



ADAPTATION FUND

AFB/PPRC.36/Inf.14
15 September 2025

Adaptation Fund Board
Project and Programme Review Committee
Thirty-sixth Meeting
Bonn, Germany, 7-8 October 2025

PROPOSAL FOR JORDAN



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: [Regular-sized Project Concept

Commented [NM1]: Deadline for reviewer to submit the review to [insert emails, e.g. Neranda's, Estefania's, etc.]: 22 Aug
- Received from reviewer :22 Aug
-Deadline for the review to be returned to the IE: 29 Aug
- Cleared Neranda 5th Sept

Country/Region: Jordan

Project Title: Building resilience and adaptation to climate change through agro-innovation and green jobs creation

Thematic Focal Area: Agriculture

Implementing Entity: United Nations Industrial Development Organization (UNIDO)

Executing Entities: Ministry of Agriculture (MoA), Jordan Valley Authority (JVA), and UNIDO

AF Project ID: xxx

IE Project ID: xxx

Requested Financing from Adaptation Fund (US Dollars):

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Reviewer and contact person: Ahmad Ghosn

Co-reviewer(s): Mahamat Assouyouti

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IE Contact Person:

Technical Summary

The project "Building resilience and adaptation to climate change through agro-innovation and green jobs creation" aims to enhance the resilience and adaptive capacity of vulnerable communities facing climate-related stressors such as drought, heatwaves, and erratic rainfall that contribute to severe water scarcity, declining soil health, reduced agricultural productivity, increased postharvest losses, food insecurity, economic shocks, and displacement. This will be done through the three components below:

Component 1: Climate smart (CS) and water efficient urban farm system for resilience and adaptation to climate change (USD 1,400,000);

Component 2: Climate-resilient rural agriculture and livelihood diversification (USD 3,568,660);

Component 3: Strengthening Institutional Capacity to Drive National Agricultural Policy reform and facilitate the integration of climate adaptation strategies into national development planning. (USD 1,000,000).

Requested financing overview:

Project/Programme Execution Cost: USD 482,953

Total Project/Programme Cost: USD 6,451,613

Implementing Fee: USD 548,387

Financing Requested: USD 7,000,000

The proposal includes a request for a project formulation grant of USD 150,000.

	The first technical review raised several issues, such as: providing more details on project activities and identifying possible USPs; revising the discussion on benefits for more clarity; providing an initial gender assessment; specifying relevant national technical standards; adding completed projects to the list of related projects; providing a tabulated list of consultations, including those with concerned communities/ vulnerable groups; revising revising AF RF alignment table for consistency and alignment with related requirements; revising and restructuring the discussion on the sustainability of the project outcomes under dedicated subheadings (environmental, social, economic, financial, institutional, etc.) and highlighting the O&M aspects; specifying the project overall risk category as AF requirements; clarifying the execution cost allocated to the IE; among others as is indicated in the Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review.
Date:	22 August 2025

Review Criteria	Questions	First Technical Review Comments 22 August 2025
Country Eligibility	1. Is the country party to the Kyoto Protocol, and/or the Paris Agreement?	Yes.
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes. Jordan is highly vulnerable to adverse climate adverse climate change impacts including increased drought, rising temperatures and more frequent heatwaves, erratic rainfall, among others. These impacts are exacerbated by Jordan's scarce water resources and vulnerability to desertification.
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	Yes. As per the Endorsement letter dated 13 July 2025. However, further clarification is needed. CAR1: Please attach the signed endorsement letter and the IE certification in Part IV of the CN document.
	2. Does the length of the proposal amount to no more than Fifty pages for the project/programme concept, including its annexes?	Yes. However, addressing few issues under Part I is needed. CAR2: Please revise the project title to align with that of the Endorsement letter: "Building resilience and adaptation to climate change through innovation and entrepreneurship for green jobs in Jordan".

		<p>CR1: Under the heading "Geography, Social, Economic, and Environmental Context", p. 2, revise the discussion to clearly reflect the aspects mentioned in the "heading" under dedicated subheadings.</p> <p>CR2: The overall objective statement (p.5) is lengthy and not consistent with that stated in Part IIIA table, p. 36. Kindly, revise for brevity and ensure consistency.</p> <p>CR3: Add a brief paragraph to discuss/ introduce the theory of change (TOC), and revise the TOC outcomes and outputs to align with those listed in the components financing table in Part I.</p> <p>CR4: under objectives, p.5, add a brief paragraph to explicitly indicate the AF outcomes supported by the project. Based on the information provided in Part IIIA, the supported AF outcomes include outcomes 1, 2, 3, 6, 7 and 8.</p> <p>CR5: In the components financing table, p.6, please also include amounts at output level.</p> <p>To improve the clarity, layout and quality, please address the following:</p> <ol style="list-style-type: none">1. Add table of contents and lists of acronyms, tables and figures.2. Add Tables numbers and heading to all tables (e.g.: components financing table, project schedule, AF E&S checklist, AF alignment table in Part IIIA, etc.).3. Refer to tables, figures and annexes in related texts/ discussions.
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		<p>4. Under “Problem Statement”, p. 2, revise the phrase “while per capita water availability remains critically low at just 100m³” to indicate that the per capita of 100m³ is annual.</p> <p>5. Define the “IoT” term mentioned on p. 9.</p> <p>6. Add the PFG as an annex.</p> <p>7.6. Conduct a round of editing/ proofreading for the CN document.</p>
	<p>3. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?</p>	<p>Yes. See Part IIA, pp. 7-15. Concrete actions include: establishment of climate smart urban agriculture living lab, demonstration of aquaponic/ hydroponics and circular bioeconomy approaches, promotion of regenerative agriculture techniques and drought-resistant crops, installation of irrigation systems in clustered smallholder farms, strengthening smallholders and SMEs access to climate finance and insurance, enhancing livelihood diversification of vulnerable rural communities, building the capacity of key government institutions to revise, align, and enforce policy and relevant legal frameworks that support climate resilient and sustainable agricultural development. However, more details on the activities under each output and possible USPs is needed.</p> <p>CAR3: In part IIA, please include the list of activities under each output along with a brief discussion on each activity to demonstrate the work involved and substantiate allocated budgets. (Note: the activities associated with each output can be extracted from the TOC Figure.5, p. 6. Also, in the description of components in part IIA, enter the component outcome title before the discussion its related outputs (apply for all components).</p> <p>CAR4: Please confirm whether the project involves any USP and if any kindly review the CN to comply with AF</p>

	<p>4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>ESP and requirements on USP.</p> <p>No. See pp.15-16. The discussion provided is generic and not clearly presented. <u>Also</u>, despite highlighting the gender aspects under project components and other pertinent sections, and Part IIK indication that such assessment has been prepared, <u>an initial gender assessment is not included.</u></p> <p>CAR5: Please incorporate an initial gender analysis that outlines the distinct needs, capacities, roles, and knowledge resources of women and men, and/or highlights how evolving gender dynamics could contribute to sustainable transformative change. Attach the assessment as an annex. and refer to it at relevant sections of the proposal (e.g.: Parts IIB & K).</p> <p>CAR6: Please revise the CN to include an initial estimate of project beneficiaries including gender disaggregated data as well as vulnerable groups, and briefly highlight the gender related aspects.</p> <p>CAR6: Please revise the discussion on benefits to include information on expected beneficiaries with particular reference to equitable distribution of benefits to vulnerable communities, etc. Outline benefits in all three areas (economic, social and environmental) under dedicated headings along with supporting quantification/ statistics, where possible at this stage. Also, ensure that the project interventions do not raise concerns of any negative development/ maladaptation that would increase the vulnerability of beneficiaries or non-beneficiaries, or reduce their capacity to adapt to climate change.</p>
	<p>5. Is the project / programme cost effective?</p>	<p>Yes. See p. 17. Acceptable for CN stage.</p>

		<p>The project is adopting a cost-effectiveness approach “driven by the integration of smart farming technologies, active community engagement, and efficient resource management. This cost-effectiveness is evaluated based on the anticipated outcomes of the project’s interventions. However, there is little information on how the cost-effectiveness is insured for the proposed interventions including the proposed adaptative solutions.</p> <p>CAR7: Kindly provide the justification for the cost-effectiveness selected measures, including alternative options to the proposed measures, and estimates of the evaluation where possible. <u>Consider</u> using a comparative table showing cost effectiveness of each measure compares to alternative option or BAU.</p> <p>Note: <u>Section letter numbering should be "C". Revise and adjust the letter numbering of following sections.</u></p>
	<p>6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?</p>	<p>Yes. See pp. 17-19. However, please double check the relevance of other national plans and obligations under MEAs.</p> <p>CR7: Please provide a tabulated list of the plans along with dates and areas of relevance. Also, include related national water management plans, sector plans (as indicated p.19) and national plans to meet obligations under MEAs (e.g.: UNCCD, etc.), if any.</p>
	<p>7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Not clear. See p. 19. National technical standards may include: building codes, water quality regulations, and any other sector-specific regulations.</p> <p>CAR8: Please provide a tabulated list of relevant national technical standards form along with dates and project outputs/ activities they apply to.</p>

	<p>8. Is there duplication of project / programme with other funding sources?</p>	<p>No. See pp. 19-23. However, further clarification is needed. Listed projects do not include dates and status among other issues indicated in the below comment.</p> <p>CAR9: Please revise Table 2 (pp. 21-23) to include completed projects; project title and funding source; date (start and end dates) and status (ongoing, completed, etc.); synergy, lesson learned, and complimentarily with the proposed project. (<u>Note</u>: add page numbering to the table pages).</p>
	<p>9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?</p>	<p>Not clearly presented. See p. 24. further clarification is needed.</p> <p>CAR10: The first paragraph on p. 24 states “The project includes a dedicated learning and knowledge management component to ensure that insights, innovations, and lessons learned are systematically captured, documented, and disseminated. Building on the gaps identified in previous agricultural and rural development initiatives, this project emphasizes climate-smart agriculture, diversified livelihoods, and inclusive capacity-building through the deployment of innovative solutions such as the smart-farming system”. <u>Please qualify the above statement, as the listed project components do not include a dedicated component of learning and knowledge management.</u> Also note that the paragraph on p. 16 “In addition, the project will develop a monitoring, evaluation, and learning framework to track and assess the effectiveness of adaptation interventions..... Through these efforts, the project will ensure that its impacts extend beyond the immediate stakeholders, creating a foundation for systemic change and broad-based climate adaptation across the region.” provide</p>

		adequate information that is recommended to include <u>the learning and knowledge section on p.24.</u>
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	<p>Yes. See pp. 24-26. However, further clarification is needed. Add a summary of the conducted consultations</p> <p>CAR11: Please provide a summary table of the consultations, including those with concerned communities/ vulnerable groups (if any conducted at CN stage). The table should include consulted entity/ group and date, number of participants disaggregated by gender, topics discussed, outcomes along with a brief discussion how they were considered in project design.</p>
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	<p>Yes. See pp. 26-27. However, clarification is needed.</p> <p>CR8CAR12: Add a brief statement to indicate that the project would be able to deliver its outcomes/ outputs solely based AF funds and irrespective of any additional co-financing.</p>
	12. Is the project / program aligned with AF's results framework?	<p>Yes. See Part IIIA, pp. 36. However, further clarification is needed. The alignment table presented on p. 36 should utilize the correct AF template. More importantly, <u>please theinclude the applicable AF outcomes and outcome indicators (upper part of the table and underneath the objective row) for projects outcomes 1, 2 and 3 as was done for the outputs section of the table. The grant amount per outcome indicator should also be included as was done for the output level. Based on current table in Part IIIA supported AF outcomes are: 1, 2, 3, 6, 7 and 8.</u></p> <p><u>_at objective level (table upper part) should be consistent with the outcomes associate with output level (lower part of the table). Based on current table</u></p>

		<p>in Part IIIA supported AF outcomes are: 1, 2, 3, 6, 7 and 8.</p> <p>CAR12CAR13: Revise Part IIIA alignment table to ensure consistency with AF table template and revise the supported AF outcomes (upper part of the table) to align with those associated with the output level (lower part of the table).</p>
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	<p>Not clearly presented. See p. 27. The CN details briefly the sustainability approach proposed for each of the proposed outcomes and components, as outlined under section H.</p> <p>CR9: The proposal does not include any information on how the services and infrastructure will be sustained beyond the project implementation. It highlights community-based approach but does not explain how this will translate into continuity of the project after its completion. Please strengthen this part and provide a sustainability mechanism including operations and maintenance (O&M), scalability and replication, if any.</p> <p>CAR13CAR14: Please restructure/ revise the discussion layout of the sustainability section to clearly demonstrate the sustainability aspects under dedicated subheadings (environmental, social, economic, financial, institutional, etc.) and explain arrangements through which this would be achieved. Also, discuss the sustainability aspects of the O&M for established facilities (e.g.: labs) and other infrastructures/ installations established by the project.</p>
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	<p>Not fully. See pp. 27-35. The category in which the screening process has classified the project (Category A, B or C) is not specified, among other issues indicated in the below comment.</p>

		<p>CAR14CAR15:</p> <ol style="list-style-type: none"> 1. Please provide a brief discussion on the expected project risks and explicitly mention the project overall risk category (A, B, or C) as per AF requirements. 2. Also make reference to the initial gender assessment at relevant AF principles of the check list, as well as USPs, if any. 3. Please amend the Risk table at section L in column 2 of the table, to uncheck all areas where further assessment is required. Please note that further assessments are always required for ESPs 1, 4 and 6. 4. Please remove all text from column 2 and place any approach, risk management strategy etc. in column 3.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes. *AF PPRC team to confirm*
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	<p>Yes. The Implementing Fee (USD 548,387) is 8.5% of the Total Project Cost (USD 6,451,613). <u>However please address the following:</u></p> <p>CR10:</p> <ol style="list-style-type: none"> 1. In the PFG application form please ensure that the budget amount in column 3 associated with Baseline assessment, initial stakeholder Engagement & Participatory Planning is aligned with the total presented in column 2. Currently column 3 total is \$15,000 while Column 2 total is 17,249. 2. In the IE fee line please amend the amount rounding up to the nearest dollar and remove the decimal point and cents.

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	<p>3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?</p>	<p>Not fully. The Execution Cost (USD 482,953) is 7.5% of the Total Project Cost (USD 6,451,613). <u>However, it is not clear what portion of this goes to UNIDO (Note: In case of Implementing Entity serving as the Executing Entity, the limit for execution is 1.5%. When the IE provides part of execution services for the project, to limit the execution costs of the IE to 1.5 per cent of the cost of the part of the project or programme executed by the implementing entity of the project/programme cost. In both cases, the justifications must be provided, as this arrangement can be approved only on an exceptional basis).</u> Also, more clarification is needed on the execution partners mentioned under Part IIA components description. <u>Please note that at fully developed proposal stage clarity on the portion of the execution cost that is allocated to UNIDO will be required.</u></p> <p>CAR15CAR16: <u>Please provide the justification and the support letter from the DA for the execution services by UNIDO. clarify the portion of the execution cost that is allocated to UNIDO and adjust the execution cost accordingly.</u></p> <p>CR10: define the term “execution partner” <u>as the AF only recognizes executing entities</u> and clarify i) how their execution costs of these partners be allocated, ii) the executing entity listed on p. 1 responsible for their management/ supervision.</p>
Eligibility of IE	<p>1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?</p>	<p>Yes. UNIDO is an accredited MIE. <u>However,</u> Accreditation Expiration Date: 30 November 2025.</p>
Implementation Arrangements	<p>1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?</p>	<p>n/a at concept stage</p>

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	2. Are there measures for financial and project/programme risk management?	n/a at concept stage
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?	n/a at concept stage
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a at concept stage
	5. Is an explanation and a breakdown of the execution costs included?	n/a at concept stage
	6. Is a detailed budget including budget notes included?	n/a at concept stage
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a at concept stage
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a at concept stage
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a at concept stage
	10. Is a disbursement schedule with time-bound milestones included?	n/a at concept stage



ADAPTATION FUND

CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Building resilience and adaptation to climate change through agro-innovation and green jobs creation

Country: Jordan

Thematic Focal Area: Agriculture

Type of Implementing Entity: Multilateral Implementing Entity

Implementing Entity: United Nations Industrial Development Organization (UNIDO)

Executing Entities: Ministry of Agriculture (MoA), Jordan Valley Authority (JVA), and UNIDO

Amount of Financing Requested: 7,000,000 (in U.S Dollars Equivalent)

Project Formulation Grant Request (available to NIEs only): Yes No

Amount of Requested financing for PFG: 150,000 (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes No

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>

Stage of Submission:

This concept has been submitted before

This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date:

Please note that concept note documents should not exceed 50 pages, including annexes.

Project/ Programme Background and Context:

Problem Statement:

Jordan faces significant socio-economic and environmental challenges due to its dependence on climate-sensitive agriculture, escalating water scarcity, and rising food insecurity. Agriculture accounts for over 50% of freshwater consumption, while per capita water availability remains critically low at just 100m³. By 2030, up to 40% of groundwater basins may be severely depleted, intensifying drought effects and jeopardizing agricultural productivity. Without effective adaptation measures, economic stability, labor productivity, and social resilience will deteriorate. The impacts will be particularly severe for vulnerable groups, including 56% of Jordanians and 89% of the refugee population. These challenges also have far-reaching consequences for migration patterns, gender inequality, and regional political stability. While Jordan has existing strategies in place, the Long-Term Low-Carbon and Climate Resilient Strategy (LTS) highlights ongoing gaps in policy, institutional capacity, climate-smart technology adoption, and financial resources. Urgent climate-responsive solutions and sustainable agricultural innovations are needed. Additionally, Jordan's National Adaptation Plan (NAP) emphasizes the necessity of strategic actions to address these vulnerabilities, particularly through improved water efficiency, conservation efforts, and climate-resilient farming practices to enhance agricultural productivity and ensuring food securing ([NAP Jordan 2025](#)). Accordingly, the project will support the Government of Jordan by providing technical assistance to advance innovative agricultural technologies, foster economic diversification, enhance capacity building, and strengthen climate governance. It will also promote effective institutional coordination and cooperation to address climate challenges more efficiently.

Geography, Social, Economic, and Environmental Context:

Country context: The Hashemite Kingdom of Jordan is located in the western part of Asia, with areal features including desert soil, a rift valley, and highlands. Around 80 kilometers wide from the shores of the Mediterranean, Jordan's topography is unique. To the north of the country is the Jordan Valley extension of the longest valley on earth, running for around 400 km in length with a variance between 10 km in the North and 30 km in the south, and almost entirely located below sea level with altitudinal ranges of between 170 to 400 meters. Almost 80% of Jordan's land area lies on the semi-desert plateau east of this valley. Alongside trade and services, other significant sectors of the economy include manufacturing, agriculture, mining, and construction. Two-thirds of the Jordanian Territory lies deserted due to climatic conditions, receiving less than 50 mm of rainfall annually. Harsh and dry features of a climate make the country particularly vulnerable to climate change impacts. Water, agriculture, coastal markets, health, and tourism are other sectors that are prone to climate change.

The project target governorates, including Irbid, Amman, Aqaba, Ma'an, and areas in the Jordan Valley region, are highly susceptible to climate-related impacts. Ma'an, for instance, experiences high poverty and unemployment rates, while the Jordan Valley and Amman areas face escalating water demand, intensifying pressure on already scarce resources. In Irbid, the large influx of Syrian refugees has added strain to local infrastructure and services. Alongside refugees, economically disadvantaged rural households and other marginalized communities are among the most vulnerable groups, facing heightened risks in terms of food security, income stability, and overall well-being. Without the implementation of effective adaptation strategies, these populations are likely to experience worsening socio-economic conditions.

Climate context: Jordan's water resources are severely limited, and climate change is exacerbating the crisis with rising temperatures and declining rainfall. By 2050, average temperatures are projected to increase by 1.5°C to 2.5°C, leading to heightened water stress, more frequent droughts, flash floods, and extreme weather events, further threatening agriculture and food security. The Jordan River and

groundwater aquifers, the country's primary freshwater sources, are under immense pressure, with availability expected to decline by at least 40% by 2050. This poses a serious risk to agricultural productivity, particularly for water-intensive crops, endangering rural livelihoods and food production. Overall, the project is focused on climate-resilient water and agricultural management practices, promoting green job opportunities, and rural and urban entries development activities, which are aimed at creating and putting in place adaptation benefits for smallholder farmers, marginalized or disadvantaged groups (e.g., women and youth, and refugees and their hosting communities), and agro-enterprises.

Air temperature projection:

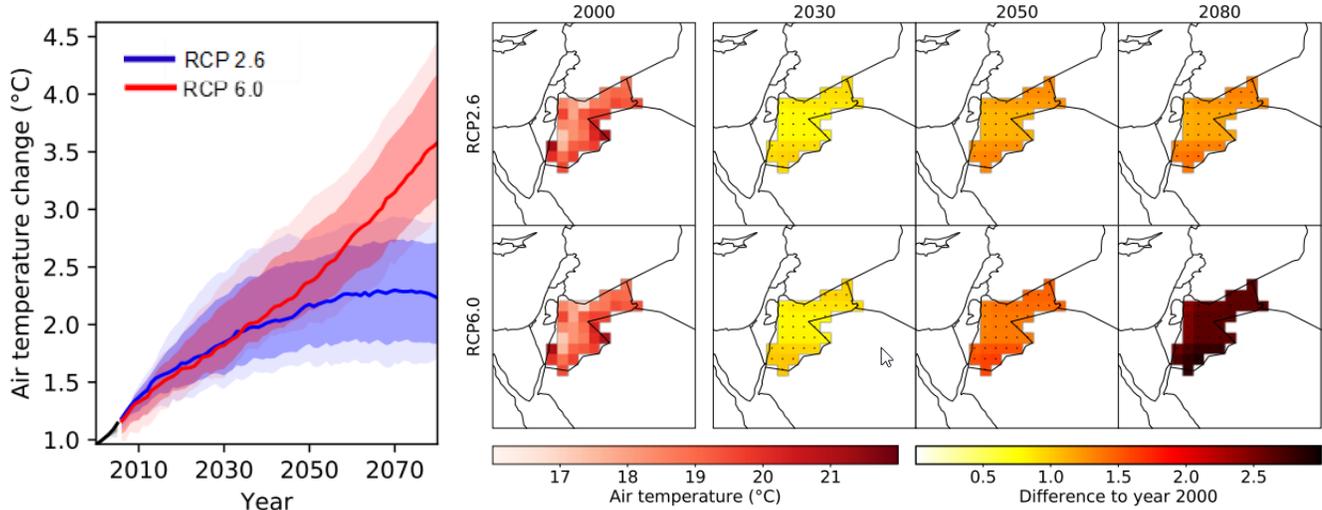


Figure 1: Air temperature projections for Jordan for different GHG emissions scenarios, where the first projection is relative to the year 1876, while the second projection is relative to the year 2000 (regional variations)¹.

Precipitation:

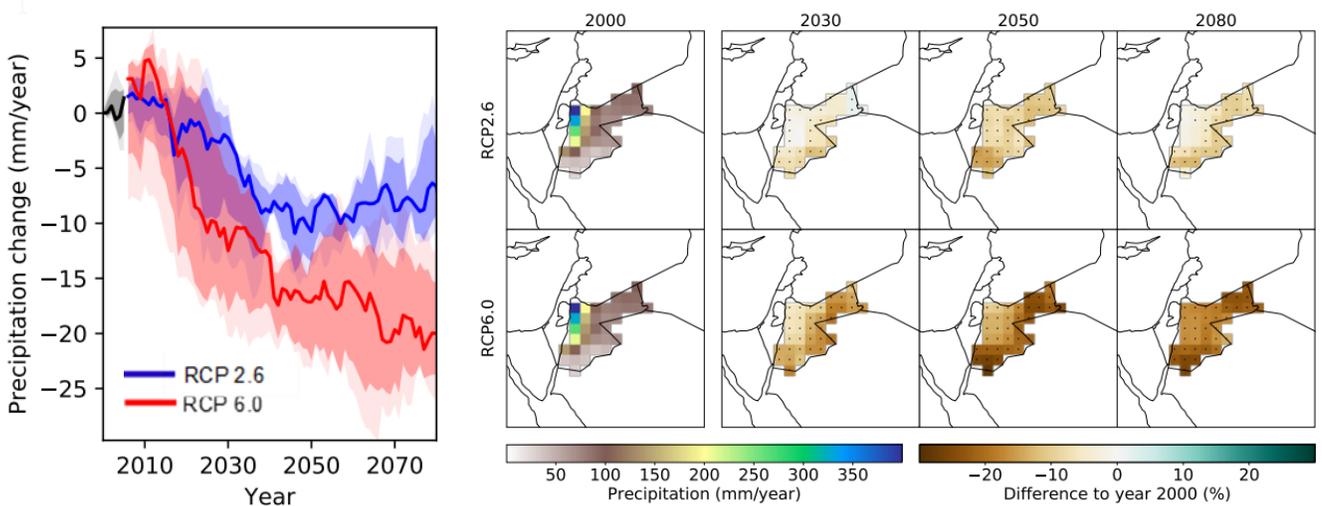


Figure 2: Annual mean precipitation projections for Jordan for different GHG emissions scenarios, relative to the year 2000 (regional variations).

Characterization of project target areas: (i) as Jordan's capital and economic hub, Amman faces growing food security challenges due to climate change, urban expansion, and resource

¹ Figure 1 and 2: © Potsdam Institute for Climate Impact Research, adelphi 2022.

constraints. Water scarcity, rising temperatures, and extreme weather events threaten agricultural supply chains and food availability. With limited local agricultural production, Amman relies heavily on imports, making it vulnerable to external shocks. Enhancing climate-smart agriculture, efficient water use, and resilient food systems is crucial for ensuring long-term food security and adapting to climate change; (ii) Jordan Valley - a key agricultural and economic region, but it faces rising temperatures, drought, and resource scarcity. As major sources of agricultural supply, the region requires the adoption of climate smart irrigation and water management systems, and climate adaptive technologies and best practices, which will protect its ecosystems and livelihoods; (iii) Irbid Governorate – as a major hub for agriculture, education, and industry, it struggles with water scarcity, declining agricultural productivity, and poverty, which is worsened by climate change and a large refugee population; (iv) Ma'an Governorate – it is Jordan's largest governorate and faces high poverty (26.6%) and unemployment (15.6%), alongside climate-driven water scarcity and decline of agricultural productivity; (v) Aqaba – is Jordan's only coastal city and a key trade hub. As in all other parts of Jordan, Aqaba faces water scarcity, rising temperatures, and extreme weather due to climate change. Limited agricultural land and agricultural practices in the governorate increased reliance on imports, heightening food prices and food security risks. Enhancing climate-smart agriculture, wastewater recycling and desalination, and resilient food systems is crucial for long-term sustainability in the governorate.

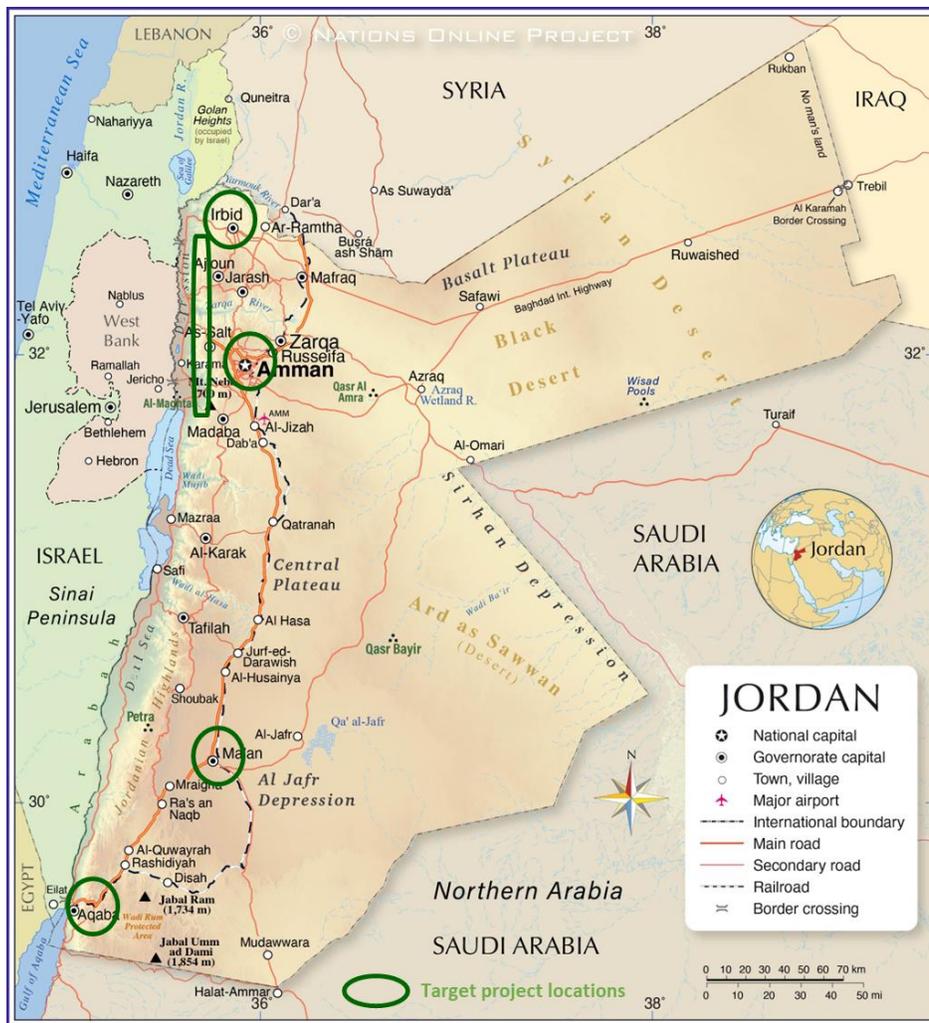


Figure 4: map of the project location

Project/ Programme Objectives:

The project aims to enhance the resilience and adaptive capacity of vulnerable communities facing climate-related stressors such as drought, heatwaves, and erratic rainfall that contribute to severe water scarcity, declining soil health, reduced agricultural productivity, increased postharvest losses, food insecurity, economic shocks, and displacement. To address these challenges, the project will promote evidence-based climate-smart adaptive technologies and practices, including drought-tolerant high-value crops, regenerative agriculture, aquaponics and hydroponics, and digital tools for monitoring soil moisture, soil health, pests, and crop yields. It will also strengthen access to localized climate and crop advisory services and promote sustainable water management solutions such as rainwater harvesting and efficient irrigation systems. In addition, the project focuses on reducing postharvest losses, improving value chain efficiency, expanding market access, and creating green jobs for women and youth. By mainstreaming climate adaptation into agriculture and related sectors, the initiative supports sustainable livelihoods and drives inclusive local economic development.

Specific objectives of the project:

- **Enhancing Water Efficiency and Governance:** The project aims to improve water use efficiency in agriculture by promoting water-saving irrigation systems for smallholder farmers and encouraging rainwater harvesting practices. It also introduces innovative systems such as aquaponics and hydroponics to boost urban food production with minimal water use. Furthermore, the project aims to strengthening local water governance systems to ensure equitable and sustainable water resource management.
- **Advancing Climate-Informed Planning and Decision-Making:** To support informed agricultural and institutional decisions, the project will deploy smart weather stations coupled with GeoAI technologies for real-time monitoring of soil moisture, soil nutrients, crop insect and disease, and crops performance. It will enhance early warning systems and provide tailored advisory services to farmers and planners. Improved access to localized climate data will strengthen both community preparedness and evidence based national planning.
- **Promoting Climate-Resilient Livelihoods and Youth Engagement:** A climate-smart urban food production living lab (aquaponics/hydroponics) will be established, featuring a youth agripreneurs learning center and an agro-tourism demonstration site. The project supports the adoption of climate-resilient crop varieties and aims to diversify livelihoods through innovative urban farming systems, digitalization of the production management and supply chain, and eco-tourism, especially in urban areas predominantly dependent on food import. The project emphasizes strategies to empower women and youth through targeted capacity-building and entrepreneurship support.
- **Strengthening Agricultural Value Chains and Market Access in the Jordan Valley areas:** To improve income and reduce losses, the project will enhance postharvest management and introduce value addition and processing techniques. Strengthening product quality and aligning with international food standards will open new market opportunities. Digital innovation will be integrated to modernize and connect agricultural value chains. Additionally, the project will enhance livelihood diversification for smallholder farmers by promoting regenerative agriculture and agroforestry, enabling year-round production and a focus on high-value crop production.
- **Building Institutional Capacity for Climate Adaptation:** Capacity development for key institutions, including the national implementing entity (MoPIC), will be prioritized to ensure effective climate adaptation action planning, management, and monitoring of climate adaptation initiatives. The project also supports mobilization of climate finance, assist in national agricultural policy reforms through advanced evidence based best practices, and intersectoral coordination to scale up adaptive solutions and improve support to vulnerable communities.

The above-mentioned objective and specific objects will be addressed through the following project outcomes and outputs.

Project/ Programme Components and Financing:

Project/ Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
Component 1: Climate Smart (CS) and Water Efficient Urban Farm System for Resilience and Adaptation to Climate Change	Output 1.1: Climate Smart Urban Agriculture Living Lab established and urban agripreneurs trained. Output 1.2: Aquaponic and circular bioeconomy approaches demonstrated for local economic diversification and to address the food and nutrition security under critical water stress conditions.	Outcome 1: Climate resilience in urban food systems enhanced by mainstreamed CSA technologies that increase food production, urban food security, and green job opportunities.	1,400,000
Component 2: Climate-resilient rural agriculture and livelihood diversification	Output 2.1: Regenerative agriculture techniques and drought-resistant crops adopted by smallholder farmers and household income enhanced. Output 2.2: Efficient irrigation systems (assisted by weather stations and GeoAI) installed in clustered smallholder farms. Output 2.3: Postharvest loss of the target crops reduced. Output 2.4: Smallholders and SMEs access to climate finance and insurance strengthened. Output 2.5: Enhanced livelihood diversification among vulnerable rural communities.	Outcome 2: Rural agricultural resilience and farmers' income enhanced through the integration of agricultural innovations and economic diversification promoted	3,568,660
Component 3: Strengthening institutional capacity to drive national agricultural policy reform and facilitate the integration of climate adaptation strategies into national development planning.	Output 3.1: Climate-resilient agricultural policy recommendations and strategic action plans developed and endorsed by relevant institutions. Output 3.2: High-level international exchange programs and exposure missions on agricultural innovations organized and awareness on climate smart agricultural practices enhanced through workshops.	Outcome 3: Key agricultural institutions and stakeholders adopt climate-resilient policies and best practices and scale up the use of climate-smart agriculture approaches in water-scarce areas of the target project locations.	1,000,000
Project/ Programme Execution cost (9.5%)			482,953
Total Project/ Programme Cost			6,451,613
Project/ Programme Cycle Management Fee charged by the Implementing Entity (if applicable) (8.5%)			548,387
Amount of Financing Requested			7,000,000

Projected Calendar:

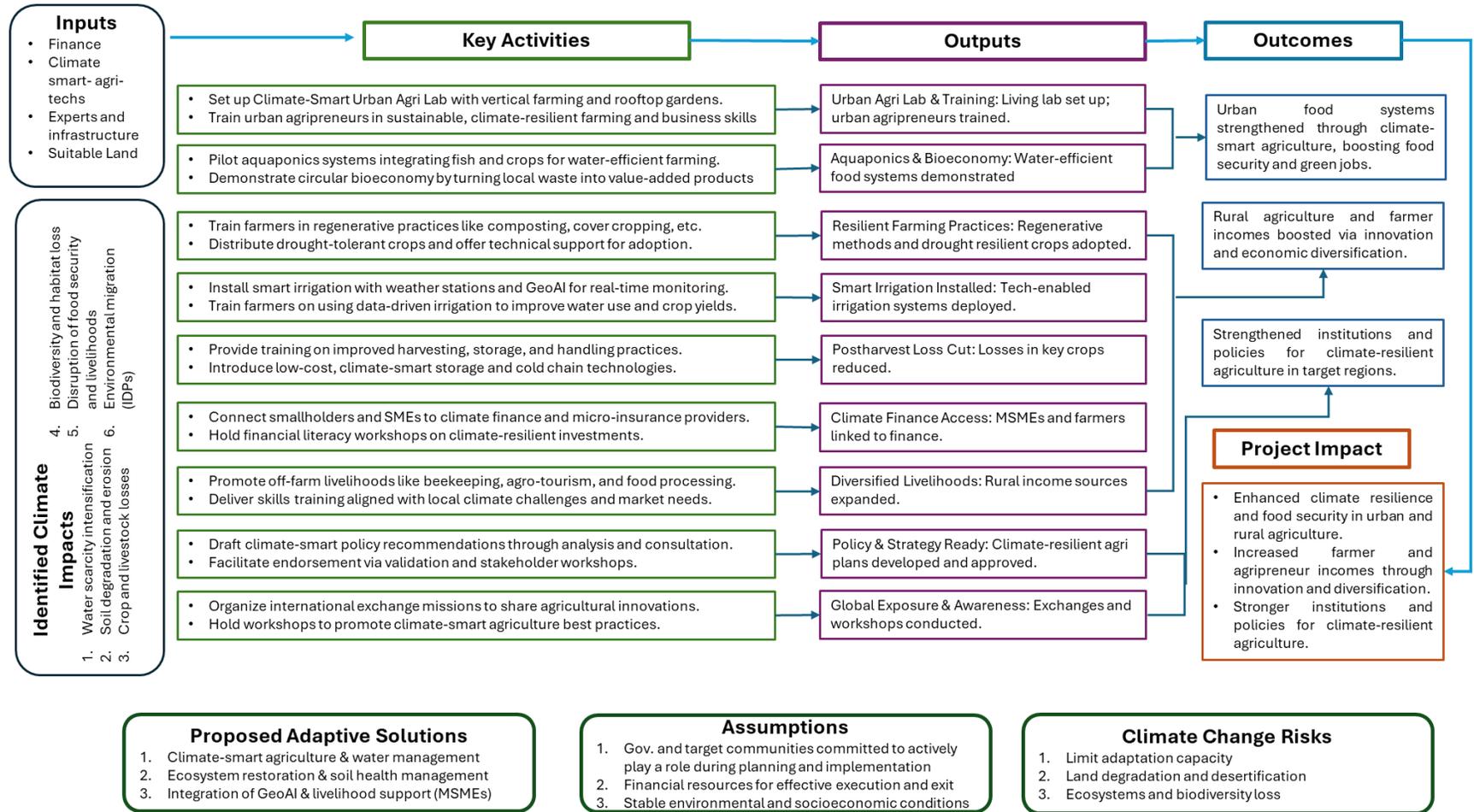
Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	January 2027
Mid-term Review (if planned)	March 2029
Project/Programme Closing	December 2031
Terminal Evaluation	March 2032

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project/ programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

Figure 5: Theory of Change



Underlined Problems: Jordan faces severe climate variability, presenting significant challenges, particularly in agriculture and food security. Climate change has exacerbated water scarcity, droughts, and erratic rainfall patterns in Jordan, disproportionately affecting smallholder farmers, urban vulnerable groups, and SMEs engaged in the food supply chain. This has led to food insecurity, economic hardship, and increased migration.

Smallholder farmers in the project target areas are highly vulnerable to drought, leading to crop failure, soil degradation, and reduced food availability, which in turn contributes to malnutrition and adverse health effects. Additionally, rising unemployment among youth and women, dependence on rain-fed agriculture and traditional inefficient irrigation methods, and inadequate access to climate finance further exacerbate the issue. Limited institutional capacity to address climate change impacts and provide adaptive solutions, along with insufficient supply chain infrastructure that results in significant food waste, adds to the growing concerns. The country's heavy reliance on imported food, coupled with rapid urban population growth and increasing food demand, continues to strain resources. Climate variability has intensified, with prolonged droughts and erratic rainfall patterns becoming more frequent, further destabilizing agricultural output.

To address these challenges, the project aims to enhance climate resilience by targeting key vulnerabilities faced by women, youth, and poor rural farming and urban communities. It focuses on promoting climate-smart agricultural practices to improve productivity and economic diversification while ensuring access to finance and sustainable markets. The project integrates innovative agricultural technologies and best practices, strengthens institutional capacity to support climate adaptation policies, and adopts gender-responsive approaches to empower women and youth. Additionally, it encourages private sector investments in climate-resilient agricultural solutions and raises awareness about climate adaptation strategies. By implementing these measures, the project seeks to build the resilience and adaptive capacity of smallholder farmers, women, and youth agripreneurs. The ultimate goal is to create a more sustainable and inclusive agricultural sector in Jordan, ensuring long-term food security and economic stability in the face of increasing climate variability.

Component 1: Climate Smart (CS) Urban Agriculture for Resilience and Adaptation to Climate Change

This component focuses on implementing innovative, water and nutrient-efficient, and climate-resilient farming practices to support vulnerable urban poor families, youth, women, and SMEs in adapting to climate change. By fostering green job creation and enhancing access to climate-resilient agricultural solutions, it aims to address the challenges posed by rapid urbanization and a growing population in cities. Through the integration of smart agritech, water management strategies, circular bioeconomy principles, and sustainable supply chain approaches, this initiative will enhance agricultural productivity, reduce vulnerability to climate-related shocks, and strengthen urban food systems. UNIDO will be the executing entity and will be responsible to undertake Output 1.1. Furthermore, the Ministry of Agriculture (MoA) will be the responsible executing entity of Output 1.2.

The International Center for Agricultural Research in the Dry Areas (ICARDA) will significantly play a role and act as Execution Partner to provide evidence based innovative adaptation solutions to address the critical needs to adapt the water stress and draught situations in the project target locations, e.g. high value, high yielding, and water efficient crops; innovative fish management systems, and digitization of the water management systems in the model aquaponic farm and small scale hydroponics, and advanced circular bioeconomy approaches. Moreover, Aqaba Special Economic Zone Authority (ASEZA), the International Centre of Insect Physiology and Ecology (ICIPE), and other potential technology and services providers will contribute to the project as Execution Partners to deliver specific output/ activities under this specific project component. Detailed tasks and

responsibilities of the execution partners will be included during the full project proposal preparation phase. Among the others the main role of ICIPE will be to build the capacity of the NARC scientists to support the science-based production of new-ecofriendly-affordable fish-feeds from organic waste (agricultural and food waste) using beneficial insects as the center of the dynamic transformation in the fish-feed industry sector.

The outputs under this component are:

1. **Output 1.1:** Climate Smart Urban Agriculture Living Lab established and urban agripreneurs trained. **UNIDO** will be the lead executing entity of this output.
2. **Output 1.2:** Aquaponic/ hydroponics and circular bioeconomy approaches demonstrated as means for local economic diversification and address the food and nutrition security under critical water stress conditions. **MoA** will be the lead executing entity of this output.

Output 1.1 will focus on the establishment of a climate-smart urban agriculture living lab centered on aquaponics to enhance resilient local food systems in land-scarce and water-stressed urban environments. This innovation leverages the integration of hydroponics and aquaculture to create closed-loop, resource-efficient production systems that align with climate change adaptation strategies and sustainable urban development goals. Aquaponics is increasingly recognized as a sustainable, low-carbon, and water-efficient agricultural practice, offering significant potential for climate-resilient food production. Its ability to maximize the efficient use of non-renewable resources positions it as a critical solution for urban areas experiencing heightened climate vulnerability, resource depletion, and food insecurity. Current research trends have also underscored its relevance in addressing global challenges related to food security, water efficiency, and ecological sustainability. Integrated agri-aquaculture systems, i.e., aquaponics, can reduce water consumption by up to 90% compared to conventional agricultural through precision irrigation and nutrient recycling. By integrating hydroponic plant cultivation and aquaculture practices, this initiative will diversify urban food sources while enhancing adaptive capacity to climate-induced shocks, including drought and extreme heat.

To further strengthen resilience, the project will deploy smart digital technologies, such as IoT-enabled sensors, machine learning algorithms, and intelligent water management platforms, to optimize the use of water and nutrients, improve real time monitoring, and support decision-making processes. This innovation will be complemented by strengthening urban water governance framework to ensure equitable water resources distribution, reduces water stress, and support urban agricultural SMEs (particularly hydroponic and aquaponic enterprises) to thrive under changing climate conditions.

This output will promote the adoption of circular economy principles, supporting integrated horticulture and aquaculture systems that reduce reliance on chemical inputs through biological pest control and optimize productivity per unit area. Smart farming technologies will be deployed to monitor water quality, nutrient level, the growth performance of crops and fish, alongside tools for yield predictive modeling.

To promote systemic transformation and replications, the project will stimulate the expansion of urban farming infrastructure and deliver training-of-trainers (TOT) programs. This will target unemployed urban youth and women, equipping them with technical and entrepreneurial skills for aquaponics and hydroponics farm management. Tailored curricula will cover areas such as engineering and food production techniques, food quality and food safety standards, postharvest handling, agribusiness development, and digitized sustainable supply chain management.

Moreover, the project will showcase nature-based-solutions circular bioeconomy technologies, converting organic waste to high-value animal feed and organic fertilizers. This will not only reduce the carbon and water footprints of urban agricultural but also boost local productivity and create diversified income streams, enhancing economic resilience and environmental sustainability. This activity

will be guided by a science-based business model, which ICIPE serving as the **Executing Partner**, or collaborator, providing technical oversight and institutional support.

Output 1.2: this output aims to demonstrate and promote climate smart agricultural (CSA) practices as transformative solutions for urban food and nutrition security under critical climate change variability. By demonstrating scalable CSA innovation, this component will engage a broad range of stakeholders, including policymakers, practitioners, researchers, and community members, highlighting the critical role of urban agriculture in building resilient, adaptive food systems in climate-vulnerable urban environments.

Through stakeholders' workshops, field demonstration, and knowledge exchange programs, this output will demonstrate potential opportunities for inclusive economic diversifications, particularly for unemployed urban youth and women. It will demonstrate how unproductive urban and peri-urban lands, including degraded and marginal zones, can be transformed into high-yielding, climate-smart food production hubs through aquaponics. This transformation will be supported by enhanced market access, value chain development, and supply chain integration, including innovations in post-harvest handling, cold storage, and logistics.

A key innovation under this output is the integration of circular bioeconomy practices through the conversion of aquaponic waste and urban organic residues into high-value products using black soldier fly (BSF) technologies. These enterprises, led by youth and women, will produce protein-rich insect-based feed for aquaculture and nutrient-dense organic fertilizers for urban and peri-urban farms. This integrated approach strengthens the urban food value chain while simultaneously creating alternative income sources and climate-resilient employment pathways.

The MoA will play a critical role in facilitating this transformation by supporting youth and women-led organization with tailored extension services, capacity-building programs, and access to blended financing mechanisms (grants and soft loans). Detailed implementation strategies will be developed during the full project preparation phase.

In addition, this output will drive urban green job creation by enabling the establishment of BSF, production units, supply hubs for biofertilizers and animal feed, and input services for aquaponic systems. The biofertilizer, which will also be supplied to open-field farmers in the peri-urban areas, has untapped potential to improve soil health, enhance water retention capacity by improving soil aggregation, improving soil microbial ecosystems, and boost agricultural productivity under prolonged drought and high evapotranspiration conditions. The resulting climate-smart agribusinesses will help shift job creation away from informal or low-productivity service sectors and toward sustainable, high-impact enterprises that contribute to environmental and economic resilience. This output will also support the development of robust urban agri-food supply chains, linking producers to local retail markets, hospitality sectors, and emerging agrotourism ventures. This will stimulate employment opportunities along all nodes of the value chain, from production and processing to logistics and retail, enhancing local economies and improving access to fresh, nutritious food.

Overall, this climate smart urban agribusiness model, based in resource-efficient CSA and circular bioeconomy principles, will serve as a replicable and scalable demonstration model for municipalities and Governorates seeking to strengthen food sovereignty by reducing dependence on food imports. By effectively implementing Climate-Smart Agriculture (CSA) practices, the initiative contributes to long-term urban resilience and national food security. Farmers and agripreneurs will benefit from advanced climate adaptation technologies, including smart water management and fertigation systems, integrated pest management (IPM), pollinator integration, and digital monitoring tools for crop and fish productivity. These innovations will reduce input waste, enhance ecological performance, and ensure healthy, sustainable food production systems. Ultimately, this output will generate triple benefits. First, climate resilience: Supporting the development of robust, water-smart urban food systems in response to climate shocks such as drought and heatwaves. Second, green jobs and agripreneurship: creating

learning hubs and employment pathways for urban youth and women in climate-smart, technology-driven agriculture and agri-services. Third, agrotourism and knowledge exchange: positioning aquaponic living labs as centers for innovation and agrotourism, promoting adaptation best practices and peer learning across climate-vulnerable cities. By adopting those adaptive solutions, this project component empowers urban communities to adapt to climate change, enhance their food system resilience, and stimulate inclusive, sustainable urban economies aligned with national climate adaptation and green growth strategies.

Component 2: Climate-Resilient Agriculture and Rural Livelihood Diversification

This component aims to enhance the resilience of smallholder farmers in the Jordan Valley by promoting climate-smart agricultural practices, optimizing post-harvest management, and diversifying rural livelihoods. Smallholder farmers in this region rely heavily on rainfed agriculture and traditional irrigation methods, making them particularly vulnerable to droughts and extreme weather conditions. To address these challenges, the project integrates sustainable solutions such as climate-smart irrigation systems, agroforestry practices, and climate-resilient crop varieties to mitigate climate risks and ensure stable production. Additionally, advanced mini-weather stations linked with GeoAI technologies will be deployed to provide real-time climate risk assessments, monitor crop health and pest infestations, optimize water and nutrient use, and support data-driven decision-making. These interventions will not only enhance food security and economic resilience but also empower farmers to take evidence-based proactive adaptation measures. As described below the lead project executing entity of this component will be the Jordan Valley Authority (JVA) and remain as the lead and responsible entity for the successful achievements of this component. In addition, UNIDO under the JVA leadership will be an executing entity to undertake output 2.3, 2.4, and 2.5. Furthermore, UNIDO will co-execute Output 2.2.

In this project component ICARDA will provide technical cooperation services and will have an **exciting partner** role to provide evidence based innovative adaptation solutions to address the critical needs to adapt the water stress and draught situations in the project target locations, e.g. drought tolerant high value and high yielding crop varieties, digitization of the smallholder farms water and soil nutrient management systems, evidence based postharvest loss reduction technologies, and providing capacity development programs in soil health and agronomic practices to target farmers and agricultural extension officers. The [Agricultural Credit Corporation \(ACC\)](#)² will also be potential **executing partner** to support the effective implementation of output 2.3 through enabling access to climate financing instruments.

In addition, specialized technology and service providers, including Grow-Tech and Metos, will contribute as executing partners under Output 2.2, with a focus on the digitization of the farming systems in Jordan Valley areas. These partners will offer advanced and innovative adaptation solutions aimed at democratizing access to climate and crop information, thereby enhancing the resilience of smallholder farmers to drought and climate-induced crop failures. Their services will include weather forecasting, water management, disease modeling, insect monitoring, remote field monitoring, logistics and resource management, soil nutrition management, spray quality assessment, and yield prediction under changing climate conditions. Furthermore, Metos will provide access to its partner services via Application Programming Interfaces (APIs). The detailed roles and responsibilities of these executing partners will be outlined during the full project proposal preparation phase. The engagement of Metos in this project is not only as key executing partner, but also as a strategic partner to build the capacity and empower the local technology and services providers in the smart climate-monitoring and adaptation solutions ecosystem and to position as the lead local private sectors, e.g., Grow-Tech, in

² The Agricultural Credit Corporation (ACC) of Jordan is a public entity. Established in 1952, it was initially affiliated with the Jordan Development Council and later operated under the Ministry of Finance. The ACC provides agricultural credit to various entities, including the agricultural cooperative societies in Jordan.

the agricultural-digitization space.

The key outputs under this component include:

1. **Output 2.1:** Regenerative agriculture techniques and drought-resistant crops adopted by smallholder farmers and household income enhanced. **JVA** will be the lead executing entities of this project output.
2. **Output 2.2:** Efficient irrigation systems (assisted by weather stations and GeoAI) installed in clustered smallholder farms. **JVA** will be the lead executing entities of this project output.
3. **Output 2.3:** Postharvest loss of the target crops reduced. **UNIDO** will be the lead executing entity of this project output.
4. **Output 2.4:** Smallholders and SMEs access to climate finance and insurance strengthened. **UNIDO** will be a lead executing entity of this project output. **UNIDO** will be the lead executing entities of this project output.
5. **Output 2.5:** Enhanced livelihood diversification among vulnerable rural communities. **UNIDO** will be the lead executing entities of this project output

Output 2.1 will train smallholder farmers in drought-tolerant crop management and soil conservation techniques to mitigate the impacts of erratic rainfall and prolonged drought. The introduction of agroforestry practices will enhance soil health, biodiversity, and income diversification by integrating tested tropical fruit trees (avocado, mango, pitaya, pomegranate, guava, and citrus) with high-value vegetables and grains to reduce dependence on climate-sensitive crops. **Output 2.2** will focus on land resource mapping, installation of weather stations, and the development of an information communication hub hosted by the JVA. This system, using GeoAI technologies, will enable weather data processing, soil-nutrient monitoring, crop status tracking, and water management, helping farmers make data-driven decisions. The initiative will also pilot innovative brackish water and wastewater treatment technologies, combined with science-based blended water use techniques, to enhance water efficiency, reduce pressure on drinking water supplies, and increase crop production in water-scarce areas. **Output 2.3** will focus on reducing postharvest losses due to climate-induced spoilage by piloting common-use cold storage facilities and agro-processing centers that extend the shelf life of perishable agricultural products. The initiative will strengthen cold chain logistics and processing infrastructure, ensuring that harvested food reaches consumers with minimal waste. Additionally, farmers will receive training on sustainable packaging and transportation to increase efficiency. By reducing food wastage and enhancing value addition, this output will increase farmer revenues while improving food security. Postharvest interventions play a critical role in sustainable food production by maximizing the water economy, ensuring that more food is consumed per unit of water used. The introduction of climate-smart processing equipment, such as solar drying ovens, will enable farmers to preserve fruits and vegetables, minimize losses, and enhance product quality and market competitiveness. **Output 2.4** will support smallholder farmers and SMEs through technical assistance, including bankable business plan preparation and soft-skills development to reduce business risks. It will promote alternative income-generating activities within the agricultural value chain and provide opportunities for youth and women agripreneurs to access climate financing instruments and soft-loan mechanisms. Additionally, this output will introduce climate risk insurance schemes through collaborations with local and international climate-financing institutions, helping farmers mitigate financial risks associated with climate change. **Output 2.5:** the livelihood diversification to building the adaptive capacity of the rural vulnerable communities will be achieved through the adoption of year-round production systems, climate-resilient and diversified crop production; development of value-added products; establishment of shared cold storage and logistics facilities; and increased engagement of youth and women in agricultural input supply, irrigation and aromatization service delivery, and agripreneurship, supported by targeted skills training and business development services.

This component will integrate modern digital tools to enhance climate resilience in the agricultural sector. Weather stations and GeoAI-based systems, including a weather alarm notification system, will enable early warning alerts for droughts, floods, and pest outbreaks, allowing farmers to take preventive

action. Moreover, the project will support the development or upgrading of a climate data processing and information communication hub, which will be hosted by JVA. The hub supports early warning systems, water and crop monitoring, agronomic practices (e.g., fertigation and crop protection), and climate data sharing. This digital transformation in the agricultural sector is critical for managing climate-induced agricultural challenges, enabling proactive pest and disease management, and reducing reliance on harmful pesticides.

Component 3: Institutional capacity to strengthen enabling climate-relevant policies and adaptation strategies, enforcement readiness, and effective implementation.

This component aims to build the capacity of key government institutions to revise, align, and enforce policy and relevant legal frameworks that support climate resilient and sustainable agricultural development. It also addresses the critical need to enhance the adaptive capacity of vulnerable communities facing increasing climate variability and extreme weather events. The focus is on strengthening institutional capacity at multiple levels, from designing adaptation strategies and formulating climate action policies to enabling the structural changes required for long-term resilience. Additionally, the component will empower local institutions and organizations, with particular emphasis on the national implementing entity, the MoPIC, to effectively plan, coordinate, and implement climate-resilient solutions.

Key intervention areas include improving access to and use of climate information; strengthening climate adaptation governance; mobilizing climate finance; enhancing project monitoring, evaluation, and reporting; and reinforcing the implementation and enforcement of climate-related policies and strategies through inclusive approaches.

As outlined below, UNIDO in close partnership with MoPIC will execute this component. In addition, based on the government's request, UNIDO provides technical assistance for both outputs (Output 3.1, while Output 3.2). UNIDO's primary focus within this component will be capacity building, specifically aimed at strengthening the institutional capabilities of MoPIC, as the AF accredited national implementing entity (NIE).

Overall, key activities are specifically designed to address the systemic weaknesses that exacerbate climate vulnerability, such as limited access to climate information, weak institutional frameworks, unsustainable farming practices and adaptive technologies, lack of functional weather information systems, and gender-based disparities. These interventions are directly aligned with the following outputs, including:

1. **Output 3.1:** Climate-resilient agricultural policy recommendations and strategic action plans developed and endorsed by relevant institutions.
2. **Output 3.2:** High-level international exchange programs and exposure missions on agricultural innovations organized and local experts' awareness on climate smart agricultural practices enhanced through workshops and training programs. **MoPIC** will be part of project execution partners, with external service providers subcontracted to carry out key activities. The detailed activities and potential subcontract items and terms of references will be defined during the full project proposal preparation.

By influencing policy and planning, **Output 3.1** facilitates an enabling environment for sustained adaptation. The strategic action plans and recommendations developed by this output ensure that climate resilience becomes a structural component of agricultural development, beyond fragmented interventions. By strengthening gender-inclusiveness, the interventions further amplify resilience by tapping into the full potential of all community members in the target project locations. The intended concrete adaptation activities include (i) policy support and institutional strengthening. This activity focuses on the development of recommendations and action plans that integrate climate risks into

agricultural transformation planning at local and national levels; (ii) inclusion of climate considerations in agricultural planning. This activity reinforces the mainstreaming of evidence-based modern climate adaptation strategies into existing agricultural frameworks to ensure long-term sustainability; (iii) gender-sensitive policy frameworks. This activity ensures that the needs and contributions of women are reflected in policy development, including the promotion of technologies and strategies that alleviate their workload, especially in agronomic activities and along the supply chain engagements. These outputs create a comprehensive, synergistic approach to building resilience. While **Output 2.1 and 2.2**, provide immediate, practical support for farmers facing climate risks the policy and planning components (**Output 3.1**) institutionalize these efforts for long-term impact. This component of the project plays a pivotal role in ensuring the sustainable transformation of the agricultural sectors to remain resilient and adaptive to the changing environment. Accordingly, this component enhances individual and institutional capacities to manage and reduce climate risks, facilitates a transition to sustainable, climate-smart agricultural practices, builds inclusive systems that empower marginalized groups, particularly women, and strengthens the overall adaptive capacity of farming communities and local governance systems. This transformative approach supports addressing both short-term adaptation needs and long-term systemic changes, which leads to a measurable, lasting increase in climate resilience across the agricultural sector.

Output 3.2 aims to enhance the capacity of policy makers, agricultural experts, and extension agents to reducing the vulnerability of farming communities to climate-related risks. This will be achieved by improving their ability to plan, prepare for, and respond to climate shocks through a combination of policy level and technical capacity-building efforts. Strengthening institutional frameworks and enhancing the delivery of climate-informed agricultural services are central to this approach. At the strategic level, the component includes international exposure missions that foster regional integration, South-South, and Triangular Cooperation. These learning exchanges will raise awareness among key government stakeholders and promote peer-to-peer learning to guide potential policy reform and improved strategic planning. The goal is to equip national and subnational decision-makers with the knowledge and insight needed to design and implement policies that support climate-resilient and sustainable agriculture. On the technical front, target training programs will be provided to sector experts and agricultural extension agents. These programs will be designed to improve access to timely, accurate, and climate-relevant information, which in turn enhances the quality of extension services delivered to farmers. By strengthening this link, farmers will be better positioned to adopt adaptive practices that reduce risks and improve resilience against climate variability and extreme events. This output also includes a set of concrete adaptation activities. First, institutional and community capacity building will focus on training government officials, extension workers, and local institutions to effectively disseminate climate information and advisory services. Second, farmers will be trained in climate-smart agricultural practices such as efficient irrigation, soil fertility improvement, and climate-smart pest control. Third, technical experts will receive advanced training in precision agricultural practices, which will support improved extension services through better irrigation scheduling, soil health management, pest and disease control, yield prediction, and digital traceability systems. These tools will enable farmers to make data-driven decisions that enhance productivity and sustainability. Finally, agricultural extension systems in the target Governorates will be upgraded to integrated climate-smart advisory services. This includes the delivery of evidence-based guidance on irrigation practices, crop protection, nutrient supply, and harvest planning to smallholder farmers, cooperative unions, and private sectors.

Project Coordination and Monitoring: In addition to the core components, the project incorporates key coordination and monitoring systems to ensure effective delivery of results and to track progress throughout the project lifecycle. While this element does not directly engage in agricultural adaptation activities, it plays a critical role in enabling and supporting their successful implementation. To ensure all actions are well-aligned, thoroughly monitored, and communicated, the project will establish a dedicated coordination and monitoring framework that promotes integration, accountability, and transparency across all activities.

During the project inception, the project establishes the Project Coordination Unit (PCU). This PCU will be composed of technical and administrative staff. The PCU will oversee day-to-day implementation, ensuring all components work harmoniously towards achieving the project goals. This unit will play a central role in maintaining a unified approach, optimizing resource utilization, and ensuring strategic alignment across various project activities. Furthermore, a Project Steering Committee (PSC), i.e., a multi-stakeholder governance structure, will be established, involving representatives from government, civil society, academia, vulnerable groups, local communities, and AF NDA representatives. This structure will facilitate decision-making and help guide strategic decisions during steering committee meetings. These meetings will ensure that the project remains aligned with national climate adaptation priorities while addressing emerging challenges and ensuring that all stakeholders are effectively engaged.

In addition, the project will develop a monitoring, evaluation, and learning framework to track and assess the effectiveness of adaptation interventions. This framework will include adaptation-specific indicators, such as the number of farmers adopting climate-smart practices, gender inclusion metrics, and the capacity built in institutions. The framework will also incorporate data collection systems at the local level, including digital tools for real-time monitoring. These systems will enable timely feedback, allowing for adaptive management and course corrections as needed. Midterm and final evaluations will assess resilience outcomes and impact, ensuring that the project remains flexible and responsive to emerging needs. Furthermore, the project will develop a communication and outreach strategy to disseminate the results, good practices, and lessons learned to communities, stakeholders, and policymakers. This strategy will leverage various multimedia channels to raise awareness about climate risks and adaptation solutions. Highlighting case studies and success stories, particularly those involving women, youth, and indigenous practices, will also be a key feature of this strategy. Additionally, the project will facilitate the participation of key stakeholders in national and international climate forums, sharing project findings, engaging with global partners, and leveraging additional support for replication and scaling of successful practices. These visibility and outreach efforts will reinforce the potential for scaling up of the project's climate actions beyond the immediate project sites. By effectively communicating results, the project will contribute to knowledge transfer, behavior change, and broader climate resilience across Jordan. Public awareness campaigns will strengthen the enabling environment for sustainable practices, fostering community ownership and supporting the long-term resilience of vulnerable populations. Through these efforts, the project will ensure that its impacts extend beyond the immediate stakeholders, creating a foundation for systemic change and broad-based climate adaptation across the region.

B. Describe how the project/programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Vulnerable communities, particularly in the Jordan Valley, Irbid, Southern Amman, Ma'an, and Aqaba, are facing growing pressures from the combined effects of climate change and economic instability. Nationally, Jordan's food systems are under increasing strain, compounded by a high reliance on imported food, which undermines food sovereignty and increases exposure to global supply disruptions. Projected climate vulnerabilities, especially prolonged droughts and rising temperatures, pose a serious threat to the country's social, economic, and environmental sustainability. Without adequate preparedness and strengthened adaptive capacity, these risks may escalate. This project is designed to reinforce national efforts toward agricultural and structural transformation by modernizing the agricultural sector through the implementation of climate-resilient, technology-enabled adaptation measures. In doing so, it will enhance the sector's ability to withstand climate impacts and contribute to long-term food security and sustainable development. This project effectively aligned with the NDC, NAP, the national LTS, and SDGs, and it contributes to the achievement of international commitments under the Paris Climate Agreement.

Economically, the project will strengthen adaptive capacity by enhancing the productivity and efficiency of agricultural systems through climate-resilient and technology-assisted interventions. These include improved irrigation systems, soil fertility management, and climate-smart pest control measures, all of which contribute to enhanced and sustainable crop yields and reduced input costs over time. Furthermore, the introduction of labor-saving technologies, especially in post-harvest processing and fisheries, will open new livelihood opportunities, strengthen value chains, and ease the economic burden on households, particularly those headed by women. Socially, the project promotes inclusive capacity-building by including marginalized groups such as women, youth, and low-income households. Through training in leadership, climate-smart agriculture, and participatory decision-making, the project empowers these groups to engage in climate resilience planning and natural resource management. Enhanced early warning systems and strengthened extension services will ensure timely dissemination of information to at-risk populations, enabling proactive responses and reducing vulnerability. This community-based approach fosters social cohesion and reinforces collective resilience. Environmentally, the project supports sustainable land and water management practices that aid in restoring and preserving ecosystems. By encouraging efficient irrigation, integrated pest and nutrient management, and reduced land degradation, the project contributes to long-term ecosystem health and enhances biodiversity. Overall, the project ensures that natural resources are preserved for future generations while simultaneously supporting the livelihoods that depend on them.

Economic and Social benefits	Environment benefits
Improved and diversified household incomes	Improving soil quality and preserving the forest
Improved market opportunities	Improved ecosystem services and biodiversity
Green-job creation	Promotion of climate-smart agriculture
Food and nutrition security	Increasing resilience and reduced climate risks
Gender inclusion	Reduced waste and efficient resources
Enhanced awareness and integrate adaptation measures, and reduced vulnerability.	Reduced water and carbon footprint along the agricultural value chains

The project embraces a gender-responsive and socially inclusive approach, aligned with the Adaptation Fund’s Gender and Environmental and Social Policies, to ensure that vulnerable groups, including marginalized and underserved women, landless farmers, youth, poor families, and persons with disabilities³, and those living in climate-prone areas of the target landscapes are meaningfully included and prioritized. Women, who often face systemic barriers and bear the burden of unpaid agricultural labor, will be supported through access to climate-resilient technologies, targeted training, leadership opportunities, and participation in decision-making processes. While gender equality is essential for both men and women, women are disproportionately affected by climate change due to unequal access to resources and decision-making. Applying gender-sensitive approaches to adaptation can help by acknowledging the distinct vulnerabilities, knowledge, and roles of both genders, while also empowering women as active agents of change and innovation rather than passive victims. This not only fosters more inclusive and effective climate action but also creates a win-win scenario for sustainability and community resilience.

To avoid or mitigate any potential negative environmental or social impacts, a risk-based environmental and social management framework will be implemented to screen all activities, apply appropriate safeguards, ensure continuous monitoring, and uphold free, prior, and informed consent where applicable. No actions involving resettlement, significant land-use change, or degradation of critical ecosystems will be undertaken, and all efforts will be made to ensure that project interventions

³ According to the inclusion advisory group and global disability inclusion, a high proportion of people with disabilities live in rural communities and are highly reliant on agriculture and subsistence activities for survival. Their access to food security and nutrition, to livelihoods and to rights are consequently impacted by their degree of inclusion in CSA and by contributing factors such as climate change.

strengthen, rather than undermine, equity, inclusion, and environmental sustainability.

A. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

The proposed project demonstrates a high degree of cost-effectiveness, driven by the integration of smart farming technologies, active community engagement, and efficient resource management. This cost-effectiveness is evaluated based on the anticipated outcomes of the project's interventions, as outlined below:

Efficient Resource Utilization: The project employs advanced smart farming solutions, including GeoAI-driven recommendations, pest and disease monitoring, nutrient and water tracking, and real-time weather alerts. These technologies enable precise and optimal use of key inputs such as water, fertilizers, and renewable energy. By minimizing waste and maximizing agricultural productivity, the project reduces input costs and improves yields, thereby increasing farmers' return on investment.

Enhanced Productivity and Profitability: Data-driven decision-making supported by the smart farming system empowers farmers to boost crop yields and reduce post-harvest losses, particularly within horticultural and related value chains. This leads to higher profitability and resilience, especially for smallholder farmers, including women and youth, who gain greater protection against climate change and market volatility. The result is improved income stability and more sustainable livelihoods.

Strong Return on Investment (ROI): With an estimated total investment of US\$7,000,000 targeting 20,000 to 40,000 farming households, the cost per beneficiary falls between US\$175 and US\$350. Given the projected gains in productivity, cost efficiency, and sustainability, the project is well-positioned to generate significant economic returns relative to its initial investment.

Sustainability Through Community Participation: The project fosters long-term sustainability by promoting knowledge sharing and resource pooling among local farmers. This community-driven model reduces dependence on external support, encourages self-reliance, and ensures that the benefits of smart farming continue beyond the life of the project.

Long-Term Impact and Scalability: By embedding smart technologies into existing agricultural value chains, the project enhances resilience to climate risks and market fluctuations. Furthermore, the scalable nature of these technologies allows for broader adoption over time, extending the project's impact and reinforcing its cost-effectiveness across a growing number of smallholder farmers.

In general, the investment and technical assistance of the project will generate a high level of gain for the target vulnerable communities. By combining capacity-building, climate-smart agriculture, policy support, and technology transfer, the project maximizes outcomes without duplicating efforts. This integrated approach delivers broader benefits per unit of investment. The use of scalable and replicable practices, including training programs, extension services, and policy tools, will be designed for scalability across regions and can be adopted by other communities, leveraging existing institutional frameworks and avoiding the need for standalone systems. Furthermore, the projects' interventions that invest in proactive adaptation, such as early warning systems and sustainable farming, reduce the high costs associated with emergency response, food insecurity, and land degradation. By prioritizing the needs of women and marginalized populations, the project ensures equitable benefit distribution and reduces the cost of exclusion-related inefficiencies. Thus, the project's design ensures that every dollar spent contributes to multiple benefits, including economic resilience, social inclusion, and environmental sustainability, while minimizing the risk of maladaptation or resource waste.

B. Describe how the project/ programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies,

national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The proposed project aligns closely with Jordan's national and sub-national sustainable development strategies and climate adaptation frameworks, demonstrating strong coherence with the country's broader economic, environmental, and social policy goals. Jordan is actively advancing its Economic Modernization Vision (EMV) 2033, a 10-year strategy aimed at sustainable economic growth, job creation, and structural transformation. The project directly supports this vision by promoting climate-resilient agriculture, efficient water use, and green innovation, thereby contributing to inclusive growth and economic resilience.

The proposed project interventions are fully consistent with the National Adaptation Plan (NAP) of Jordan, which outlines adaptation priorities across vulnerable sectors. These include the water sector, where improved water use efficiency and conservation are essential to address recurrent drought, rainfall and high evapotranspiration caused by climate change; agriculture, where drought-resistant crops and enhanced irrigation systems are prioritized to counter extreme weather; health, where the NAP calls for stronger health systems and heat-related risk management; and urban development, which highlights the need for climate-resilient infrastructure and sustainable planning in response to urbanization and climate-induced hazards like flooding and heatwaves. The project's focus on climate-smart agricultural interventions, upgrading early warning systems using a combined application of weather stations and GeoAI technologies that enhance production and reduce vulnerability, directly addresses the NAP key priorities.

Furthermore, Jordan's National Climate Change Policy 2022–2050 (NCCP) provides a comprehensive framework that seeks to reduce greenhouse gas emissions, enhance adaptive capacity, and build resilience across key sectors, including water, agriculture, health, and urban development. The project supports the NCCP's objectives by integrating adaptive measures such as smart resource management, infrastructure upgrades, and community-led solutions into development planning. It also reinforces the country's ambition to achieve carbon neutrality by 2050, as outlined in the Long-Term Strategy (LTS), which is currently under finalization following stakeholder consultations and scenario modeling using the TIMES model.

The Government of Jordan has also demonstrated its climate commitment through its Nationally Determined Contributions (NDCs), aiming to reduce greenhouse gas emissions by 31% below the Business-As-Usual (BAU) level by 2030. An NDC Action Plan, identifying 35 priority projects across key sectors, is being implemented with support from the NDC Partnership. The proposed project contributes directly to these targets, particularly in the priority areas of water management, agriculture, and energy efficiency. A Cost-Benefit Analysis (CBA) conducted under the Climate Action Enhancement Package (CAEP) framework confirmed that adaptation measures in these sectors offer high economic returns and are essential for building national climate resilience.

The health sector's adaptation is also a significant policy area where alignment is evident. Under the COP26 Presidency Health Programme and COP28 Health Declaration, Jordan committed to developing a climate-resilient, low-carbon health system. The Health National Adaptation Plan (HNAP) is currently being updated with WHO support, involving a decade-long assessment of climate-sensitive health risks, ranging from respiratory and vector-borne diseases to heat stress and mental health. The proposed project aligns with these health adaptation goals by contributing to healthier rural livelihoods and climate-resilient communities.

At the sub-national level, the UNDP Adaptation Pipeline Accelerator (APA) initiative, active in regions like Ma'an, Irbid, and the Jordan Valley, is conducting vulnerability and climate risk assessments, particularly in water and agriculture. The proposed project complements these efforts by supporting local adaptation actions, technical capacity building, and gender-sensitive programming. It also aligns with the Jordan

Refugee Response Plan, addressing the climate vulnerability of displaced populations, particularly in northern and eastern regions, by supporting water access and agricultural resilience in host communities.

Overall, the project is well-aligned with Jordan's national strategies and climate commitments, including the EMV 2033, NAP, NDCs, NCCP 2050, LTS 2050, HNAP, and sector-specific adaptation plans. It contributes meaningfully to sustainable development, poverty reduction, and long-term climate resilience, reinforcing both national and international goals, including the Sustainable Development Goals (SDGs) and the Paris Agreement.

C. Describe how the project/programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The project fully complies with relevant national technical standards and aligns with the Environmental and Social Policy of the Adaptation Fund. The project is classified as Category C under the Environmental Impact Assessment (EIA), indicating that it poses minimal environmental risk and is therefore not subject to a detailed EIA study. This classification reflects the project's nature, which focuses on climate-resilient agricultural activities designed to enhance sustainability and support smallholder farmers, without causing significant adverse environmental impacts.

In instances where infrastructure development is required, such as the construction or enhancement of agricultural facilities and infrastructure, including irrigation systems and cool storage facilities, the project will adhere strictly to the technical guidelines issued by the Ministry of Environment and the Ministry of Agriculture. These guidelines ensure compliance with national standards related to environmental protection, water management, and sustainable waste disposal, thereby minimizing any ecological disruption.

Importantly, the project does not involve high-risk activities such as road construction or large dam development. Priority will be given to utilizing existing infrastructure, and where new structures are necessary, designs will be optimized to integrate with the natural environment and reduce ecological footprint. This environmentally conscious approach, supported by Jordan's robust regulatory framework, ensures that all interventions are in line with both national standards and the Adaptation Fund's environmental and social safeguards, thereby promoting climate resilience and sustainable development while safeguarding local ecosystems and communities.

D. Describe if there is duplication of project/programme with other funding sources, if any.

The proposed project has been strategically and thoughtfully designed to complement, rather than duplicate, existing and planned initiatives supported by other funding sources. It builds on the lessons learned and best practices from previous and ongoing efforts in agriculture, water management, and infrastructure development across the targeted regions of Jordan. An initial thorough review and stakeholder consultation process was conducted to map relevant interventions, assess institutional priorities, and identify critical gaps, unmet needs, and opportunities for synergy. This process confirmed that, while numerous climate adaptation and sustainable development initiatives are underway, the proposed project is distinct in scope and focus, aiming to reinforce and scale up successful interventions rather than replicate them. By aligning with the efforts of government agencies, NGOs, community-based organizations, and private sector actors, the project will act as a catalyst for coordination, promoting integrated, multi-sectoral approaches to climate resilience and sustainable development. This collaborative model ensures the efficient use of resources, strengthens institutional knowledge, and enhances the coherence of national and local climate action strategies. Furthermore, the project places particular emphasis on reaching underserved regions and vulnerable populations, expanding access to climate-resilient solutions where they are needed most. Stakeholder engagement will remain ongoing throughout the entire proposal development phase to refine project activities, avoid overlaps, and ensure continued alignment with emerging initiatives. As a result of project mapping and analysis, and the

outcome of the stakeholders' consultation coupled with field assessment, no duplication of efforts or funding has been identified at this stage. Instead, the project is positioned to add unique value by filling existing gaps and amplifying the impact of complementary programs.

The table below outlines ongoing and planned projects in the target regions, highlighting key areas of alignment and complementarity with the proposed initiative.

Table 2: List of projects related to Adaptation and resilience Actions

Project	Outcome / Output	Fund Resource	Finance Instrument & Amount	Location	Status	Complementary to avoid duplications (The purpose is to filling gaps; different but mutually reinforcing roles)	Synergies to multiply impact (The purpose is to join forces to amplify results)
Increasing the resilience of poor and vulnerable communities to climate change impacts in Jordan	Technology transfer, use of non-conventional water, reuse, rainwater harvesting	AF	Grant USD 9.226 M	Jordan Valley, Petra	Ongoing	<p>Geographic Expansion Without Overlap: The project targets areas not currently covered by similar interventions, ensuring no duplication of efforts.</p> <p>Building on Existing Achievements: Leverages the lessons learned, success stories, and innovation platforms from ongoing and completed projects in the target regions.</p> <p>Policy and Program Alignment: Complements the ongoing project's national climate adaptation and agricultural development strategies without replacing or duplicating them.</p> <p>Thematic Differentiation: Introduces geospatial data and AI to increase water and nutrient use efficiency, integrates improved crops and regenerative agriculture/agroforestry approaches where the current projects focus mainly on wastewater treatment and rainwater harvesting practices.</p>	<p>Institutional Collaboration: Strengthens collaboration with national and local executing entities, enhancing their capacity and aligning roles in implementation.</p> <p>Partnership Integration: Creates synergies with technical and development partners amplifying shared goals and resources.</p> <p>Knowledge Sharing Platforms: Facilitates learning and innovation diffusion through farmer champions, demonstration sites of the current project, and regional peer learning.</p> <p>Scaling Proven Solutions: Builds on validated climate-smart technologies and practices to expand impact and accelerate adoption across regions.</p>
Building resilience to cope with climate change in Jordan through improving water efficiency in agriculture	Enhancing adaptive capacity and resilience of water/agriculture systems	GCF	Grant USD 25 M + Co-Financing USD 8.2 M	Dead Sea Basin (Madaba, Karak, Tafileh, Ma'an)	Ongoing	<p>Geographic Differentiation: Targets different regions (Dead Sea Basin vs. Jordan Valley/Irbid).</p> <p>Thematic Complementarity: Focused on large-scale water efficiency, while the new project introduces climate-smart irrigation for smallholder farmers, GeoAI, and regenerative practices.</p> <p>Technology Diversification: Brings new practices like precision agriculture tools and organic waste valorization not covered under the GCF project.</p>	<p>Data and Knowledge Integration: Share soil-moisture and weather monitoring platforms to strengthen water governance across regions.</p> <p>Scaling Climate-Smart Practices: Join efforts in promoting efficient irrigation technologies and drought-resistant crops to maximize water savings impact.</p>

Creating Sustainable Jobs through Green Economy	Green employment and skills development	KOICA	Grant USD 6 M	Amman, Mafraq, Zarqa, Irbid	Ongoing	<p>Target Group Differentiation: Focuses on skills training and employment across sectors, while the new project tailor capacity building toward agro-entrepreneurship, youth-led climate-smart farming, and green innovation.</p> <p>Complementary Livelihood Strategies: Enhances entrepreneurship modules where the project focuses on business incubation in climate-resilient value chains.</p>	<p>Joint Youth Empowerment Platforms: Synergize through agripreneurship centers and urban food hubs, expanding outreach to vulnerable youth and women.</p> <p>Amplifying Green Jobs: Cross-link vocational trainings and green economy pathways aligned with climate-resilient agriculture business models.</p>
Adaptation Programme – Regional	Enhancing resilience of communities and ecosystems	AFD, EU	Grant (EUR 6 M EU, EUR 1.5 M AFD)	Jordan, Palestine, Lebanon	Approved/Started	<p>Geographic and Institutional Complementarity: Operates regionally (Jordan, Palestine, Lebanon) whereas the project focuses on Jordan’s local adaptation models in rural and peri-urban areas.</p> <p>Thematic Enhancement: Focuses on multi-sector resilience, while this project deep-dives into agriculture innovation, digitalization, and green value chains.</p>	<p>Knowledge and Technology Transfer: Exchange best practices on adaptation technologies like rainwater harvesting, and regenerative agroforestry across countries.</p> <p>Regional Learning Networks: Jointly build regional resilience platforms showcasing Jordan’s innovations under this project.</p>
Jordan Integrated Landscape Management Initiative (JILMI)	Integrated ecosystem management for resilience	GCF	Grant USD 45 M	Jordan Valley	Approved/Started	<p>Thematic Complementarity: JILMI promotes ecosystem-level resilience and water conservation, while this project focuses on farm-level regenerative agriculture, postharvest handling, and climate-smart technologies.</p> <p>Spatial Differentiation: Avoids duplication by focusing on smallholder farms and vulnerable households rather than broad landscape restoration.</p>	<p>Mutual Reinforcement: Link landscape management approaches with community-level innovations such as urban hydroponics, organic waste-to-feed systems, and mobile digital solutions.</p> <p>Policy Coherence: Support joint scaling of integrated water and agriculture management practices aligned with national adaptation priorities.</p>
<i>Increasing the resilience of both displaced persons and host communities to climate change-related water challenges in Jordan and Lebanon (2021–2025; AF; US\$13,968,139)</i>	Increase the response to water-related climate change vulnerability in Jordan and Lebanon	AF	Grant US\$ 14 M	Mafraq and Irbid	Ongoing	<p>Target Group Focus Complementarity: UN-Habitat project concentrates on water infrastructure and planning for displaced populations and host communities; the current project emphasizes agriculture innovation and resilience among rural farmers and youth entrepreneurs.</p> <p>Thematic Differentiation: Their project is water security and urban planning-focused; ours is agricultural productivity, digital agriculture, and green value chain development.</p>	<p>Strengthening Climate Resilience Nexus: Link municipal water-saving plans with climate-resilient agriculture hubs (urban and peri-urban).</p> <p>Joint Capacity Building: Cross-training on smart water solutions and climate-informed farming practices for displaced persons, host communities, and vulnerable farmers.</p>

	within the context of the ongoing Syrian crisis.						
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E. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The project includes a dedicated learning and knowledge management component to ensure that insights, innovations, and lessons learned are systematically captured, documented, and disseminated. Building on the gaps identified in previous agricultural and rural development initiatives, this project emphasizes climate-smart agriculture, diversified livelihoods, and inclusive capacity-building through the deployment of innovative solutions such as the smart-farming system. This system not only equips farmers with real-time data and decision-making tools to enhance productivity and resilience but also serves as a practical model for learning and demonstration.

The project will actively document implementation experiences, both challenges and successes, through regular monitoring, participatory evaluations, and community feedback mechanisms. These insights will be synthesized into user-friendly knowledge products such as training manuals, technical briefs, policy recommendations, and digital learning modules. These materials will be shared with stakeholders across sectors, including farmers, local authorities, NGOs, and development partners, through knowledge-sharing platforms, community workshops, field demonstrations, and national learning forums.

Special emphasis will be placed on gender-responsive and youth-inclusive learning approaches, ensuring that marginalized voices are reflected in the knowledge-generation process. The project will facilitate peer-to-peer learning and community exchange visits to enable local farmers, especially women and youth, to share indigenous knowledge and learn from successful experiences in similar contexts. Moreover, by fostering collaboration with existing national and regional initiatives, the project will create synergies through joint learning activities, resource-sharing, and the promotion of scalable best practices.

Through these mechanisms, the project will contribute to a broader form of knowledge on climate resilience and sustainable agriculture, support evidence-based policymaking, and build institutional and community capacities to replicate and upscale effective interventions beyond the project's lifespan.

F. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

The project preparation phase employed an inclusive and participatory consultative process, fully aligned with the Environmental and Social Policy and Gender Policy of the Adaptation Fund. The approach began with a comprehensive stakeholder mapping exercise to ensure broad engagement across public institutions, civil society, the private sector, and vulnerable groups, including women and youth.

Initial consultations were conducted with key government stakeholders, including the Ministries of Agriculture, Environment, and Water and Irrigation/Jordan Valley Authority (JVA). These discussions focused on aligning the project with national adaptation priorities, climate policy frameworks, and water governance strategies.

Engagement with Civil Society Organizations (CSOs) and Non-Governmental Organizations (NGOs) provided insights into the specific climate-related challenges faced by vulnerable populations. These discussions highlighted barriers to equitable access to climate-resilient smart agricultural practices and efficient water resources use, particularly for women, youth, and smallholder farmers.

Consultations extended to private sector actors, such as the Jordan Exporters & Producers Association for Fruit & Vegetables (JEPA), who shared perspectives on market access constraints, export potential,

and financing challenges related to climate-smart agricultural technologies. Additionally, dialogues with technology and service providers, such as GrowTech and Mate Company, explored the integration of innovative solutions, including AI-driven agricultural tools, remote sensing for soil monitoring, and advanced irrigation technologies.

Engagements with financial institutions, such as the Agricultural Credit Corporation (ACC), were also undertaken to evaluate the existing financial mechanisms and their accessibility for smallholder farmers and women entrepreneurs to invest in climate-resilient practices

Building on Jordan’s adaptation priorities and Nationally Determined Contributions (NDCs), vulnerable groups in Irbid, Amman, Madaba, and Aqaba were identified, with a special focus on small-scale farmers in the Jordan Valley and vulnerable urban communities in Amman and Aqaba. Field visits to these regions enabled direct engagement with farmers, cooperatives, and agribusinesses, allowing the project team to assess local vulnerabilities, capacity-building needs, and interest in sustainable practices such as hydroponics, aquaponics, and post-harvest management.

Consultations with the Aqaba Special Economic Zone Authority (ASEZA), and local community representatives were conducted to explore opportunities to pilot modern and climate-smart aquaponic farms in a public-private-partnership (PPP) business model, and hydroponic and aquaculture farmers with agricultural SMEs and youth and women associations. During the consultation meeting with the ASEZA team, land acquisition and in-kind contributions were proposed by the senior management. Accordingly, an innovative climate smart aquaponic farm got proposed for Aqaba as a triple purpose benefits for the locals and Aqaba administration, which includes local (i) food production for local consumption (ensuring sustainable food and nutrition security in cities); (ii) serving as living-lab for youth entrepreneurs and students; (iii) piloting the actualization of future food sovereignty in the region.

The consultative process culminated in a multi-stakeholder workshop held in Amman, which brought together representatives from government ministries, CSOs, financial institutions, academia, the private sector, and research organizations. The workshop provided a platform to validate the project’s intervention framework and identify key priorities, including:

- Expansion of climate-smart irrigation systems
- Development of digital marketing platforms
- Capacity building for value-added crop production
- Promotion of financial inclusion for small-scale and marginalized farmers

This inclusive and participatory process will continue throughout the full proposal development phase, ensuring iterative feedback, enhanced coordination, and the refinement of project activities. This approach guarantees that the project remains responsive to the needs of vulnerable communities, while promoting gender equity and adhering to the Adaptation Fund’s social and environmental safeguards.

A summary table of key stakeholders consulted, including public institutions, private entities, research centers, and women- and youth-led NGOs, is provided below:

Table 3: Main stakeholders and potential partners.	
Partner	Entity
Public line ministries and national institutions	Ministry of Environment
	Ministry of Agriculture
	Ministry of Water and Irrigation/ Jordan Water Authority
	Ministry of Planning and Intentional Cooperation
	National Agriculture Research Center (NARC)
	Agriculture Credits Corporation (ACC)
	Aqaba Special Economic Zone Authority (ASEZA)
Local NGOs	Jordan Export and Production Association

	Water User Association in JVA, including: <ul style="list-style-type: none"> - Baladna AL Karameh region) - Pump station 55 (Meddle JV) - Development area (North JV) - Al Ramah (Southern JV)
	Jordanian Women’s Network Association
	Asia Environment Association
	Al Balawneh Charity Association
	AlJawhara Charity Association
Private Sector	Eco Consult Company
	Grow Tech Company
	Mate Company Technology Suppliers
	Arabicjo Company nurseries company

G. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

The requested amount of US\$ 7,000,000 is fully justified based on the comprehensive scope of the project and its alignment with the full cost of adaptation principle. Jordan is among the world’s most water-scarce countries and faces increasing vulnerability due to rising temperatures, declining rainfall, and recurrent droughts, all of which severely impact agricultural productivity and rural livelihoods. These climate-induced challenges are compounded by the country’s limited adaptive capacity, especially among smallholder farmers, women, and youth groups that are most exposed to climate risks yet have the least means to cope.

The proposed project addresses these vulnerabilities by introducing integrated, climate-resilient solutions that go beyond incremental improvements and instead build long-term resilience in a transformative manner. A key component of the project is the adoption of smart farming technologies, including data-driven recommendations for irrigation scheduling, precision fertilization, pest and disease control, and weather alerts, which enable farmers to make timely, informed decisions and respond more effectively to climate variability. These innovations are essential adaptation measures, not business-as-usual development practices, as they specifically target climate-related stressors that are undermining food security and economic stability in rural areas.

In addition to smart farming, the project promotes climate-resilient agriculture practices such as agroforestry, drought-resistant crops, and improved water-use efficiency, and enhancing circularity demonstrated by the intended pilot urban aquaponic farm, while also supporting alternative livelihood options. These interventions are designed to reduce dependence on climate-sensitive crops, diversify income streams, and enhance household resilience. Without this adaptation support, many small-scale farmers risk further marginalization as conventional agricultural methods become less viable under worsening climate conditions.

The full cost of adaptation is also reflected in the project’s focus on capacity building, knowledge transfer, and institutional strengthening. The funding will support training programs, farmer field schools, demonstration plots, and local market development, ensuring that adaptation measures are accessible, locally owned, and scalable. By leveraging existing infrastructure where possible and incorporating resource-efficient technologies, the project maximizes cost-effectiveness while minimizing environmental impact. These measures are not merely developmental, but they are essential investments to safeguard livelihoods against climate risks that are already materializing and expected to intensify.

Furthermore, the project is strategically aligned with Jordan’s National Adaptation Plan (NAP) and contributes directly to national climate priorities, including sustainable water management, food security, and inclusive economic development. It also supports the implementation of the Sustainable

Development Goals (SDGs), particularly SDG2 (Zero Hunger), SDG3 (Good Health and Wellbeing, SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 15 (Life on Land). By addressing systemic climate vulnerabilities and strengthening community-level resilience, the proposed investment represents a high-impact, scalable adaptation solution with long-term benefits for both people and ecosystems.

Overall, the requested funding represents the full cost of enabling vulnerable communities in Jordan to adapt to the adverse effects of climate change. It fills critical adaptation gaps that cannot be addressed through market mechanisms or domestic resources alone, thereby ensuring that adaptation actions are not only implemented but are effective, equitable, and sustainable.

H. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.

The sustainability of the project’s outcomes has been a core consideration throughout its design, with a multi-dimensional approach that ensures long-term impact beyond the project’s implementation period. Central to this strategy is a strong emphasis on local capacity building and community empowerment. The project invests in training and knowledge-sharing initiatives that equip local stakeholders, particularly farmers, water user associations, and community-based organizations with the skills needed to sustainably manage land and water resources. This includes the strengthening of local institutions, such as water associations and the Jordan Valley Authority, to promote decentralized and inclusive governance of natural resources, mainly land and water. By fostering local ownership, the project ensures that the knowledge, tools, and systems introduced are maintained and replicated long after the project ends.

Equally important is the project’s focus on livelihood security and economic resilience, which is vital to sustaining development gains in rural communities. By promoting climate-resilient agricultural practices and introducing livelihood diversification options such as aquaponics, the project enhances household income stability and reduces dependency on climate-sensitive activities. These diversified income streams act as buffers against environmental shocks, helping communities to better absorb and recover from the impacts of extreme weather events, droughts, or market volatility.

In addressing Jordan’s chronic water scarcity challenges, the project adopts integrated land and water management approaches, such as aquifer recharge, efficient irrigation technologies, and water conservation techniques. These interventions are designed to have lasting environmental benefits by improving groundwater replenishment, reducing water loss, and ensuring sustainable water use for future agricultural needs. All physical interventions and natural resource management practices are carefully designed to comply with national environmental standards, minimizing ecological disturbance and reinforcing the project’s environmental sustainability.

The project’s community-based approach, combined with strict environmental safeguards and strong alignment with national policies and strategies, ensures that it complements and strengthens ongoing national efforts in climate adaptation and sustainable development. By embedding sustainability across technical, institutional, economic, and environmental dimensions, the project not only delivers immediate climate resilience benefits but also builds the foundation for scalability, replication, and intergenerational impact, ensuring that the benefits endure well beyond the project’s duration and reach a broader set of beneficiaries over time.

I. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

Checklist of environmental and	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
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social principles		
Compliance with the Law	✓	<p>Risk: There is a potential risk of non-compliance with applicable domestic and international laws and regulations, particularly regarding environmental protection, land use, water management, labor standards, and procurement procedures.</p> <p>Likelihood: Low</p> <p>Potential Impact: High – Non-compliance could lead to legal liabilities, project delays, reputational damage, or the halting of project activities.</p> <p>Mitigation and Management Measures: The project implementing entity (PIE) will ensure full compliance with all applicable national laws, regulations, and international obligations relevant to the project. As part of the project implementation process, a thorough legal and regulatory review will be conducted to identify any activity requiring prior approval, permits, or licenses. Where such requirements are identified, the PIE will coordinate with relevant government authorities to obtain the necessary clearances promptly. The IE will also maintain continuous monitoring to ensure legal compliance throughout the project lifecycle, and any changes in the regulatory environment will be reviewed and addressed proactively. A legal compliance checklist will be integrated into the project’s monitoring and reporting system to ensure ongoing adherence and transparency.</p>
Access and Equity	✓	<p>Risk: Inability to ensure and monitor fair and equitable access to all community members.</p> <p>Likelihood: Low</p> <p>Potential Impact: Low</p> <p>Assessment and Management Measures: To mitigate the risk of inequitable access and ensure that the project benefits are distributed fairly, the PIE will take proactive steps to uphold the principles of access and equity. The project will be designed and implemented in an inclusive manner that guarantees non-discriminatory access to all community members, including marginalized or vulnerable groups, and does not hinder any group’s access to essential services or rights.</p> <p>Key measures include:</p> <p>Stakeholder Mapping: A comprehensive mapping exercise will be conducted to identify all relevant stakeholders, including potential beneficiaries, disadvantaged or marginalized groups, displaced communities, and host communities. This will ensure that all voices are represented in the planning and implementation stages.</p> <p>Risk Analysis: A targeted analysis will be undertaken to assess potential risks that could limit access to project benefits, exacerbate existing inequalities, or impede access to critical services. The outcomes of this assessment will guide mitigation strategies.</p> <p>These measures will be embedded throughout the project cycle from planning to implementation and monitoring to ensure that equity and inclusion are not only upheld but also actively promoted. Continuous stakeholder engagement and grievance redress mechanisms will further support this effort, ensuring transparency, fairness, and responsiveness.</p>
Marginalized and Vulnerable Groups	✓	<p>Risk: The project may unintentionally impose disproportionate adverse impacts on marginalized and vulnerable groups.</p> <p>Likelihood: Low</p>

		<p>Potential Impact: Moderate to High</p> <p>Assessment and Management Measures: To ensure that the rights and needs of marginalized and vulnerable groups are adequately addressed, the project has undertaken an initial stakeholder mapping and consultation process. These groups were preliminarily identified and engaged during the field mission and through a national workshop held in Amman, Jordan on March 12, 2025, during which participants voiced key concerns, needs, and expectations. The full list of participants, a summary of consultation outcomes, and specific concerns raised will be documented and included in the fully developed proposal.</p> <p>While the initial engagement served as a foundation, a more detailed and participatory analysis will be conducted during the full proposal development stage. This will include:</p> <p>Identification and Quantification: A comprehensive mapping exercise will be conducted to accurately identify and quantify marginalized, minority, and vulnerable groups within the project’s targeted geographic areas.</p> <p>Characterization of Groups: Key characteristics, vulnerabilities, and socio-economic conditions of each group will be assessed to understand their specific needs and challenges.</p> <p>Impact Assessment: The project will analyze any potential adverse impacts these groups may face, i.e., social, economic, or environmental, and ensure these risks are identified and addressed in project design.</p> <p>Monitoring Mechanisms: A robust monitoring and grievance redress mechanism will be established to track the project’s impact on these groups throughout implementation. This will include regular engagement, feedback loops, and the integration of safeguards to prevent exclusion or harm.</p> <p>These efforts aim to ensure that the project remains inclusive, equitable, and aligned with the Environmental and Social Policy of the Adaptation Fund, particularly its principles of non-discrimination, equity, and human rights. The final project design will include targeted actions to enhance the participation, protection, and empowerment of these groups, helping to safeguard their interests while promoting climate resilience and social cohesion.</p>
Human Rights	✓	<p>Risk: Occurrence of human rights violations</p> <p>Likelihood: Low</p> <p>Potential Impact: Moderate to High</p> <p>Assessment and Management Measures: While the likelihood of human rights violations occurring under the project is considered low, the potential consequences, should such violations arise, could be significant. Therefore, the project has incorporated robust safeguards to ensure full respect for human rights throughout its planning and implementation. The project will strictly adhere to national and international human rights frameworks, including the Universal Declaration of Human Rights (UDHR) and relevant national laws and policies that protect the rights of all individuals, with particular attention to vulnerable and marginalized groups, such as women, youth, indigenous peoples, and refugees.</p> <p>To prevent any inadvertent infringement of rights, inclusive stakeholder consultations will be conducted during project formulation, implementation, and monitoring. These consultations will serve to</p>

		<p>identify and address any potential human rights concerns proactively. The PIE will ensure that human rights considerations are systematically integrated into the project's design and execution, including informed participation of affected communities in decision-making processes.</p> <p>A human rights screening will be conducted to provide an overview of any relevant issues specific to the project context. During implementation, a grievance redress mechanism (GRM) will be established to allow individuals and communities to raise concerns confidentially and seek resolution in a timely and fair manner.</p> <p>Furthermore, the project's monitoring and evaluation framework will include specific indicators to track compliance with human rights standards, and periodic assessments will be conducted to ensure that interventions are not causing harm or discrimination. By embedding these safeguards and procedures, the project minimizes risks and strengthens its commitment to promoting equitable, inclusive, and rights-based climate resilience outcomes</p>
<p>Gender Equality and Women's Empowerment</p>	<p style="text-align: center;">✓</p>	<p>Risk: Unequal access to project benefits between men and women</p> <p>Likelihood: Moderate</p> <p>Potential Impact: Moderate to High</p> <p>Assessment and Management Measures: While the project is designed to benefit all members of the target communities, there is a moderate risk that existing gender disparities, such as limited land ownership, restricted access to agricultural inputs, finance, or decision-making spaces, may lead to unequal access to project resources and benefits. This may especially affect women, youth, and other marginalized groups, potentially reinforcing existing inequalities or inadvertently excluding them from meaningful participation.</p> <p>To address this, gender equality will be mainstreamed across all components of the project. An initial gender analysis has been conducted, identifying key gaps and barriers, and this will be further expanded into a comprehensive gender assessment during the full proposal development stage. This in-depth analysis will examine the current gender dynamics, roles and responsibilities, access to and control over resources, and the legal and institutional context that may influence gender outcomes.</p> <p>The PIE will proactively assess risks of exclusion and identify opportunities to promote women's empowerment and ensure equitable access to project benefits. Specific actions will include:</p> <ul style="list-style-type: none"> • Designing inclusive capacity-building activities that cater to the needs and constraints of both women and men. • Ensuring equal participation in decision-making structures, such as water user associations and farmer cooperatives. • Promoting women-led enterprises and livelihood diversification options like aquaponics (aquaculture + hydroponic). • Incorporating gender-sensitive indicators in monitoring and evaluation frameworks. • Engaging with local women's organizations and stakeholders to inform gender-responsive implementation strategies. <p>By embedding these proactive measures and maintaining continuous gender-sensitive monitoring, the project will mitigate potential adverse effects and foster greater equity and empowerment for women and other vulnerable groups, contributing to broader social inclusion and sustainable development outcomes</p>
<p>Core Labour Rights</p>	<p style="text-align: center;">✓</p>	<p>Risk: Project activities may inadvertently fail to comply with core labour standards due to limited awareness or understanding of labour rights among implementing partners and stakeholders.</p> <p>Likelihood: Low</p>

		<p>Potential Impact: High</p> <p>Assessment and Management Measures: While the likelihood of this risk assumption is low, the potential impact on workers' rights and project credibility is significant. To mitigate this, the project will fully adhere to core labour standards as outlined by the International Labour Organization (ILO), as well as relevant national labour laws. These standards will be embedded in the project's design, procurement processes, and implementation protocols.</p> <p>Specific measures include:</p> <ul style="list-style-type: none"> • Integrating labour rights compliance into all project contracts and agreements with executing partners and service providers. • Conducting orientation and awareness sessions for project staff, implementing partners, and community participants on core labour standards, including non-discrimination, freedom of association, the elimination of forced and child labour, and safe working conditions. • Monitoring and enforcement mechanisms will be established to ensure compliance, including regular field assessments and grievance redress procedures that allow workers to report violations safely and anonymously. • Capacity-building activities will be incorporated to strengthen understanding of labour rights and responsibilities among stakeholders, particularly in rural and marginalized communities where awareness may be limited. <p>These proactive measures will help ensure that the project promotes decent work conditions and upholds labour rights, in full alignment with the Environmental and Social Policy of the Adaptation Fund.</p>
Indigenous Peoples	No risk observed, but a full risk assessment will be undertaken at the fully developed proposal stage.	<p>Risk: The project implementation affects indigenous peoples' rights and ownership of resources, and the displacement of indigenous people.</p> <p>Likelihood: Low</p> <p>Potential Impact: High</p> <p>Assessment and Management Measures: In accordance with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and relevant national frameworks, a preliminary screening has been conducted to identify the presence of Indigenous Peoples within the targeted project areas. Based on this initial assessment, and using the UNDRIP's definition, it has been confirmed that there are no Indigenous Peoples residing in or holding customary rights to the project sites. Therefore, no direct risks or adverse impacts on Indigenous Peoples are currently anticipated.</p> <p>Nonetheless, the project team is committed to applying a precautionary and inclusive approach throughout the project development process. To ensure compliance with the Environmental and Social Policy of the Adaptation Fund and uphold human rights and social safeguards, a comprehensive risk assessment will be conducted during the full proposal stage. This will include stakeholder consultations, ground-level assessments, and verification processes to reconfirm the absence of Indigenous Peoples and to ensure that no groups meeting the criteria are inadvertently excluded from consultation or consideration.</p> <p>The project will continue to observe best practices in stakeholder engagement, and if any previously unidentified groups that may</p>

		<p>qualify as Indigenous Peoples under international standards are recognized during the due diligence process, appropriate mitigation measures, including free, prior, and informed consent (FPIC), will be implemented in alignment with UNDRIP and national legislation.</p>
Involuntary Resettlement	<p>No risk observed, but a full risk assessment will be undertaken at the fully developed proposal stage</p>	<p>Risk: The project does not involve any planned land acquisition or activities that would directly require the physical or economic displacement of individuals or communities. However, some infrastructure components (e.g., development of aquaponic farms, hydroponic farms, small-scale agricultural facilities, and development of value addition and cool storage facilities) may carry a low potential for land access-related issues if not properly screened.</p> <p>Likelihood: Low</p> <p>Potential Impact: Medium/low</p> <p>Assessment and Management Measures: A full social and environmental risk assessment will be conducted during the detailed project design phase. Site-specific screening will ensure that all activities avoid any form of involuntary resettlement. Where land is required, the project will prioritize use of public or voluntarily contributed land, with proper documentation and community consent. The project will adopt the Environmental and Social Policy of the Adaptation Fund, including safeguard principles on land access and community engagement. Grievance redress mechanisms will be established to resolve any land-related concerns quickly and fairly.</p>
Protection of Natural Habitats	<p>No risk observed, but a full risk assessment will be undertaken at the fully developed proposal stage</p>	<p>Risk: The project activities will be implemented on land already in use for agricultural purposes. Therefore, there is no anticipated encroachment upon or degradation of untouched natural habitats.</p> <p>Likelihood: Low</p> <p>Potential Risk: Low</p> <p>Assessment and Management Measures: At the full proposal stage, a comprehensive Environmental and Social Risk Assessment will be undertaken to ensure that project activities do not unintentionally affect sensitive ecosystems. Site selection will strictly avoid areas of ecological importance or natural habitats, in alignment with national environmental regulations and land-use planning frameworks. All activities will be designed and implemented in compliance with applicable zoning laws and environmental standards to ensure sustainable and responsible land use.</p> <p>To further safeguard surrounding environments, the project will include regular environmental monitoring and continuous stakeholder engagement to promptly identify and address any unforeseen impacts on adjacent natural areas. Additionally, project designs will incorporate environmentally sound practices, including the establishment of buffer zones and the use of low-impact construction methods where needed, to minimize ecological disruption and promote long-term environmental sustainability.</p>
Conservation of Biological Diversity	<p>✓</p>	<p>Risk: The project may affect biodiversity through activities near sensitive ecosystems, restoration interventions, or agricultural intensification.</p> <p>Likelihood: Medium</p> <p>Potential Risk: High</p>

		<p>Assessment and Management Measures: To mitigate these risks, the project will conduct environmental screenings to identify biodiversity hotspots and avoid critical habitats. Restoration efforts (if required) will use only native or naturalized species, and sustainable agricultural practices will be promoted. Buffer zones will be established where necessary, and biodiversity conservation will be integrated into local capacity-building and awareness programs. Regular monitoring and adaptive management will ensure that biodiversity is protected and that interventions remain aligned with national environmental guidelines.</p>
Climate Change	✓	<p>Risk: Occurrence of unforeseen climate hazards, including prolonged droughts, extreme heatwaves, or shifts in seasonal rainfall patterns that could impact agricultural productivity or water availability.</p> <p>Likelihood: Low</p> <p>Potential Impact: High</p> <p>Assessment and Management Measures: While the likelihood of severe climate hazards occurring during the project implementation period is considered low, their potential impact on agricultural systems and rural livelihoods is high. Therefore, the project proactively integrates climate change adaptation as a central pillar of its design. Measures include the promotion of climate-resilient agricultural practices, the adoption of efficient irrigation systems, and the use of climate-smart technologies such as weather-based early warning systems and drought-resistant crop varieties.</p> <p>To ensure full compliance with environmental and social safeguards, the project will undertake a qualitative climate risk assessment to evaluate its exposure to major climate hazards and assess its potential impact on the environment, particularly concerning carbon capture and sequestration capacity (e.g., soil health, vegetation cover, and water resources). These assessments will be integrated into the project's environmental and social management framework and reviewed periodically to adapt strategies as needed. Based on this comprehensive assessment, the project will not only address direct climate risks but also enhance the adaptive capacity of target communities and contribute positively to broader national climate resilience and mitigation goals.</p>
Pollution Prevention and Resource Efficiency	✓	<p>Risk: There is a potential risk of increased pollution and inefficient use of natural resources due to the introduction of new agricultural practices, infrastructure development (e.g., aquaculture, hydroponics, and pilot infrastructure development for agricultural transformation, and small-scale irrigation systems), and the use of agricultural inputs such as fertilizers or feed.</p> <p>Likelihood: Low</p> <p>Potential Impact: High</p> <p>Mitigation and Management Measures: The project will implement a comprehensive set of pollution prevention and resource efficiency measures in line with national environmental regulations and international best practices. These include:</p> <ul style="list-style-type: none"> • Adhering to environmental standards for emissions, effluents, and waste disposal as established by the Ministry of Environment and relevant authorities. • Promoting efficient use of water, energy, and raw materials

		<p>through smart farming technologies, precision irrigation, renewable energy use, and improved nutrient management.</p> <ul style="list-style-type: none"> • Applying sustainable agricultural inputs and practices, including organic fertilizers, integrated pest management (IPM), and locally adapted crop varieties to reduce dependency on chemical inputs. • Waste minimization and management plans will be integrated into all project components to ensure proper handling, treatment, and reuse/recycling of organic and non-organic waste (e.g., aquaculture and agricultural residues, packaging, agricultural runoff). • Capacity-building activities will include environmental training for beneficiaries and project staff to raise awareness of pollution risks and resource-efficient practices. • Environmental monitoring mechanisms will be established to assess resource usage and detect potential pollution risks throughout the project lifecycle, with corrective actions taken promptly if needed. <p>These proactive and precautionary measures will ensure that the project not only avoids environmental harm but also contributes to improved resource efficiency, waste reduction, and long-term sustainability of natural ecosystems.</p>
Public Health	✓	<p>Risk: Potential negative impact on public health</p> <p>Likelihood: Low</p> <p>Potential Impact: High</p> <p>Assessment and Management Measures: Although the likelihood of adverse public health impacts is considered low, the project recognizes that even minimal risks can have significant consequences if not properly managed. To mitigate this, the project will integrate health impact screening and assessments into its planning and implementation processes. These assessments will be conducted by World Health Organization (WHO) guidelines and national health and safety standards, ensuring that all project interventions, particularly those involving water management, aquaculture + hydroponics, and agricultural inputs, do not compromise community health.</p> <p>Specific attention will be given to issues such as waterborne diseases, waste management in aquaponic systems, and exposure to agrochemicals, where applicable. Where potential risks are identified, the project will implement preventive and corrective measures, including public awareness campaigns, safe handling training, and environmentally friendly practices to safeguard human health. Coordination with the Ministry of Health and relevant local health authorities will be maintained throughout the project to ensure alignment with national health policies and to facilitate monitoring, response, and risk mitigation strategies. This proactive and systematic approach ensures that public health remains protected while achieving the project's climate resilience and livelihood objectives.</p>
Physical and Cultural Heritage	No risk observed	
Lands and Soil Conservation	✓	<p>Risk: Degradation or conversion of productive land that provides essential ecosystem services.</p> <p>Likelihood: Low</p>

		<p>Potential Impact: Moderate to High</p> <p>Assessment and Management Measures: While the likelihood of land and soil degradation is considered low, the potential impact on ecosystem services and productive land use is recognized as moderate to high, warranting proactive management. To mitigate this risk, the project will integrate comprehensive soil and land conservation strategies into both the design and implementation phases. This will include the identification of areas with fragile soils, mapping zones vulnerable to erosion or degradation, and evaluating activities that may pose a risk to soil stability using GeoAI technology application.</p> <p>The PIE will conduct a detailed assessment to pinpoint potential sources of soil degradation and prioritize interventions in high-risk areas. Specific measures to be adopted include sustainable land management practices, erosion control techniques, contour farming, use of organic soil amendments, and buffer zone establishment in areas of ecological sensitivity. In addition, the project will promote awareness and training among farmers and local communities to ensure the adoption of best practices in soil conservation.</p> <p>Monitoring protocols will be put in place to track land use changes and soil health indicators throughout the project lifecycle. These steps will help safeguard ecosystem services, maintain agricultural productivity, and ensure that project activities do not inadvertently contribute to land degradation, thereby strengthening both the environmental and social sustainability of the project.</p>
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PART III: IMPLEMENTATION ARRANGEMENTS

A. Demonstrate how the project/ programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s) ¹	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
<p>Overall objective: To build the resilience of 20,000 – 40,000 vulnerable farmers, youth, and women (direct beneficiaries) and 100,000 (indirect beneficiaries), of which 50 percent will be women, predominantly in rural communities through modern and evidence-based climate-responsive agricultural technologies and GeoAI application.</p>				
<p>Enhance community resilience through climate-smart agricultural practices and climate adaptation technologies and increase green job opportunities for vulnerable women and youth.</p>	<p># of smallholder farmers enhanced their climate change adaptation capacity and improved their living conditions</p> <p># of green jobs generated for vulnerable women and youth</p>	<p>Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p>	<p>6.1 Percentage of households and communities having more secure access to livelihood assets</p> <p>6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods</p>	<p>7,000,000</p>
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
<p>Component 1: Climate Smart (CS) and Water Efficient Urban Farm System for Resilience and Adaptation to Climate Change</p>				
<p>Outcome 1: Climate resilience in urban food systems enhanced by mainstreamed CSA technologies that increase productivity in the face of critical water scarcity.</p>	<p># youth and women trained in CSA and agripreneurship.</p> <p># of wastewater/brackish water treatment technologies promoted.</p> <p>Liters of fresh water saved by utilizing water treatment technologies and blended water irrigation practices.</p> <p># of green jobs generated for youth and women</p> <p># of new climate resilient technologies adopted</p> <p># of bioeconomy practices demonstrated</p> <p># of farmers and agripreneurs (disaggregated by</p>	<p>Output 6: Targeted individual and community livelihood strategies strengthened to adapt to climate change impacts, including variability</p> <p>Output 8: Viable innovations are rolled out, scaled up, encouraged, and/or accelerated.</p>	<p>6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies</p> <p>6.2.1. Type of income sources for households generated under the climate change scenario</p> <p>8.1. No. of innovative adaptation practices, tools, and technologies accelerated, scaled-up, and/or replicated</p> <p>8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated</p>	<p>1,400,000</p>

	<p>gender) reporting engagement in diversified income-generating activities, such as agritourism services, food logistics (including supply to communities and hospitality sectors), feed and biofertilizer production and distribution, food aggregation, and local market sales.</p> <p>Tons of horticultural products supplied to the local and export market.</p> <p># of households improved their food and nutrition security.</p>			
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Component 2: Climate-Resilient Agriculture and Rural Livelihood Diversification

<p>Outcome 2: Rural agricultural resilience and farmers' income enhanced through the integration of agricultural innovations.</p>	<p># Number of smallholder farmers reported an increase in crop productivity (% women)</p> <p># of green jobs generated for youth and women (50% women)</p> <p>% of household incomes increased after the project interventions.</p> <p># of new climate resilient technologies adopted</p> <p># of smallholder farmers adopted appropriate climate adaptation technologies and practices</p> <p># of improved drought and salinity tolerant seeds/ seedlings distributed.</p> <p># of smallholder farmers reported more diverse</p>	<p>Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at the local level</p> <p>Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p> <p>Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated.</p>	<p>3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses</p> <p>3.2. Percentage of targeted population applying appropriate adaptation responses</p> <p>6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies</p> <p>6.2.1. Type of income sources for households generated under climate change scenario</p> <p>8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated</p> <p>8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated</p>	<p>3,568,660</p>
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	<p>income sources (disaggregated by gender)</p> <p>% of postharvest loss reduced after the project intervention.</p> <p># of enterprises benefited from postharvest technologies adopted</p> <p># of households improved their food and nutrition security.</p>			
<p>Component 3: Institutional capacity to enhance policy and adaptation strategies, enforcement readiness, and effective implementation.</p>				
<p>Outcome 3: Enhanced institutional capacity and policy frameworks for climate-resilient agriculture established in target Governorates.</p>	<p># of early warning systems and # of beneficiaries covered</p> <p># of experts trained to effectively plan and proactively respond to extreme weather events</p> <p># of bankable business plans developed to enable institutions to access climate finance</p> <p># of new climate adaptation strategies formulated and policy recommendations drafted</p> <p># climate-smart technological approaches, bioeconomy, and nature-based solutions mainstreamed into the natural development plans.</p>	<p>Output 1.1: Risk and vulnerability assessments conducted and updated</p> <p>Output 2.1: Strengthened capacity of national and sub-national centers and networks to respond rapidly to extreme weather events</p> <p>Output 2.2: Increased readiness and capacity of national and sub-national entities to directly access and program adaptation finance</p> <p>Output 7: Improved integration of climate-resilience strategies into country development plans</p>	<p>1.1.2. No. of early warning systems (by scale) and no. of beneficiaries covered</p> <p>2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)</p> <p>2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector, and scale)</p> <p>2.2.1 No. of people benefitting from the direct access and enhanced direct access modality</p> <p>7.1. No. of policies introduced or adjusted to address climate change risks (by sector)</p> <p>7.2. No. of targeted development strategies with incorporated climate change priorities enforced</p>	<p>1,000,000</p>

¹ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology, but the overall principle should still apply

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

- A. Record of endorsement on behalf of the government⁴:** Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments as possible if a regional project/programme:

H.E. Dr. Muawieh Khalid Radaideh Minister for Ministry of Environment 83 King Faisal Bin Abdelaziz Street, Umm Othaina, Amrnan, Jordan, P.O. Box 1408, Amman 11941 Jordan Tel: +962 6 556 0288 Fax: +962 6 556 0288 Email: minister@moenv.gov.jo Alternate emails: ministeroffice@moenv.gov.jo	Date: <i>(Month, day, year)</i> July 13, 2025
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- B. Implementing Entity certification:** Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (Economic Modernization Vision - 2033(EMV), National Adaptation Plan - 2021(NAP), National Climate Change Policy 2022–2050 (NCCP), Long-Term Strategy - 2050(LTS), the Updated Nationally Determined Contributions - 2021(NDCs), Health National Adaptation Plan (HNAP) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme	
Name & Signature/ Implementing Entity Coordinator:  Ms. Ganna Onysko Senior GEF, GCF, AF Coordinator Division of Funding Partner Relations Directorate of Global Partnerships and External Relations United Nations Industrial Development Organization - UNIDO Implementing Entity Coordinator	
Date: <i>(Month, Day, Year):</i> August 8, 2025	Telephone: +43 1 26026 3708
Project Contact Person: Ms. Yvonne Lokko	
Email: Y.LOKKO@unido.org	

⁴ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.



Ministry of Environment

Ref.No- 7.2.3966
Date 13-7-2025

Adaptation Fund Board Secretariat
c/o Global Environment Facility
Email: Secretariat@Adaptation-Fund.org
Mail stop: N 7-700
1818 H Street NW
Washington DC 20433
USA
Fax +1 202 522 3240

Subject: Endorsement for “*Building resilience and adaptation to climate change through innovation and entrepreneurship for green jobs in Jordan*” by UNIDO

Dear Sir,

In my capacity as designated authority for the Adaptation Fund in Jordan, I confirm that the above national project/programme proposal is in accordance with the government’s national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Jordan.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the United Nations Industrial Development Organization (UNIDO) in collaboration with the Ministry of Agriculture, the Jordan Valley Authority and partly executed by UNIDO.

Please accept my high esteem and consideration,

Sincerely,

Minister of Environment


Dr. Muawieh Khalid Radaideh



Revised PFG Submission Form¹
Project Formulation Grant (PFG)

Submission Date: 08 August 2025

Adaptation Fund Project ID:

Country/ies: Jordan

Title of Project/ Programme: Building resilience and adaptation to climate change through innovation and entrepreneurship for green jobs in Jordan

Type of IE (NIE/RIE/MIE): MIE

Implementing Entity: United Nations Industrial Development Organization (UNIDO),

Executing Entity/ies: UNIDO

A. Project Preparation Timeframe

Start date of PFG	November 2025
Completion date of PFG	March 2026

B. Proposed Project Preparation Activities (\$)

List of Proposed Project Preparation Activities	Output of the PFG Activities	US\$ Amount	Budget note² (Based on Lead Organization)
Baseline assessment, initial stakeholder Engagement & Participatory Planning	Comprehensive stakeholder consultation reports, inputs integrated into proposal design	17,249	Baseline assessment – UNIDO USD8,000 Community and stakeholders’ organization and Stakeholders Consultation Workshop – MoA/JVA – USD7,000
Gender and Vulnerability Analysis	Gender-sensitive vulnerability and needs assessment report	10,000	Conduct desk review and stakeholder mapping - MoA/JVA – USD3,000 Identification of vulnerabilities and inequities, collect and analyze

¹ As presented in AFB/PPRC.33/40 Annex 1.

² The proposal should include a detailed budget with budget notes indicating the break-down of costs at the activity level. It should also include a budget on the Implementing Entity management fee use.

			disaggregated data, develop recommendations and integrate findings, and validation and stakeholder engagement – UNIDO – USD7,000
Environmental & Social Risk Assessment (ESS)	ESS screening, risk mitigation framework, and compliance checklist	20,000	<p>Site assessments, screen and categorize potential risks, develop mitigation measures and an Environmental & Social Management Plan (ESMP) – UNIDO USD12,000</p> <p>Desk review and national E&S policy alignment and conduct stakeholder consultations – MoE – USD8,000</p>
Climate Risk & Impact Modelling	Evidence-based climate risk profile for target areas and sectors	15,000	<p>Climate data collection and analysis based on GeoAI methods, climate risk profiling, modeling/ projection of climate impacts and ranking of vulnerability in different governorate in Jordan – UNIDO – USD10,000</p> <p>Provides scientific justification for adaptation actions based on projected climate scenarios – MoE – 5,000</p>
Institutional & Policy Alignment Review	Alignment report with NDC, NAP, EMV 2033, and sectoral plans	5,000	Aligning project interventions with national climate and agriculture related policies, and adaptation priorities and designing strategies for effective implementation – MoPIC – USD5,000
Mapping and Data Analytics for Project Areas and analysis of appropriate climate change adaptation solutions.	Set of detailed GIS-based maps identifying farms in target areas; Database of farmer profiles and agricultural statistics; defining location specific intervention recommendations for climate change adaptation; Monitoring framework and algorithm development for improved farm-level analysis and impact tracking	33,000	<p>Create spatial maps and visualize farms within the project area, assist in designing decision-support systems, collect farm-level data, and apply data science techniques to enhance feasibility analysis and improve algorithm performance; identifying climate resilient solutions through science-based approaches and mapping of best global practices; develop intervention-based mapping – UNIDO – 23,000</p> <p>Organizing field mission providing logistics services, and providing technical assistance during</p>

			intervention-based land use and land resources mapping – MoA – USD10,000
Environmental sustainability & Financial Feasibility Analysis	Cost-effectiveness study, long-term sustainability and co-financing strategy	10,000	Undertake basic data collection, undertake environmental and economic analysis, demonstrates viability, scalability, and sustainability of proposed adaptation actions – UNIDO – USD10,000
Monitoring, evaluation & learning (MEL) Plan; Exit strategy, synergies, and sustainability planning	Adaptation-relevant indicators and MEL framework	10,000	Establishing MEL planning and evaluation frameworks and reporting mechanism, develop strategies to enhance local counterpart and stakeholders' ownership – UNIDO USD10,000
National stakeholder consultation and validation workshops (2)	Workshop reports, inputs for proposal refinement, Final validated project design by stakeholders, Secures national ownership and endorsement of the proposal.	18,000	Compilation of findings and finalizing the AF project proposal – UNIDO – USD 10,000 Organize high-level project proposal validation workshop (including travel cost of UNIDO's staff and Consultant from HQ)– UNIDO - USD8,000
Total Project Formulation Grant		138,249	
Implementing Entity management fee (Agency fee 8.5%)	<ul style="list-style-type: none"> • IE admin and technical support for project development, monitoring and supervision. • Compliance assurance. 	11751.12	
Total Project Formulation Grant		150,000	

Please describe below each of the PFG activities and provide justifications for their need and for funding required:

For LLA Projects only:

If requesting additional funding for LLA projects to enable devolving decision making to the local level, please specify the activities that would directly serve to enable devolving decision making to the lowest appropriate level and enable local actors to make informed decisions on how adaptation actions are defined, prioritized, designed, and implemented:

Please provide justifications for their need and for additional funding required:

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Ms. Ganna Onysko Senior GEF, GCF, AF Coordinator Division of Funding Partner Relations Directorate of Global Partnerships and External Relations United Nations Industrial Development Organization - UNIDO Implementing Entity Coordinator Implementing Entity Coordinator		
Signature		Date (Month, day, year)	8 August 2025
Project Contact Person	Ms. Yvonne LOKKO Head IET/AGR/AIB Email: y.lokko@unido.org Work Phone: +43 1 26026 3737		
Telephone	Work Phone: +43 1 26026 3708		
Email Address	g.onysko@unido.org CC: gef@unido.org / glo@unido.org / f.haidara@unido.org		

Annex 1: List of participants at the stakeholders' consultation workshop and supporting photos

Table 1: Consultation Workshop participants (12 Mar.2025, Sheraton Nabil Amman Hotel)

	Name	Organization/ Association	Address	Contact	Presented (Yes/No)
1	Yousef Abu Eadeh	BALADNA WUA	Al Karameh	0785113470	Y
2	Waleed Al Faqeer	Pump station 55 WUA	Middle of JV	0795609408	Y
3	Raef Obedawi	Development area (5) WUA	North of JV	0787645864	N
4	Fandi	Development area (5) WUA	North of JV		Y
5	Talal Farhan	Al Ramah WUA	South Shouneh	0796083590	Y
6	Eng. Anwar Al Adwan	WUAs directorate at JVA	JV field office	0798207143 +962 777575015	Y
8	Lamia Salah Abu Sahyoun	Jordanian Women's Network Association	Irbid	0775438210	Y
10	Nawal Salem Balawneh	Balawneh Charity Association	Dier Ala	0776468564	Y
11	Jamila Murdi AlJazi	AlJawhara Chairity Association	Ma'an	0791585998	Y
12	Fatimah Abedullah	Ambassadors of Humanity Association	Irbid	0797677241	Y
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28	Hazem Al Nawaiseh		Amman		Y
29	Nana Zabaneh	UNIDO, Jordan Field Office	Amman		Y
30	Rana Fakhoury	UNIDO – Industrial Development Officer, HQ	Amman		Y
31	Awwad Harahsheh	UNIDO AF Consultant	Amman		Y
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Annex 2: Summary of Field Visits and Stakeholder Engagement Meetings

1. Objective of the field visit and meetings

The field visits, stakeholder meetings, and consultation workshop were conducted to better understand the key challenges, opportunities, and potential partnerships for enhancing climate-resilient agriculture and reducing postharvest losses in Jordan, with a focus on the horticulture sector.

2. Key Findings

2.1. Identified Challenges:

Extreme climate events, such as prolonged droughts and heatwaves in the target Governorates, have exacerbated water scarcity, land degradation, pest and disease outbreaks, crop failures, and escalating food insecurity. Additionally, the increasing impact of climate hazards has amplified local and national economic shocks, potentially leading to social instability, large-scale displacement, and competition for water resources. Drought-heatwave events in the region are primary climate hazards, driving severe and long-lasting effects on both the agricultural sector and ecosystem sustainability. These extreme events, combined with erratic rainfall, have posed significant risks to the most vulnerable communities, small and medium enterprises (SMEs), and private sector actors in agriculture.

Key challenges identified through consultations with stakeholders during field visits include:

- **Jordan Exporters and Producers Association (JEPA):** High postharvest losses, which is estimated to exceed 30%, due to inadequate cold storage facilities, primary processing units, and climate-smart logistics.
- **Jordan Valley Authority (JVA):** Worsening water scarcity, aggravated by climate change, continues to impact irrigation systems and crop productivity. Furthermore, the lack of job opportunities in agriculture is a major driver of rural-to-urban migration, contributing to a shortage of farm labor. The lack of weather, soil moisture, and soil nutrient monitoring; and yield prediction systems impaired the adaption capacity of smallholder farmers that often time result in crop failure and exposing smallholder farmers to economic shocks.
- **Ministry of Agriculture (MoA) and JVA:** The resilience of the agricultural sector has been undermined by limited access to improved climate-resilient seeds and high value and high yielding planting materials, suboptimal agricultural practices, and inadequate postharvest technologies and supply chain management. These challenges have further intensified the country's food security concerns. Additionally, institutional capacity constraints, such as limited capacity to design climate-adaptive solutions, restricted access to climate finance, and insufficient technical expertise in policy enforcement and project monitoring and evaluation, pose significant barriers to achieving national development priorities.
- **NARC and GrowTech:** limited or complete lack of digital solutions to enhance agricultural production and productivity under increasingly challenging climatic conditions in the region, particularly water. High energy costs associated with the preservation of harvested goods and groundwater pumping for open-farm irrigation further strain already vulnerable systems. Moreover, there is inadequate access to food quality control infrastructure and a significant gap in the use of advanced, technology-assisted monitoring systems, such as GeoAI and remote sensing, for effective soil, water, and crop management.
- **JEPA and JVA:** restricted access to international markets, coupled with a lack of digital tools to enhance supply chain systems, has diminished the sector's competitiveness. This has hindered the creation of green, sustainable job opportunities for rural youth and women, acting as a major bottleneck for the transformation of the rural economy.

2.2. Highlighted Opportunities:

- **Adoption of Climate-Smart Technologies:** Introducing innovations such as aquaponics, hydroponics, and water efficient crop varieties can significantly improve water use efficiency and urban resilience to water scarcity. These technologies contribute to urban food and nutrition security, increase crop yields, reduce postharvest losses and food waste, and create livelihood opportunities, particularly by stimulating green job creation in urban agriculture.
- **Strengthening Agricultural Value Chains through Private Sector Partnerships:** Collaborations with companies such as Al Jabali Farm and the Frozen Potato Factory present strong opportunities to integrate smallholder farmers into climate-resilient value chains. These partnerships encourage the adoption of improved seeds and efficient irrigation systems, enabling farmers to boost productivity and meet the quality standards required by local industries. With the right support, these industries can serve as anchors for scaling up climate-smart agriculture among rural producers.
- **Access to Climate Adaptation Financing:** Institutions like the Agricultural Credit Corporation (ACC) offer interest-free and low-interest financing schemes tailored to smallholder farmer associations, agro-enterprises, and youth groups. These financing mechanisms provide a critical opportunity to adopt climate-adaptive technologies and practices, helping transform rural economies, generate employment, and build resilience to climate shocks at the community level.

2.3. Stakeholder Commitments

- **Ministry of Agriculture (MoA):** Committed to supporting smallholder farmers by enhancing market access and promoting innovative agricultural practices, including aquaponics, hydroponics, and smart open-field irrigation systems.
- **Jordan Valley Authority (JVA):** Committed to modernizing farming systems through the integration of digital tools for climate, crop, and market information. JVA will provide in-kind contributions to strengthen the climate information and agricultural extension hub, support Water User Associations (WUAs), and promote inclusive water governance.
- **Aqaba Special Economic Zone Authority (ASEZA):** Committed to allocating suitable land for establishing a pilot aquaponic farm in Aqaba, supporting market linkages, and facilitating training programs for youth in aquaponic and hydroponic technologies. ASEZA will also support capacity development in bioeconomy, enable access to water and renewable energy systems, and provide use of food quality control laboratories for training and commercialization purposes.
- **NGOs and Private Sector (ECO Consult and GrowTech):** Proposed tailored training programs and technological solutions to support the adoption of advanced agro-climate monitoring systems, innovation in production practices, and capacity building for farmers and agripreneurs.
- **Yanmoo Agricultural Innovation Hub:** Yanmoo is an innovation and knowledge hub in the agricultural and horticulture sectors which will serve as a learning site for climate smart agricultural practices mainly in urban areas and peri-urban areas.
- **Agriculture Credit Corporation (ACC):** ACC presents valuable opportunities for both rural and urban SMEs engaged in sustainable food production and the adoption of climate-smart technologies. The institution offers a mix of interest-free and low-interest financing mechanisms to support agripreneurs and enhance resilience across rural and urban ecosystems.

2.4. Proposed Interventions:

- **Expand Climate-Smart Irrigation and Water Management:** Promote small-scale, efficient irrigation systems and reduce groundwater pumping costs to enhance drought resilience and water-use efficiency.
- **Leverage Digital and GeoAI Technologies:** Deploy GeoAI, remote sensing, and digital tools for real-time monitoring of soil, water, crop health, pest dynamics, and to support data-driven, climate-resilient agricultural decisions.
- **Improve Access to Climate-Resilient Inputs:** Enhance availability of improved seeds and planting materials adapted to climate variability to increase productivity and adaptive capacity.
- **Promote Regenerative and Circular Agriculture:** Support sustainable agriculture and agroforestry practices and introduce organic waste-to-resource technologies (e.g., biofertilizer, animal feed) to improve soil health and enable to increase water use efficiency and reduce water wastage.
- **Enhance Postharvest and Value Addition Systems:** Strengthen food processing, cold storage, and postharvest handling to reduce food loss and improve market access for smallholders.
- **Strengthen Institutional and Market Linkages:** Build institutional capacity and deploy digital platforms (e.g., traceability, mobile banking, agri-market information systems) to improve farmer access to finance, markets, and scaling of climate-smart solutions.

Conclusion:

The field mission underscored the urgent need to address climate impacts like drought and heatwaves in agriculture that drives water scarcity for agriculture, industries, businesses, and homestead consumption, while also revealing strong opportunities for collaboration to reduce postharvest losses, build resilience, and support inclusive economic growth for small-scale farmers, women, and youth.

Figure 1: Stakeholders' consultation workshop at Amman, Jordan



Figure 2:

Focused group discussion with potential partners and stakeholders.

(Pictures from left to right: Aqaba SEZA, Ministry of Agriculture, Jordan Exporters, Producers Association, Ministry of Environment, National Agricultural Research Center, Jordan Valley Authority, JEPa CEO and UNIDO Jordan Country Representative, JEPa management team, JVA, YAMOO Agricultural Knowledge and Innovation Center.)



Figure 3: Field Visits at the agricultural knowledge and innovation center and private large scale hydroponic farm in Madaba, and fish ponds and irrigation supplemented horticulture in Disah, Aqaba.

