned in implementing climate adaptation measures? Can it be used for future projects/programs for enhanced resilience to climate change? How?
8. What are the potential replication or scale up of the project activities? DO you have any future plans?
9. Is there any link of the current project activities with other projects? If yes, what are they?
10. Do you think that the current project activities have facilitated other on-going private or public sector activities, institute successful partnerships with beneficiaries from local communities, individuals and NGOs (facilitation and partnership)? If yes, how are they linked and how they were facilitated?
11. Is there any strategies within the agency to be used to sustain the impact and replicate outside the project area? If yes, can you make more elaboration?
12. Is there any exit strategy for the project? If not, do you have any recommendation to ensure impact of the program and to help succeeded climate resilience measures undertaken by the program/ sub-projects to be replicated and scaled up both within and outside the projects' area?
13. What kind of challenges you faced in the program?
14. Do you feel these challenges are more of risks/constrains/barriers that may affect the sustainability of the provided services?
15. How can you lessen these risks?
16. Are there any management plans to ensure risk reduction actions are active?
17. Do you think these risks can be managed by the provider entity? Why?

6. Sustainability

1. Was there any implemented action done so far and became owned by the beneficiaries (take it as their own)?
2. What mechanisms required to ensures the sustainability of the services?
3. Can your organization/institution can secure the services provided after the program completion? Why?
4. Do you think that the capacity building of your organization or people or system was enhanced by the program activities so far? If yes please list? If not, do you think that there will be in future and before the closure phase of the program? If not explain why?
5. What other measures are needed to build capacity to cope and build adaptation capacity with potential impacts of climate change?
6. Do you think that it is likely the ability of an intervention to continue to deliver benefits for an extended period of time after completion? If yes, can you provide evidences? If not, why?
7. Do you feel that the project is sustainable environmentally, financially, and socially? Can you provide evidences?
8. Is there any knowledge products generated (e.g. project videos, project stories, studies and technical reports, case studies, training manuals, handbooks, strategies and plans developed, etc.)?
9. Do you envisage to undertake any joint activities with the project partners after completion of the program?

7. Gender and youth mainstreaming

1. How many women engaged/benefitted from the provided services?
2. Do you think the provided services are appropriate in terms of gender equity and equality? Why?
3. How do you improve the gender mainstreaming in these services provided?

8. Beneficiaries satisfaction of the implemented activities.

1. How much are/were you involved at different stages of the project?
2. How do you rate your satisfaction as to communication standards and procedures?
3. Overall, how well did project partners work together?
4. What are/ were the main problems in the cooperation?
5. Overall, did your project achieve the envisaged outputs (for ongoing tasks: intermediate outputs)?
6. How would you assess the quality of the outputs achieved?
7. What do you see as the project's main achievements at this stage?
8. In your view, will the project have any effects on beneficiaries?
9. Will elements of the project, or practices created, be continued in your organisation after the end of the project?
10. Do you envisage to have regular contact with your project partners after the end of the project?
11. Do you envisage to undertake any joint activities with one or more of your project partners after the end of the project?

Conclusions
4. What are in your opinion the most useful points in the program? Why?
5. What are in your opinion the weakest points in the program? Why?
6. In overall, how do you rate your satisfaction from the program? Why?

ANNEX 4: INTERVIEWED Key Persons

Sub-project #	Date	Entity
PMU	2020/1/16	Ministry of Planning and International Cooperation (MoPIC) / PMU
1.2	2020/1/22	Jordan Valley Authority (JVA) focal point
1.4	2020/1/28	Jordan Valley Authority (JVA) focal point
2.3	2020/1/16	National Agriculture Research Center (NARC) focal point
1.6	2020/1/16	National Agriculture Research Center (NARC) focal point
1.1	2020/1/29	The Hashemite Fund for the Development of Jordan Badia (HFDJB) focal point
	2020/2/3	Petra Development and Tourism Region Authority (PDTRA) focal point
2.1	2020/2/6	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS) focal point
2.2	2020/2/6	Ministry of Environment (MoEnv) and Royal Scientific Society (RSS) focal point
1.5	2020/2/10	Jordan Valley Authority (JVA) focal point
1.3	2020/2/12	Water Authority of Jordan (WAJ) focal point
-	28/7/2020	Ministry of Planning and International Cooperation (MoPIC) / PMU Staff
-	3/6/2020	Ministry of Planning and International Cooperation (MoPIC) Head Unit
(1.2/1.4/1.5)	14/7/2020	Jordan Valley Authority (JVA) Head Unit
1.6/2.3	26/7/2020	National Agriculture Research Center (NARC)
1.1	22/7/2020	The Hashemite Fund for the Development of Jordan Badia (HFDJB) Head Unit
1.1	20/7/2020	Petra Development and Tourism Region Authority (PDTRA) Head Unit
2.1/2.2	16/7/2020	Ministry of Environment (MoEnv) Head Unit
2.1/2.2	21/7/2020	Royal Scientific Society (RSS) Head Unit

Date	Name	Job	Location	Project
4/8/2020	سليمان أبو الفوارس	Water Officer at the Water Users Association/farmer	Balqa / Deir Alla	2.1/2.2
4/8/2020	نعيم محمد	Water Officer at the Water Users Association (82)	Balqa / Deir Alla	2.1/2.2
5/8/2020	هاني سليمان	Farmer	Irbid / Northern Jordan Valley/almasharie	2.1/2.2
5/8/2020	ناصر الدسوقي	Farmer	Karak / Ghor Al Safi	2.1/2.2/2.3
6/8/2020	أسماء الرزاق	Farmer	Balqa / Deir Alla/ south altwal	2.1/2.2
6/8/2020	محمد رمضان	Agricultural engineering	Karak / Ghor Al Safi	2.1/2.2
9/8/2020	طارق الرواجفة	Farmer	Al-Rajef / Petra district	2.1/2.2
9/8/2020	سامر حمد	Farmer	Irbid / Northern Jordan Valley/ North Shouna	2.1/2.2/2.3
10/8/2020	انتصار الخلف	Farmer	Balqa / Deir Alla/ south altwal	2.1/2.2
11/8/2020	احمد الحميدان	Farmer	Taybeh / Wadi Musa	2.1/2.2

ANNEX 5: DETAILED SUBPROJECTS EVALUATION REGARDING THE RELEVANCE, EFFECTIVENESS, EFFICIENCY, AND SUSTAINABILITY