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Report No: PAD4361

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$95.6 MILLION

AND THE GLOBAL CONCESSIONAL FINANCING FACILITY
IN THE AMOUNT OF US$23.9 MILLION

AND THE PARTNERSHIP FOR IMPROVING PROSPECTS GRANT
IN THE AMOUNT OF US$5.5 MILLION

TO THE

HASHEMITE KINGDOM OF JORDAN

FOR AN

AGRICULTURE RESILIENCE, VALUE CHAIN DEVELOPMENT AND INNOVATION (ARDI)

PROGRAM FOR RESULTS

P167946
September 8th, 2022

Agriculture And Food Global Practice
Middle East And North Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective August 31, 2022

| | |
|---|---|
| Currency Unit = | Jordanian dinar (JOD) |
| JOD 1 = | US$1.41 |
| US$ 1 = | JOD 0.71 |

FISCAL YEAR
January 1–December 31

| | |
|---|---|
| Regional Vice President: | Ferid Belhaj |
| Regional Director: | Paul Noumba Um |
| Country Director: | Jean-Christophe Carret |
| Practice Manager: | Marianne Grosclaude |
| Task Team Leader(s): | Tobias Baedeker, Armine Juergenliemk, Ghada Elabed |

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACC | Agricultural Credit Corporation |
| AEZs | Agroecological Zones |
| ARDI | Agriculture Resilience, Value Chain Development, and Innovation Program |
| CERC | Contingency Emergency Response Component |
| CPF | Country Partnership Framework |
| CRI | Corporate Results Indicator |
| E&S | Environmental and Social |
| EFA | Economic and Financial Analysis |
| EIRR | Economic Internal Rate of Return |
| ERR | Economic Rate of Return |
| ESCP | Environmental and Social Commitment Plan |
| ESSA | Environmental and Social Systems Assessment |
| EU | European Union |
| EWS | Early Warning System |
| FAO | Food and Agriculture Organization of the United Nations |
| FCV | Fragility, Conflict and Violence |
| FM | Financial Management |
| GBV | Gender Based Violence |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gas |
| GIS | Geographic Information System |
| GM | Grievance Mechanism |
| GoJ | Government of Jordan |
| GRM | Grievance Redress Mechanism |
| GRS | Grievance Redress Service (of the WB) |
| HH | Household |
| IA | Implementing Agency |
| ICARDA | International Center for Agricultural Research in Dry Areas |
| ICR | Implementation Completion Report |
| ICT | Information and Communication Technology |
| IFAD | International Fund for Agricultural Development |
| IFC | International Finance Corporation |
| IFPRI | International Food Policy Research Institute |
| ILO | International Labor Organization |
| ITC | International Trade Center |
| IPF | Investment Project Financing |
| IRR | Internal Rate of Return |
| JAP | Jordan National Sustainable Agriculture Plan 2022–2025 |
| JEDCO | Jordan Enterprise Development Corporation |
| JEPA | Jordan Exporters and Producers Association for Fruit and Vegetables |
| JFDA | Jordan Food and Drug Administration |
| JLGC | Jordan Loan Guarantee Company |
| JSMO | Jordan Standards and Meteorology Organization |
| M&E | Monitoring and Evaluation |

| | |
|---|---|
| MENA | Middle East and North Africa |
| MFD | Maximizing Finance for Development |
| MIS | Management Information System |
| MoA | Ministry of Agriculture |
| MoENV | Ministry of Environment |
| MoL | Ministry of Labor |
| MoPIC | Ministry of Planning and International Cooperation |
| MoWI | Ministry of Water and Irrigation |
| MRL | Maximum Residue Limit |
| MTR | Mid-Term Review |
| MWI | Ministry of Water and Irrigation |
| NAF | National Aid Fund |
| NARC | National Agricultural Research Center |
| NGO | Non-Governmental Organization |
| NPV | Net Present Value |
| NRM | Natural Resource Management |
| NSAD | National Strategy for Agricultural Development |
| OHS | Occupational Health and Safety |
| PDO | Program Development Objective |
| PforR | Program for Results |
| PS | Procurement Specialist |
| RAP | Resettlement Action Plan |
| RCP | Represented Concentration Pathway |
| RISE | Resilient, Inclusive, Sustainable, and Efficient |
| SEA | Sexual Exploitation and Abuse |
| SLM | Sustainable Landscapes Management |
| SMEs | Small and Medium Enterprises |
| SRA | Sub-Results Area |
| ToC | Theory of Change |
| ToT | Training of Trainers |
| VA | Verification Agents |
| TVSDC | National Technical and Vocational Skills Development Commission |
| VC | Value Chain |
| WBG | World Bank Group |

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**DATASHEET**

## BASIC INFORMATION

| Country(ies) | Project Name | | |
|---|---|---|---|
| Jordan | Agriculture Resilience, Value Chain Development and Innovation (ARDI) Program | | |
| Project ID | Financing Instrument | Does this operation have an IPF component? | Environmental and Social Risk Classification (IPF Component) |
| P167946 | Program-for-Results Financing | Yes | Low |

### Financing & Implementation Modalities

| | |
|---|---|
| [ ] Multiphase Programmatic Approach (MPA) | [ ] Fragile State(s) |
| [✓] Contingent Emergency Response Component (CERC) | [ ] Fragile within a non-fragile Country |
| [ ] Small State(s) | [ ] Conflict |
| [ ] Alternate Procurement Arrangements (APA) | [ ] Responding to Natural or Man-made Disaster |
| [ ] Hands-on Enhanced Implementation Support (HEIS) | |

| Expected Project Approval Date | Expected Closing Date |
|---|---|
| 29-Sep-2022 | 28-Jun-2029 |
| Bank/IFC Collaboration | Joint Level |
| Yes | Complementary or Interdependent project requiring active coordination |

### Proposed Program Development Objective(s)

To strengthen the climate resilience and enabling environment for agriculture development in selected value chains in Jordan.

### Organizations

| | |
|---|---|
| Borrower : | Hashemite Kingdom of Jordan |
| Implementing Agency : | Ministry of Planning and International Cooperation |

| | |
|---|---|
| Contact: | H.E. Nasser Shraideh |
| Title: | Minister |
| Telephone No: | 009626464466 |
| Email: | mop@mop.gov.jo |

## COST & FINANCING

### SUMMARY

| | |
|---|---|
| **Government program Cost** | 595.00 |
| **Total Operation Cost** | 167.50 |
| Total Program Cost | 161.76 |
| IPF Component | 5.50 |
| Other Costs | 0.24 |
| **Total Financing** | 167.50 |
| **Financing Gap** | 0.00 |

### Financing (USD Millions)

| | |
|---|---|
| **Counterpart Funding** | **42.50** |
| Borrower/Recipient | 42.50 |
| **International Bank for Reconstruction and Development (IBRD)** | **95.60** |
| **Trust Funds** | **29.40** |
| Concessional Financing Facility | 23.90 |
| Forced Displacement Trust Fund | 5.50 |

### Expected Disbursements (USD Millions)

| Fiscal Year | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|---|---|
| Absolu | 12.00 | 10.00 | 14.00 | 20.00 | 22.00 | 15.60 | 2.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| te | | | | | | | |
| Cumulative | 12.00 | 22.00 | 36.00 | 56.00 | 78.00 | 93.60 | 95.60 |

## INSTITUTIONAL DATA

**Practice Area (Lead)**

Agriculture and Food

**Contributing Practice Areas**

Finance, Competitiveness and Innovation, Social Sustainability and Inclusion, Water

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

## SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

| Risk Category | Rating |
|---|---|
| 1. Political and Governance | Moderate |
| 2. Macroeconomic | Moderate |
| 3. Sector Strategies and Policies | Moderate |
| 4. Technical Design of Project or Program | Substantial |
| 5. Institutional Capacity for Implementation and Sustainability | Substantial |
| 6. Fiduciary | Substantial |
| 7. Environment and Social | Substantial |
| 8. Stakeholders | Moderate |
| 9. Other | Moderate |
| 10. Overall | Substantial |

## COMPLIANCE

**Policy**

Does the program depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the program require any waivers of Bank policies?

[ ] Yes [✓] No

## Legal Operational Policies

| | Triggered |
|---|---|
| Projects on International Waterways OP 7.50 | No |
| Projects in Disputed Areas OP 7.60 | No |

## Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

| E & S Standards | Relevance |
|---|---|
| Assessment and Management of Environmental and Social Risks and Impacts | Relevant |
| Stakeholder Engagement and Information Disclosure | Relevant |
| Labor and Working Conditions | Relevant |
| Resource Efficiency and Pollution Prevention and Management | Not Currently Relevant |
| Community Health and Safety | Relevant |
| Land Acquisition, Restrictions on Land Use and Involuntary Resettlement | Not Currently Relevant |
| Biodiversity Conservation and Sustainable Management of Living Natural Resources | Not Currently Relevant |
| Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities | Not Currently Relevant |
| Cultural Heritage | Not Currently Relevant |
| Financial Intermediaries | Not Currently Relevant |

**NOTE**: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

### Legal Covenants

Sections and Description
The MoA shall not later than ninety (90) days after the Effective Date, establish the Delivery Unit, and thereafter by not later than March 31, 2023, shall appoint staff and maintain the Delivery Unit at all times during the implementation of the Operation, under terms and conditions acceptable to the Bank.

Sections and Description
The MoA shall not later than sixty (60) days after the Effective Date, and thereafter maintain at all times during the implementation of the Project, a steering committee within the MoA, chaired by the Minister of Agriculture, to be responsible for ensuring prompt and efficient overall coordination, implementation, management and communication of Project activities and results.

Sections and Description
The MoA shall not later than ninety (90) days after the Effective Date, adopt the Operation Manual on the terms satisfactory to the Bank.

Sections and Description
The MOA shall no later than ninety (90) days after the Effective Date, and thereafter maintain at all times during the implementation of the Program, appoint verification agents under terms of reference acceptable to the Bank.

### Conditions

| Type | Financing source | Description |
|---|---|---|
| Disbursement | | The Borrower may withdraw an amount not exceeding $23,640,350 for the Non-concessional Portion of the Loan and $5,924,900 for the Concessional Portion of the Loan as an advance against DLR(s) to be met under the conditions stated in the legal agreements. |
| Type | Financing source | Description |
| Disbursement | | The expenditures categories will be withdrawn on a pari passu basis and at a 79.96/20.04 ratio between the amount of the Non-Concessional Portion of the Loan allocated and the amount of the Concessional |

| | | |
|---|---|---|
| | | Portion of the Loan allocated. |

# I. STRATEGIC CONTEXT

## A. Country context

1. **After a relatively moderate contraction in 2020, the Jordanian economy rebounded at 2.2 percent in 2021, supported by accommodative monetary and fiscal policies and the reopening of the economy.** Real GDP growth reached 2.5 percent in Q1-2022, with contact-intensive services (transport, retail, and personal services) largely recovering to pre-pandemic levels. However, higher global commodity prices and the phasing out of fuel subsidies led to an acceleration in headline inflation, which averaged 3.6 percent (y-o-y) during the first half of 2022. Jordan is one of the most import dependent countries for covering its national grain consumption needs and recent food price records will likely worsen the balance of payments. Despite the growth rebound, the unemployment rate remained high and still above pre-pandemic levels at 22.6 percent in Q2-2022, especially among women (29.4 percent) and the youth (46.0 percent). These high levels reflect structural issues pertaining to the labor market, including large gender gaps, job market regulations, and a weak business environment which limit the private sector's capability to generate sufficient jobs for the rapidly growing labor force.

2. **Jordan is facing increasing pressures on poverty, income distribution, and inclusion.** The national poverty rate for Jordan was estimated at 15.7 percent in 2017–2018 (MoSD, MoPIC, UNICEF 2019).[1] In addition, many households live near poverty and even a small shock to income (or increase in prices) makes a great number vulnerable to falling into poverty. Refugees and their host communities are among the most vulnerable groups.[2]

3. **Jordan ranks among the countries with the lowest rates of female labor force participation globally and large gender gaps persist.** The female labor force participation rate is 14.6 percent compared to about 63.9 percent for men, placing Jordan among the countries with the lowest participation rates for women in the world.[3] Participation is particularly low for less-educated women - only 8.2 percent of women with less than secondary education participate in the formal labor market. Gender gaps persist, as young women's unemployment of 50.7 percent, is 16.4 percentage points above that of young men.

4. **Jordan is also characterized by a rural-urban economic divide.** Average household incomes in urban areas are 20 percent higher than average incomes for rural households. Over 60 percent of rural workers are informal, compared to less than half of urban workers. Rural households headed by women tend to be the poorest, with large gender gaps in the ownership of assets such as land. Male landowners own 73.8 percent of land versus 21.3 percent for female landowners.[4] While the majority of Jordan's population is concentrated in and around cities, the rural economy serves as a major source of food security and livelihoods for the entire country.

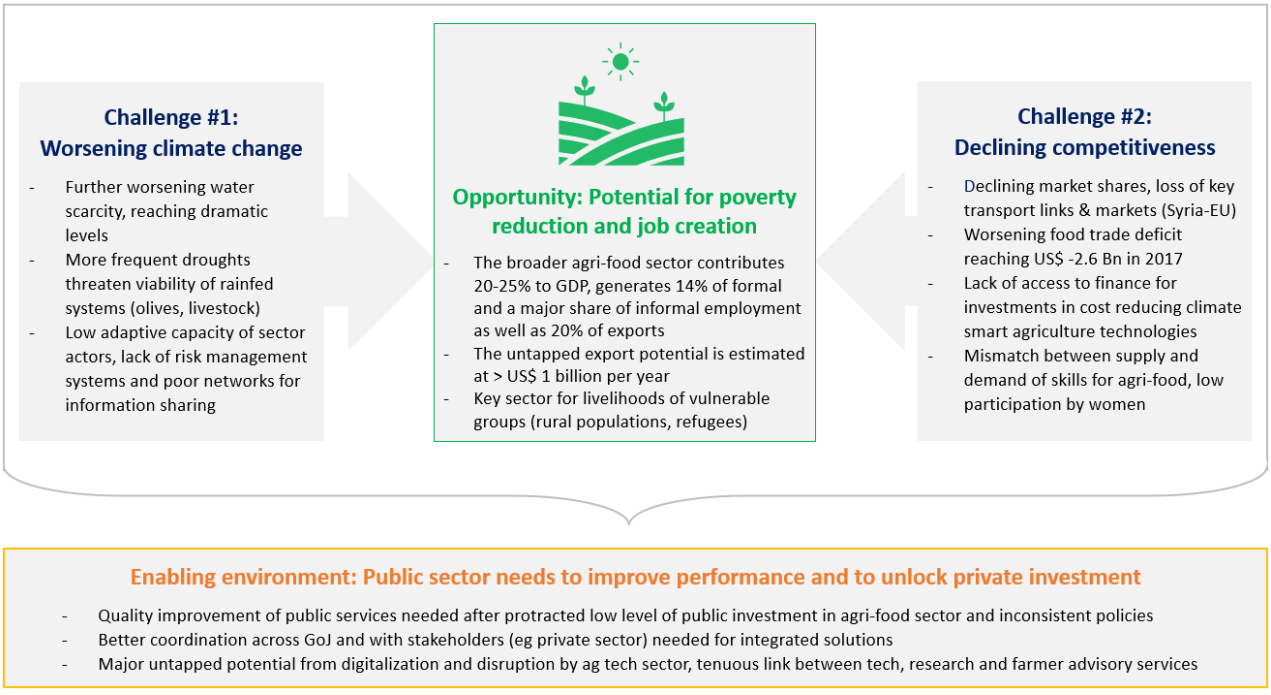
## B. Sectoral, multi-sectoral, and institutional context

5. **Jordan's agri-food sector is an important source of income, employment and exports, and holds**

[1] Based on the most recent national socio-economic household survey (HEIS 2017/18) conducted by the GOJ.
[2] There is no official data on poverty among refugees
[3] World Bank, 2020. State of the Mashreq Women. http://pubdocs.worldbank.org/en/868581592904029814/State-of-the-Mashreq-Women.pdf
[4] Jordan Department of Land and Survey, 2014

**untapped potential.** Around 25 percent of Jordan's poor rely on agriculture for their income.[5] Although primary agriculture contributes only 5.6 percent of GDP, when related value chain activities are counted, the broader agri-food sector contributes about 20–25 percent of GDP.[6] Jordan's average agriculture value-addition as a share of GDP has risen from 3.5 percent in 2001–2010 to 4.8 percent in 2011–2018. Agricultural growth multipliers are generally estimated between 1.3 percent and 1.8 percent in developing countries, suggesting strong potential for investment in the agriculture sector to trigger wider economic growth. Jordan also shows growth in labor productivity in the agriculture sector. In 2017, it was estimated that the agricultural sector could generate four times more added value than Jordan's apparel or industrial exports.[7] Currently, primary agriculture and the wider agri-food sector represent 3 percent and 14 percent of formal employment, respectively, masking a significant contribution to livelihoods through large numbers of informal employment opportunities. Increased investment in the agri-food sector can drive rural job creation both on-farm and all along the value chain, including processing, packaging, distribution, and related sectors such as services, input suppliers and transport. Between 1998 and 2017, food exports accounted for an average of 20.1 percent of merchandise exports from Jordan, and yet only 50 percent of the fruit and 60 percent of the vegetable export potential has been achieved.[8]

*Figure 1 - Overview of Agri-food Context in Jordan*




[5] ILO 2020. https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_646170.pdf
[6] Netherlands Enterprise Agency, 2016
[7] Jordan Economic Monitor - Fall 2017
[8] International Trade Center (https://exportpotential.intracen.org/), Agri-Business Deep Dive, IFC, 2020

6. **Food security in Jordan is fragile and food insecurity is an agenda of increasing importance.** According to the most recent mobile Vulnerability Assessment and Mapping (mVAM) completed by the World Food Program (WFP) in Jordan, 7 percent of Jordanian households (representing 535,559 individuals) were found to be food insecure as of February 2021 and another 51 percent of households (representing 3,843,701 individuals) were vulnerable to food insecurity, meaning that they were very likely to experience an acute decline in food access or consumption levels below minimum survival needs. Food insecurity levels are particularly high among Jordan's refugee population, with 23.3 percent of refugee households found to be food insecure (over 154,777 individuals). In response, the Government of Jordan (GoJ) launched the National Food Security Strategy 2021-2030 in 2022 identifying specific action steps to address the growing concerns about food insecurity in the country, further exacerbated by the war in Ukraine and continuous climate change impacts.

**Opportunities**

7. **Agricultural production and value chains have the potential to serve a growing local market and contribute to food security (Figure 1).** Over the past ten years, Jordan's population grew at an average of 3.4 percent per annum due to refugee influxes and high fertility rates. Along with a growing middle class, this led to increasing domestic demand for food products. In line with its comparative advantage, Jordan imports the majority of domestically consumed grain, sugar and cooking oil. Where agroecological conditions permit, the production of local fresh, semi-processed and processed food items could offer significant market and job creation opportunities. The recent contribution of Jordan to the 2022 Food Summit highlighted Jordan's vision to transform its food systems into more efficient and sustainable ones that contribute to improved food availability.

8. **The inflow of Syrian refugees has presented challenges and opportunities for the development of the agri-food sector.** There are around 1.3 million displaced Syrians in Jordan, of which 656,000 are registered with the United Nations High Commissioner for Refugees (UNHCR). Over 85 percent of Syrians live outside refugee camps. Most refugees live in northern Jordan, specifically in Irbid and Mafraq Governorates, which together host approximately 50 percent of refugees in high poverty, predominantly rural areas. The refugee influx has put additional pressure on food security and natural resources; a large share of Syrian refugees work in the agriculture sector. At the same time, historically, Syria's agricultural sector has been more commercialized, and Syrian refugees have played an important role in disseminating both improved production practices and business skills for improving value-addition.

9. **The agricultural sector is categorized into three diverse agroecological zones (AEZs) and production systems:**[9]

i. **Rainfed areas** average at least 200 millimeters of rainfall annually. Only about 8 percent of the Jordanian territory receives more than 200 millimeters of rainfall annually.[6] Rainfed olive trees represent the majority of all trees grown in those areas, at around 50 percent and the majority of growers are smallholders.

ii. **Agropastoral areas** receive less than 200 millimeters of rainfall annually. This area, termed *Badia*, represents about 90 percent of the Jordanian territory and supports livestock production. This extensive production system primarily includes sheep and goat farming[1] by transhumant (semi-mobile, 59 percent) and sedentary agropastoralists (30 percent). They rely on fodder and coarse grains such as barley for

[9] Government of Jordan and World Bank 2021. Climate-Smart Agriculture Action Plan for Jordan.

animal feed, which is primarily imported, in addition to rangeland grazing. It is a competitive sector that contributes close to 50 percent of agricultural exports. Pastoralist herders, with animal herds of variable size, dominate the sector.

iii. **Irrigated areas** are classified as such regardless of the amount of rainfall they receive. These areas cover only about 2 percent of Jordan's territory and contain the largest production share of irrigated crops, particularly tomatoes, followed by cucumbers, potatoes, irrigated olives, and citrus fruits. Vegetables are produced primarily in the irrigated areas of the Jordan Valley and to a lesser extent in the eastern plains, while citrus and palm trees are grown under irrigation in the Jordan Valley. This AEZ is the most productive, with growing areas mainly in the Jordan Valley and selected areas such as Mafraq and Azraq. It is dominated by small semi-commercial and commercial farms.

**Supply-side challenges: Climate change worsens water scarcity and drought risk**

10. **Climate change strongly impacts agriculture in Jordan through higher temperatures, decreased average precipitation, and increased variability in precipitation.** By 2085, the median temperature in Jordan is expected to increase by 2°C, under the Represented Concentration Pathway (RCP) 4.5 prediction and up to 4°C under the RCP 8.5 prediction. Total precipitation is projected to decline and the median precipitation values across the country will decrease by as much as 20 percent by 2055 based on the RCP 4.5 prediction.[10] Rainfall variability is already approximately 50 percent from the average annual mean and this variability will further increase in the coming decades. Droughts will occur more frequently, last longer and be more severe. These impacts will be further complicated by increased crop water requirements and consumptive use due to higher temperatures. As such, the impacts of climate change are likely to undermine rural livelihoods and potentially increase fragility, displacement and social tensions. Thus, building climate resilience and adaptive capacity is essential to ensuring the long-term viability of the agri-food sector.

11. **As a result of the combination of population growth and the biophysical impacts of climate change, the availability of per capita water resources is expected to decline by 30 percent by 2040,[11] severely limiting the growth of irrigated agriculture**. At only 97 cubic meters per capita per year, available water is well below the absolute water scarcity threshold of 500 cubic meters per capita per year.[12] Around half of Jordan's available freshwater is used for domestic and industrial water supply and the other half is allocated to agriculture, below the global average of a 70 percent allocation for agriculture. The National Water Strategy, 2016–2025 estimated that water demand would exceed available water resources by more than a quarter by 2025. Nearly half (47 percent) of the 310 million m3 of water dedicated to irrigation annually comes from treated wastewater. Freshwater sources utilized by agriculture stand in competition to municipal and industrial uses. Agriculture's productivity per cubic meter of water is about US$1.6.[13] While the share of agricultural water use is less compared to past decades, the sector's share of water use remains above economically optimal levels. It is therefore imperative that water use efficiency is raised further and absolute freshwater use by the sector reduced.[14]

12. **Rainwater harvesting systems can increase resilience to water scarcity and droughts in rainfed and**

[10] UNFCCC, 2013. Jordan's Third National Communication on Climate Change.
[11] 2020 GIZ. Rapid Assessment of the Consequences of Declining Resources Availability and Exploitability for the Existing Water Supply Infrastructure
[12] Rapid Assessment of the Consequences of Declining Resources Availability and Exploitability for the Existing Water Supply Infrastructure (2020). MWI | WAJ | JVA | GIZ
[13] World Bank 2018. Beyond Scarcity: Water Security in the Middle East and North Africa.
[14] World Bank 2018. Beyond Scarcity: Water Security in the Middle East and North Africa and World Bank Calculation

**agropastoral systems**. Rainwater harvesting (RWH) systems have been deployed in Jordan for millennia. Two principal applications can be distinguished: (i) farm- or household-level RWH in the Western and Central Highlands for supplemental irrigation of rainfed crops and other household uses, and (ii) community-level RWH in the Badia desert areas to provide water for livestock (macro-RWH), embedded in landscape restoration (micro-RWH) interventions to reduce sedimentation and restore soil moisture deficits for improved grazing.[15] The Badia Ecosystem and Livelihoods Project (P127861) successfully piloted the latter approach.[16] As rainfall variability rises, modern versions of the technology are becoming an increasingly important adaptation measure, as noted in the findings of the forthcoming Jordan Country Climate and Development Report (CCDR). Due to the extreme water scarcity Jordan faces, however, further development and scaling up of RWH must be strategically planned and embedded in the analysis of the hydrological and physical characteristics of the targeted watersheds to avoid negative downstream impacts. Data and tools for such analysis are available and have been piloted in Jordan.[17]

13. **Improving the efficiency of water use in irrigated agriculture can build resilience to water scarcity and climate change impacts.** As recommended in the forthcoming CCDR, raising the level of climate-smartness in water use would entail increasing water use efficiency and reducing freshwater withdrawals overall. This could be achieved by switching to more water-productive crops, increasing the use of treated wastewater, and introducing water use efficiency technologies such as crop covers and smart irrigation systems, with the latter linked to farm-level caps on water use to avoid the Jevons paradox.[18] Jordan's water productivity level has been steadily increasing during the past decade, though recent studies indicate that further water savings are achievable. For example, one study estimates that if Jordan realized water productivity levels similar to regional leaders, it could maintain its agricultural output while reducing its agricultural water allocation by 50–168 million cubic meters per year or by around 10–30 percent.[19]

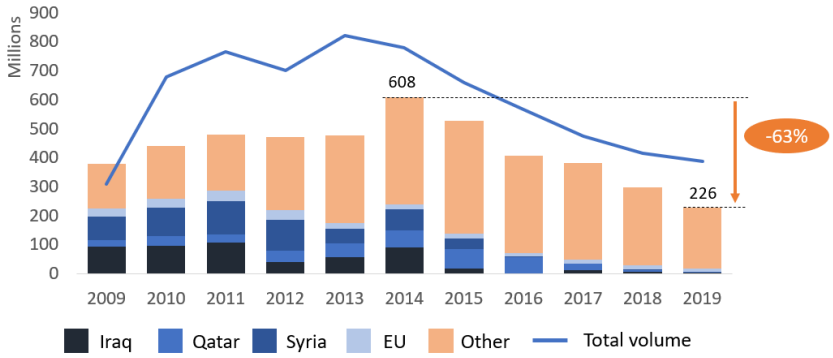
**Demand-side challenge: Loss of competitiveness and export markets**

14. **The potential of Jordan's agri-food sector has gone unrealized in recent years as a complex set of structural factors have driven declines in competitiveness for the local market and exports alike.** Jordan's trade deficit in agricultural products reached US$2.6 billion in 2017; food imports have risen by 85 percent over the past ten years while exports such as fruits and vegetables have declined between 2016 and 2021, as shown in Figure 2. The recent food price crisis triggered by the war in Ukraine provided a stark reminder of the value of local agricultural production where agroecological conditions and competitiveness permit. This decline in local production's competitiveness is the result of multiple interlinked structural factors. Climate change is raising production risks across the board, particularly for rainfed production, and via water scarcity in irrigated agriculture, yet uptake rates for adaptation options such as RWH or climate-smart agriculture (CSA) technologies remain low. This is due to the lack of high-value marketing opportunities, lack of access to knowledge and finance of fragmented growers operating in value chains that continue to be dominated by informality. Degrees of farmer organization and aggregation are low across the majority of value chains, with cooperatives playing a minor role due to regulatory and capacity constraints. Inputs are of variable quality, particularly seed materials and seedlings

[15] ICARDA (2016). Success Stories: Science Impacts. Effective Mechanized Rainwater Harvesting.
[16] WB (2017). Implementation Completion Report Badia Ecosystem and Livelihoods Project (P127861)
[17] FAO 2016. Maher Salman, Motasem Abu Khalaf and Brenna Moore. Assessment of the water harvesting sector in Jordan. Rome 2016
[18] The Jevons paradox occurs when technological progress or government policy increases the efficiency with which a resource is used (reducing the amount necessary for any one use), but the rate of consumption of that resource rises due to increasing demand. CCDR for Jordan, World Bank, 2022.
[19] WANA institute: Decoupling National Water Needs for National Water Supplies: Insights and Potential for Countries in the Jordan Basin

for tree production are often unreliable. The general business-enabling environment, particularly extension services for farmers, is weak. As a result, cost structures at the production level are often not competitive.

*Figure 2 Export Value of Vegetables Produced in Jordan in US$ Million 2009-19 (Source: UN Comtrade 2021)*




15. **Fresh fruit and vegetables offer major export opportunities but face challenges of (i) loss of key market access due to the Syrian and Iraqi civil wars and (ii) an inadequate enabling environment with poor public enabling services.** Prior to 2011, Jordan exported a significant volume of fresh fruit and vegetables to the European Union (EU) via Syria and Türkiye. Prior to the Iraqi civil war, Jordan also exported significant volumes to Iraq. The costs of these trade disruptions are large and have significantly affected the exports of perishable agricultural goods, which are not viably exported through alternative longer routes. Alternative markets and routes, such as via air cargo to the EU, require adherence to higher requirements including traceability, which few farmers and value chain actors can attain in the current enabling environment. As a result, exported products are typically only able to reach lower-value export markets. Seed production, a promising sub-sector with multiple Jordanian businesses producing for the local market and looking to export, is constrained by the lack of internationally certified testing facilities in the country and the resulting high cost and time requirements of obtaining certification abroad.

16. **Despite those challenges, the fresh fruit and vegetable sector have opportunities to (re)gain a stronger export position.** To secure more value for its farmers, value chain development strategies will need to reorient from segments that focus on non-demanding consumers of low perishability crops, to demanding consumers of highly perishable crops. While highly perishable 'fresh' products are more profitable, entry into those segments is also innately more difficult to accomplish. Initial analytical work has been done to prioritize select higher-value crops that could be competitive in Jordan and to identify specific bottlenecks through pilot export trials as part of the World Bank's Advisory Services and Analytics (ASA) Technical Assistance for Agriculture Export Competitiveness Report (P178580). Further work by multiple actors across the GoJ, the private sector, farmer associations, research institutions, and development partners will be needed to strengthen the business-enabling environment, improve collaboration between actors within the sector, and develop an effective approach to export promotion in the short-, medium-, and longer-term to help move the country toward a more competitive position in this sector.

17. **Strong export potential also exists in the small ruminant sector, along with a different set of challenges centered around the availability of natural resources and disease prevention.** As noted above, the export of live

animals to the Gulf countries is the largest agricultural export commodity in Jordan. Jordan commands a premium in these markets as it can offer the prized native *Awassi* sheep species, recently registered as a trademark with the support of an International Fund for Agricultural Development (IFAD) program. However, exports have been stagnant due to the limited carrying capacity of the rangeland and unsustainable grazing practices, the lack of availability of water for animal consumption in remote Badia desert areas, climate change impacts, and recurring disease outbreaks that lead to losses of market access, i.e., 'blacklisting'.

18. **For Jordan to reestablish a foothold in premium European and GCC market segments, the enabling environment for exports and agribusiness will need to improve.** On the farm level, outdated production technologies result in high-cost structures, and challenges regarding quality and safety arise due to the overuse of pesticides in conventional farming and a lack of training and awareness about proper pesticide application. Inadequate post-harvest management limits the industry's ability to meet higher food quality standards, and poor compliance with food safety standards creates public health risks, reducing the competitiveness of exports, especially fruits and vegetables. Outdated and low-capacity laboratory facilities lead to delays of up to ten days for maximum residue limit (MRL) testing and constrain the recognition of Jordanian testing certificates, including for seeds. Improving these basic services would also bring significant benefits to food safety in the domestic market. Traceability systems are unavailable to the vast majority of producers, yet are a required for premium market access.

19. **Jordanian farmers have limited access to lending, and none of the traditional commercial banks currently lend to smallholders.**[20] The Agricultural Credit Corporation (ACC) is the key agri-finance provider serving over 7,000 loans and grants to farmers per year. The Islamic International Arab Bank and Jordan Islamic Bank for Finance and Investment (JOIB) are lending to agribusiness companies but not to smallholders. Interest rates range from 3.1 percent on Agricultural Credit Corporation loans to around 11 percent on lending from input providers, and higher rates by some commissioners. Inefficient administrative policies, conservative risk assessment thresholds and limited agriculture-specific loan products constrain bank lending to the agriculture sector, including in areas with large public good benefits such as water use efficiency technologies.

20. **There is also a shortage of skilled labor in the Jordanian agri-food sector.** The National Strategy for Human Resource Development[21] advocates the need to strengthen vocational training to fill existing gaps in the agriculture sector, i.e., providing the skills required to handle irrigation technologies or adopt modern livestock husbandry practices. An assessment by the International Labor Organization (ILO) shows that skilled labor is lacking in the agri-food sector in Jordan: in 2015–2016, only 1.6 percent of the agri-food workforce was skilled.[22] Currently, this gap is filled through migrant labor who often work under very difficult conditions. Other ILO assessments have shown gaps in decent work and employment conditions in the agriculture sector.[23] Together, these gaps constitute bottlenecks to the competitiveness of the sector's value chains and issues around decent work—particularly child labor risks—will need to be consistently mainstreamed across all sector interventions.

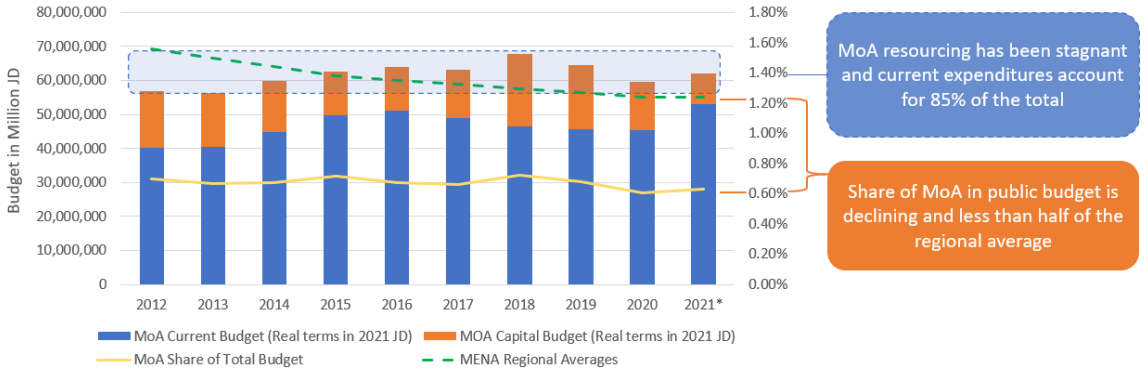
**Policy levers and the enabling environment**

[20] The Netherlands Enterprise Agency and the Netherlands Embassy in Amman. 2019. Access to Agricultural Finance in Jordan. Palladium Europe BV.
[21] Jordan National Strategy for Human Resource Development (2016 – 2025)
[22] https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_646170.pdf
[23] https://www.ilo.org/beirut/projects/WCMS_711760/lang--en/index.htm

21. **Increasing public investment to improve the enabling environment and the quality of public service delivery are key priorities in addressing the agri-food sector's supply- and demand-side challenges.** The annual real budget[24] of the Ministry of Agriculture (MoA) has been stagnant over the past decade, reaching a value of around JOD62 million (US$87 million, about 0.2 percent of GDP) in 2021 (Figure 3). Agriculture's share in the public budget has been declining and is now below half of the regional average. Moreover, the budget is dominated by high shares of current expenditures. As a result, key public service functions such as the extension services for crops and livestock, export promotion, or food safety have lacked investment and seen critical deteriorations in quality. In addition to low investment, sectoral policies have been inconsistent across multiple administrations in rapid succession. For example, an approach to supporting agricultural processing (e.g., tomatoes) was initiated but later abandoned. Similarly, import protection measures were implemented for several commodities and then retracted. While a National Agriculture Development Strategy has been in place since 2020, its implementation has been inconsistent, creating an unpredictable policy environment.

22. **GoJ is showing renewed interest in the agri-food sector and a trend reversal in public investment can be observed.** The GoJ identified the agri-food sector as one of four growth pillars in the Economic Recovery Plan (ERP) (2021–2023). As a consequence, a broad coalition of government entities led by the Prime Minister adopted the Jordan National Sustainable Agriculture Plan (2022–2025) (JAP). Moving forward, JAP enables the GoJ to put in place a framework of foundational policies and investments toward establishing an adequate enabling environment for private sector-led growth. JAP was reflected strongly in the recently launched Jordan Economic Modernization Vision, where agriculture and food security feature prominently among priority high value industries for investment and growth. This increased focus is already reflected in an expected increase in the annual budgets of the MoA over 2022–2024, compared to the 2021 budget.

*Figure 3 Evolution of the MoA budget envelope 2012–2021*
*(Sources: Team calculations based on FAO 2021, DOS, and WB data)*




23. **Overhauling the country's agricultural extension system for crops and livestock could significantly accelerate the transition to more resilient, water-efficient and competitive agricultural systems.** Following an extended period of neglect and decline, Jordan's public agricultural extension system faces severe challenges. These include (i) a low number of extensionists, currently at about 1,000 farmers and herders per agent, (ii) a lack

[24] Annual nominal budget adjusted for inflation

of specialized training, and (iii) inadequate resourcing. However, given that current private sector engagement in the provision of extension services is limited to input suppliers, the public sector still has a key role to play in providing transfer of knowledge and technical assistance to farmers. The GoJ recently prioritized the reorganization of extension services and a significant increase in service delivery. As such, the GoJ approved the hiring of an additional 300 extension agents over a baseline of 109. MoA is shifting from a technology-driven extension system to more demand-driven, digitalized, and private sector-oriented approaches, including farmer field schools and export promotion programs. It is also shifting toward the increased use of digital tools by building on successful project experiences in partnerships with the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), and the World Food Programme (WFP), and collaborating with the National Agriculture Research Council (NARC). Similarly, in the livestock sub-sector, the MoA aims to collaborate with the private sector to put in place basic staffing, equipment, and systems within the veterinary service to provide systematic disease surveillance, prevention and management.

24. **Jordan's thriving and advanced digital ecosystem offers opportunities to accelerate the digitalization of the general agriculture sector and, in particular, extension systems.** Jordan's digital ecosystem performs near or above the regional average[25], which creates an enabling environment for the digital transformation of the agri-food sector, particularly, extension services. Smartphone use rates are very high and mobile data costs below the regional average. Jordan's emerging entrepreneurial ecosystem now includes an incubator for digital innovations at NARC, as well as several private accelerators dedicated to developing agriculture sector start-ups. NARC and MoA are engaged with FAO in piloting both a suite of digital applications for farmers and extension tools, and a farmer registry system that could transform data availability for the sector.

25. **Addressing informality is fundamental to enabling equitable agri-food sector growth as it negatively impacts key vulnerable groups, including women and refugees.** Only approximately 14 percent of registered refugees are employed formally in the agri-food sector. Informality impacts pay and the working environment and reduces access to services including finance, education and knowledge. Jordan is making some progress in addressing informality in agriculture. In 2021, the GoJ introduced a new bylaw that integrates agricultural workers under Jordanian labor laws, including a minimum age of 16 and restrictions on hazardous work for those 16–18[26].

26. **Women, youth, and refugees face specific barriers to greater participation in the agriculture sector.** With a large gender gap in economic participation, women face the risk of receiving less information and lower benefits from agricultural extension services, affecting their ability to make informed and climate-smart decisions. Refugees face multiple challenges when engaging in the agriculture sector, from informality and the lack of decent work conditions to exclusion from owning farming assets. Young women and refugees also face significantly higher unemployment rates and lower rates of labor force participation. Programs providing agricultural training, including curricula development and job matching, therefore need to urgently focus on creating inclusive opportunities. Similarly, women and youth face specific barriers in accessing finance, including ownership of assets permissible as loan collateral – reforms are needed to increase the inclusivity of finance services in the agri-food sector.

27. **The insufficient coordination of public and private institutions across the sector is a major impediment**

[25] Digital Revitalization of the Agri-food Sector in Mashreq World Bank 2021
[26] Gender Equality and Climate Change in Jordan UNDP 2021

**to effective policymaking.** The lack of coordination within MoA, and between MoA and other relevant ministries is a hurdle to implementing a multi-faceted program such as JAP, which requires a variety of interventions across government bodies. Additionally, the lack of organization prevents the private sector and other stakeholders e.g., farmer associations and civil society organizations, from effectively expressing their needs, which would be essential in working toward an enabling environment where the State and other stakeholders work as partners to support agriculture growth.

## C. Relationship to the Country Partnership Framework (CPF) and Rationale for Use of Instrument

28. **The Program is aligned with the World Bank Group (WGB)'s twin goals. The Program is focused on results that improve livelihoods and boost job opportunities for the poorest people, in alignment with the Bank's FY17–FY22 Country Partnership Framework (CPF) for Jordan[27].** The Program contributes directly to the CPF's first pillar, which aims to foster conditions for stronger private sector-led growth and better employment opportunities for all. The Program is also aligned with the focus of the second pillar on climate resilience and water use efficiency. Finally, the Program supports the new third CPF pillar introduced in the Performance and Learning Review, namely 'COVID-19 pandemic—supporting an effective response and resilient recovery', through training and matching unemployed beneficiaries with good quality jobs to help address Jordan's unemployment challenge and investing in the agri-food sector as an engine of growth and recovery.

29. **The proposed Program reflects the priorities of the WBG Middle East and North Africa (MENA) Enlarged Strategy, which focuses on harnessing human capital, leveraging digital technologies, and maximizing finance for development (MFD).** Improving the policy and regulatory framework to promote private investment and create jobs in agri-food value chains contributes to the pillar focused on renewal of the social contract. Encouraging the adoption of improved water management practices and agricultural diversification in higher-value and less water-intensive production would help to achieve the pillar of improving resilience to climate shocks.

30. **Achieving results in agri-food value chains that enhance women and youth's access to opportunities for more and better jobs contributes directly to the WBG's Gender Strategy (FY16–23).** The Program aims to leverage women's active, yet often informal, involvement in the rural economy, focusing on harnessing these skills by introducing new technologies and recognizing socially relevant business models, e.g., home-based work. This emphasis is in line with the World Bank-wide gender strategy and regional emphasis on removing barriers that prevent women from accessing productive opportunities and promoting closing the gaps in their economic participation.

31. **The Program will mainstream citizen engagement through the 2014 Strategic Framework for Mainstreaming Citizen Engagement in WBG Operations**. The Program design is aligned with the approach's five principles, including the strengthening of country systems and engagement with stakeholders throughout the program cycle, including through tools such as beneficiary satisfaction surveys on completion of certain project activities, e.g., extension.

[27] Report number 102746-JO

32. **The Program is fully aligned with the WBG and Middle East and North Africa (MENA) Climate Change Action Plans, in that it promotes climate change adaptation and the reduction of greenhouse gas (GHG) emissions from the agriculture and land use sectors.** Specifically, the Program will: (i) foster water- and climate-smart practices across the entire agri-food value chain; (ii) establish early warning systems for mitigation of climate-induced shocks; and (iii) contribute to reduced food loss and waste in agri-food value chains.

33. **The Program complements the existing and pipeline World Bank lending portfolio in Jordan:**

i. *Water-Energy-Food (WEF) Nexus*: Taking a holistic approach toward supporting Jordan's sustainable development, the Program is embedded around the WEF nexus developed as part of the Jordan CCDR and complements a Program for Results (PforR) under preparation, the proposed National Program for Water Sector Efficiency (P176619, pipeline). It will aim to reflect the GoJ's focus on improving efficiency in the water sector.

ii. *An integrated approach to food security*: The ARDI Program addresses the structural challenges of local food systems, i.e., climate resilience, competitiveness and agricultural innovation. The Program is complemented by technical assistance on food security with a focus on import systems (P179598) and the Emergency Cash Transfer COVID-19 Response Project (P173974), which addresses food security risks on the demand side.

iii. *Enabling environment for private sector development and exports*: The Technical Assistance on Agriculture Export Competitiveness (P178580) has generated a host of evidence and insights, based on pilot crop and export trials that ARDI will build on across Sub-Results Area (SRA) 2. Evidence and insights cover, for example, the prioritization of export opportunities, policy recommendations for export promotion, and bottlenecks identified in public service delivery underpinning exports, e.g., Maximum Residue Limit (MRL). Going forward, the two initiatives have highly complementary profiles and will seek to closely collaborate. The proposed Support for Industry Development Fund (P178215, pipeline) will promote investments and exports in the manufacturing sector, including opportunities for food processing. The Inclusive, Transparent, and Climate Responsive Investments Program for Results (P175662) set capital spending and budget execution targets to which ARDI will contribute. The Support to Private Sector Employment and Skills Project (P177959) supports longer-term upskilling and training programs that complement the shorter term opportunities offered by ARDI. Finally, the Innovative Startups Fund Project (P161905) strengthens the digital ecosystem ARDI would build on to expand digital tools in the agri-food sector.

34. **The Program is aligned with Jordan's updated Nationally Determined Contribution (NDC) 2021 and the National Climate Change Adaptation Plan (NAP) 2021.** Both the NDC and NAP identify the effect of declining water availability on Jordan's agriculture sector and livelihoods as the principal climate change threats to Jordan. The climate strategies prioritize strengthening the climate resilience of the agriculture sector through rainwater harvesting and water use efficiency technologies. Inclusive support for refugees and the mainstreaming of gender in climate policies are key elements of the NDC and NAP and are equally reflected in the design of the PforR.

35. **The rationale for the use of the PforR instrument stems from the Government's objective of transforming the agriculture sector and the window of opportunity created by the adoption of JAP.** The Government's fiduciary and environmental and social risk management systems are sufficiently established and capable to warrant the utilization of the PforR instrument. The Government also indicated its willingness to make any necessary improvements in its internal systems, including fiduciary improvements, for the implementation of

the Program. Additional systems building and technical assistance needs will be covered by an Investment Project Financing (IPF) component that will establish a Delivery Unit, among others.

36. **Specific considerations for the use of PforR.** The PforR instrument will enhance the impact of the World Bank's financial and technical support and increase the overall results orientation of JAP. The decision to use this instrument was based on the following specific considerations:

i. *Opportunity for sector-wide impact and lasting impact*: By supporting GoJ in the delivery of strategic and foundational elements of JAP across policy and investment, the PforR instrument will inspire confidence in the private sector and other partners through consistency of policy on key structural dimensions that underpin the sector. In this way, it will pave the way for increased investment and engagement by the private sector and other partners in the agri-food sector more generally, and in other activities under JAP in particular.

ii. *Results orientation*: GoJ's program as depicted by JAP provides a comprehensive set of activities and actions to strengthen the overall development of the agri-food sector in the country (see Section II). The PforR Program will push forward the results orientation of foundational elements of JAP by rewarding the achievement of results with disbursements.

iii. *Upfront momentum*: The PforR instrument will allow to address key policy issues in early years that will unlock investment by the private sector in subsequent years.

iv. *Donor harmonization*: The PforR will not only enhance the partnership between the government and the World Bank by using the Government's own systems, but also the coordination of donor interventions in the sector under the umbrella of JAP.

v. *Institutionalization of monitoring and evaluation***:** The use of the PforR instrument is an opportunity to develop MoA's monitoring and evaluation (M&E) capacity, to generate data for improved evidence-based decision-making and to institutionalize a culture of measurement of results.

37. **The implementation of the broader government program, including, but not limited to, the PforR and the development of relevant delivery systems would be underpinned by an Investment Project Financing (IPF) component, establishing a Delivery Unit (DU) for MoA, among others**. As noted below, the adoption of JAP represents a significant trend reversal and increase in attention to the agriculture sector by GoJ. As such, the scale up, evolution, and innovation around existing programs by the relevant implementing entities in the sector will require the rapid concentration and gradual development of additional systems in areas critical to the delivery of a large, sector-wide investment program by MoA and its associated entities. This need is confirmed by the interest shown by other development partners to co-fund the unit, as well as the findings of the technical, safeguards, and fiduciary assessment underpinning this PforR. The DU would leverage the IPF modalities to rapidly recruit qualified staff to fill key capacity gaps in the short term and build implementing agencies' systems and capacities through on-the-job training in the medium term. The DU would also hold the institutional mandate to enhance consultation and coordination with other stakeholders across GoJ, the private sector, and development partners in the delivery of the government's plan.

## II. PROGRAM DESCRIPTION

### A. Government Program

38. **The Jordan National Sustainable Agriculture Plan 2022-2025 (JAP) offers a blueprint for the development of Jordan's agri-food sector over the coming years**. The National Strategy for Agricultural Development (NSAD) 2020–2025 was prepared in 2017 and shifted attention toward the importance of the agricultural sector. Subsequently, JAP was launched in January 2022 and builds on NSAD by developing an investment plan outlining a comprehensive set of specific policy and investment interventions with the potential to reinvigorate the sector after a long period of neglect.

39. **JAP is set apart from other sectoral strategies** because of its (i) broad ownership across the GoJ, including MoA, the Ministry of Planning and International Cooperation (MoPIC), the Ministry of Water and Irrigation (MWI) as well as the Prime Minister; (ii) clear targets and accountability by MoA as the leading Ministry to the cabinet, with consistent and high frequency follow-up through a dedicated steering committee headed by the Minister of Agriculture, and (iii) high degree of implementation readiness through a clear implementation framework, specifying activities, responsible entities, financing sources, and a comprehensive results framework of quantitative targets across years. Upon completion, continuity will be ensured by the Jordan Economic Modernization Vision. Key priorities align to create a coherent framework, such as increasing agricultural exports, value-chain development, reforms for decent employment, sustainable agriculture, and digital innovation.

40. **Building on an analysis of the main challenges facing the sector, JAP seeks to accomplish three principal objectives: to boost farmer income, increase sector productivity and promote water use efficiency.** JAP builds its intervention portfolio on an analysis of the main challenges facing the agri-food sector from which it derives three primary objectives: (i) to improve farmers' living conditions, e.g., by reducing production costs, improving product quality, opening new export markets, attracting private investment into the value chain, supporting women and youth for increased participation in the sector, and by improving agricultural risk management; (ii) to increase the sector's productivity, e.g., by introducing productive and water-efficient varietals, boosting the quality of veterinary services, rehabilitating pasture lands in the Badia, boosting agriculture extension including through digital means, and afforestation/reforestation programs; and (iii) to promote the efficient use of water resources, e.g., by promoting water use efficiency technologies, encouraging rainwater harvesting, promoting climate aqua- and hydroponics technologies, etc. As such the plan's objectives are well aligned with the Bank's assessment of the sectoral context outlined above.

41. **To achieve these objectives, JAP proposes policy reforms and investments across six priority areas to be implemented by agencies across GoJ.** These are (i) to develop the business environment for the agricultural sector, (ii) to improve the efficiency of irrigation water use, (iii) to encourage the use of modern technology in agriculture, (iv) to enhance the competitiveness of Jordanian agricultural products, (v) to strengthen agricultural exports, and (vi) to sustainably develop the forest sector and rangeland ecosystems. A total of 75 activities are proposed across these priority areas, with implementing agencies ranging from MoA, MoF, NARC, ACC, and Municipalities to donors and the private sector.

42. **The implementation of the plan will occur under a whole-of-government approach and requires**

**investments of a total cost of JOD422 million (equivalent to about US$595 million) and is expected to generate significant impact.** This would be financed by a variety of sources including public finance through JOD138 million (US$195 million) in treasury allocations to central government services; JOD29 million (US$41 million) by municipalities; and JOD74 million (US$104 million) through existing engagements with development partners. These public investments are expected to enable JOD64 million (US$90 million) in private sector investments and demand for financing from the Agricultural Credit Corporation (ACC) of JOD117 million (US$165 million) in loans and grants in support of the plan's objectives. The estimated impact of JAP is a significant shift in the sector's development trajectory. GoJ estimates that the plan would generate 32,000 additional full time, and 24,000 seasonal employment opportunities, increase the value addition generated by agriculture by 10–15 percent annually, and permit to re-and afforest 25 percent of barren lands in suitable areas.

## B. PforR Program Scope

43. **The Program is anchored in JAP, both in terms of its development objectives as well as its priority activities and main results**, with the following defining strategic characteristics:

i. *It would focus on improving the effectiveness of and introducing innovations related to sustainable water use at the farm and community level*. This includes the development of an evidence-based approach to rainwater harvesting and the development of an innovative financing product that monitors and integrates conditionalities on freshwater consumption.

ii. *It would significantly strengthen systems underpinning farmers' adaptive capacity* by improving the quality of and access to public and private extension services, developing an early warning system for agricultural risks, and leveraging the potential of digital technologies for farmers.

iii. *It would seek to address fundamental elements of the enabling environment for agribusiness to attract private sector investments in the agri-food sector*, such as improving selected regulations, public core services on food safety, and developing and implementing a coordinated approach to market development and export promotion.

iv. *It would seek to ensure greater inclusion of women, youth, and refugees*. By providing these groups with access to services, knowledge, and skills, the program creates formal jobs and economic opportunities for other vulnerable groups, especially youth, refugees, and host communities.

44. **Program boundaries.** GoJ has sought World Bank support in achieving a set of cornerstone results under the JAP umbrella that touch on critical priorities and can help crowd in support from other partners. Through subsequent dialogue with the client and development partners, results were identified that (i) target the most pressing sector challenges noted above (e.g., climate resilience and competitiveness), (ii) strengthen key public functions (such as extension, phytosanitary services, an early warning system) that would enable investments by other actors, notably the private sector, (iii) build on the existing capacity and the track record of implementing agencies to generate rapid results, and (iv) complement interventions by other development partners. As such, activities within the boundary cut across priority areas to constitute a coherent set of results areas laying the foundations for sector transformation as shown in Table 1.

*Table 1: Key attributes and scope of the Program*

| ***Attributes*** | ***JAP*** | ***PforR*** | |
|---|---|---|---|
| ***Objective*** | JAP aims to accelerate the development of the agriculture sector | The PforR aims to strengthen the climate resilience and enabling environment for agriculture development in selected value chains in Jordan. | |
| ***Period*** | 2022–2025 | 2023–2028 | |
| ***Budget*** | JOD422 million (US$595 million)[28] | JOD115 million (US$162 million, of which US$119.5 million is WB Financing)[29] | |
| ***Structure*** | 6 Priority Areas, 13 Sub-Priority Areas | **2 Results Areas (with two respective Sub-Result Areas):** (i) Climate resilience and sustainability, and (ii) Competitiveness and exports | **Sub-Results Areas** |
| ***Priority Areas and Expenditures[30]*** | **Priority Area 1:** Develop business environment:<br>1.1 Develop policies and capabilities related to the agricultural sector<br>1.2 Strengthening partnerships with the private sector to increase the volume of investment in the agricultural sector<br>1.3 Development of the agricultural financing system<br>1.4 Improving the procedures and services provided by the Ministry of Agriculture<br>1.5 Agricultural Risk Fund Development<br>1.6 Agricultural Research Development | Improving public service delivery in extension for crop and livestock farmers, with increased role for the private sector, evidence base and accelerated digitalization.<br>**JOD25.5 million** (US$36 million) | 1.2 |
| | **Priority Area 2:** Improve the efficiency of irrigation water use:<br>2.1 Building skills in modern technologies<br>2. 2 Employment and training in the agricultural sector | Up-skilling and job matching program tailored to the agri-food sector, based on skills and capacity needs assessment and focused on inclusion of unskilled/ semi-skilled women, youth, and refugees.<br>**JOD20.9 million** (US$29.4 million) | 2.2 |
| | **Priority Area 3:** Encouraging the use of modern technology in agriculture:<br>3.1 Encouraging irrigation water efficiency projects | Farm and home garden level rainwater harvesting capacity sustainably scaled up based on national rainwater harvesting strategy<br>**JOD41.8 million** (US$59.0 million) | 1.1 |
| | **Priority Area 4:** Enhance the competitiveness of Jordanian agricultural products:<br>4.1 Reducing costs through local production of inputs<br>4.2 Develop seed industry | Public and private food/seed testing and certification program enhanced through investments in technology and capacity building.<br>**JOD3.9 million** (US$5.5 million) | 2.1 |
| | **Priority Area 5**: Strengthening agricultural exports:<br>5.1 Development of the agricultural marketing system<br>5.2 Encouraging investment in the agricultural promotion and export sector | Implementation of a coordinated approach to market development domestically and for exports including the conceptualization and establishment of voluntary traceability systems for promising commodities and incentives to invest in water-efficient technologies to boost commercial and ecological viability at production level.<br>**JOD10.5 million** (US$14.8 million) | 2.1 |
| | **Priority Area 6:** Development and sustainability of forest sector and rangeland ecosystems:<br>6.1 Develop a sustainable national program for forest protection and development<br>6.2 Develop a sustainable national program for the conservation and rehabilitation of rangelands | Prepare a national rainwater harvesting strategy (including mapping and an ex-ante impact assessment at the watershed level) with a subsequent scale up of rainwater harvesting in the Badia region with strengthened community engagement.<br>**JOD12.6 million** (US$17.8 million) | 1.1 |

[28] Of the total amount, GoJ treasury funds capital expenditures of JOD138 million (US$195 million).
[29] Including required current and capital expenditures based on additional detailed costing developed for Program activities. In addition, WB provides financing of US$5.5 million in support of the IPF component of the operation.
[30] Underlined Sub-priorities are supported by Program

45. **By financing a significant share of the envelope within the Program's boundary, the Bank contributes to signals of policy consistency and commitment that will unlock investment decisions by other actors.** The Bank will finance approximately 74 percent of expenses within the boundary of the Program. In the Jordanian context, policy consistency and investor confidence is often eroded by frequent government transitions and a lack of strong public and private sector engagement on difficult sectoral issues. Significant Bank backing to a series of GoJ investments addressing key constraints to production and the provision of foundational agri-food services will promote more trust and sustainable investments in the sector over time.

46. **Program geographic and value chain focus.** Aligned with JAP, the Program has nationwide scope covering Jordan's three agroecological zones (AEZ) and focuses on climate-resilient and competitive value chains identified under the Jordan Climate-Smart Agriculture Action Plan (2021): (i) Irrigated AEZ: Horticulture (fruits, vegetables, flowers, etc.) and dates; (ii) Rainfed AEZ: Olives; (iii) Agropastoral AEZ: Small ruminant production. As noted above, prioritization for export would be done at more granular level, informed by the work of the Technical Assistance Agriculture Export Competitiveness (P178580) initiative.

47. **Program beneficiaries.** The Program's activities will benefit a broad range of stakeholders in the agri-food sector.

i. *Under Result Area 1 Climate Resilience and Sustainability*, the Program will directly benefit: (i) herder communities in the Badia area, through increased access to harvested water and restored pastures; (ii) smallholders involved in rainfed olive production through increased access to harvested water; (iii) farmers and herders benefiting from extension services, such as Farmer Field School (FFS) programs (including women, youth, and refugees) and increased access to digital applications such as an early warning system for climate and agricultural risks; (iv) beneficiaries from increased access to vaccination (foot-and-mouth disease (FMD)) as well as veterinary services, including a reduction in the risk of zoonotic diseases for the wider population.

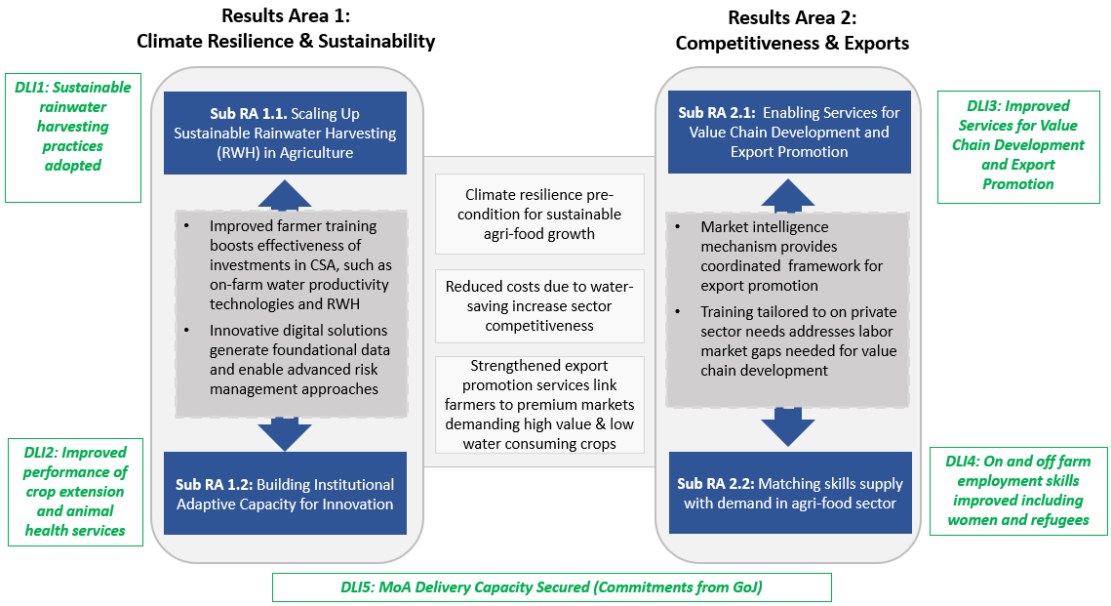
ii. *Under Results Area 2 Competitiveness and Exports*, farmers and agribusinesses will benefit from direct incentives for investment in advanced and water-efficient production technologies and indirectly from improved public services for market development and export promotion, such as market information, the availability of adequate traceability systems to reach European markets, and faster and higher quality laboratory testing capacities of public and private sectors. The skill building and matching program will directly benefit individuals interested in entering the agri-food sector, including tailored support to women, youth, and refugees. These improvements in the enabling environment are expected to indirectly benefit local consumers through safer food and generate employment opportunities within value chains. Finally, the Government agencies involved in the Program, e.g., the MoA, NARC, ACC, will benefit from increased capacity to implement their mandates and to monitor and evaluate the results of programs.

*Program intervention logic*

48. **The Program's twin results areas are closely linked and mutually reinforcing as shown in Figure 4.** The definition of the Program's results areas is governed by two underlying concepts. First, the most urgent and strategic challenges to be tackled are climate resilience and water use sustainability on the supply side and competitiveness and export development on the demand side. Second, the supply and demand side challenges will require simultaneous interventions to achieve the desired results. Agribusiness growth will require production

systems that are resilient to climate change and with the capacity to adapt to market opportunities by deploying best practice production technologies. Vice versa, farmers and herders are unlikely to make the requisite investments unless offered higher-value marketing opportunities for their crops and livestock, especially by accessing export markets. Sub-results areas were similarly selected to be mutually reinforcing, such as to increase the impact of farm- and community-level investments through technical assistance from competent extension services; and the mutual benefit from stimulating agribusiness development while improving the fit of individuals in the workforce with the employment opportunities likely to be created.

*Figure 4 Overview of Program Intervention Logic*




49. **The Program—through its results areas and disbursement-linked indicator framework—mainstreams several cross-cutting agendas:**

i. *Inclusion of vulnerable groups and refugees*. The Program would enlarge the range and quality of adaptation capacities of those engaged in the agri-food sector, which include some of Jordan's most vulnerable people, including host communities and refugees. The inclusion of refugees is mainstreamed through all four sub-results areas of the Program with significant expected direct (training, upskilling) and indirect (resilience, employment opportunities) impacts. The rainwater harvesting activities (SRA 1.1) enhance the climate resilience of rainfed agriculture, protecting related employment for refugees and vulnerable host communities engaging in olive farming and livestock herding. The extension training for farmers and employees (SRA 1.2.) specifically targets vulnerable groups through the training curricula of extension agents, tailored extension services for vulnerable groups and minimum shares of participants from specific vulnerable groups (women, refugees). The Program aims to create more sustainable and better performing value chains for the domestic market and exports (SRA 2.1), which will protect and identify competitive employment opportunities, benefiting refugees engaged in the agriculture sector. Similarly, Sub RA 2.2 provides upskilling and job matching for youth and unemployed individuals, specifically targeting refugees

and women in the training topics offered and setting minimum participation levels. Investments in building skills and knowledge of women, youth, and refugees, in particular, will increase employability and support the transition to formal employment, which will also enable closer monitoring of job equity-related metrics.[31] Both the extension training and job matching will further include sensitization to worker health and safety, child labor, and refugee inclusion; and ensure geographic targeting that includes areas with large shares of refugee populations (such as in Mafraq and Irbid governorates). Finally, the Program will place a special focus on child labor issues, highlighted in Annex 12.

ii. *Digital Agriculture*: The Program aims to create synergies with Jordan's thriving digital ecosystem. Under SRA 1.2, the Program will accelerate the digitization of the crop extension system through the scale up of the *Ma' Al Muzare'* and *Wafrirr* applications, providing farmers with local weather forecasts, crop calendars, and real-time irrigation advice. The Program will support the launch of E-NARC, a digitized and automated platform for soil sample analysis benefiting farmers. The digitization of the extension system will be further strengthened through the establishment of an agri-tech forum, aiming to create synergies between NARC, incubators, accelerators, and agri-tech start-ups. Digitalization will also play a key role SRA 2.1, where the traceability system, certification services, and market information will include process digitization and automation elements.

iii. *Narrowing the gender gap*: Gender gaps in Jordan's agriculture sector are significant, for instance female farmers control smaller and fewer parcels of land and are less likely to be formally employed. The ARDI PfoR will undertake to see all its activities through the gender lens: the Program will support women by addressing constraints in access to finance, technology, and business skills training. The design of the eligibility criteria for financing would ensure that female farmers can fulfill the preconditions. Extension service offerings and skill training opportunities will be designed to ensure female participation and include tailored curricula relevant to women. Furthermore, staff at the MoA will receive capacity building in women empowerment. Annex 11 provides additional detail about the theory of change.

iv. *Climate co-benefits:* Climate change is a strong theme across Program Results Areas, focused on the critical issues of water scarcity and rainfall variability. As such, the Program's Results Area 1 aims to achieve results squarely focused on climate resilience, such as expanded access to finance for the adoption of rainwater harvesting to reduce vulnerability to rainfall variability, the strengthening of farmer adaptive capacity through training and access to digital information for crop farmers and herders. Results Area 2 similarly targets water scarcity directly by stimulating investment in production technologies that: (i) improve water management efficiency and/or access to irrigation and on-farm water-saving investments; (ii) use a crop mix more suited to climate variability (drought, heat, pest, and disease-resistant); (iii) reduce water use in land preparation and water loss during crop growth; (iv) promote energy-efficient irrigation; and (v) include skills building activities focused on the use of CSA technologies for selected value chains to contribute to green jobs creation. The Program will also have significant mitigation co-benefits, such as reducing food loss and waste through improved valorization of production destined for premium markets requiring improved post-harvest practices. Based on GHG accounting results over a duration of twenty years (implementation phase

[31] Formally, approximately 14 percent of registered refugees are employed in the agri-food sector. However, this number significantly underestimates the total number as informality in this sector is high, which makes quantitative metrics related to refuges, women, and youth participation challenging to obtain. According to the IFC review, 48 percent of Syrians were employed in agriculture, 19 percent in construction, 17 percent in services and 11 percent in manufacturing in 2017.

5 years, capitalization 15 years), the Program is expected to reduce carbon emissions by 69,781 tons of carbon dioxide equivalent. The net annual emission is - 3,489 tons of carbon dioxide equivalent. Per hectare, the Program will sequester - 10.9 tons of carbon dioxide equivalent, which is - 0.5 tons of carbon dioxide equivalent per year. Detailed information on climate co-benefits and GHG accounting is presented in Annex 10.

v. *Maximizing Finance for Development (MFD).* The Program applies a MFD lens throughout, by focusing public investment on public goods accompanied by private investments in arising private goods as well as by developing public services aiming to unlock private sector activity. As such, it aims to stimulate investment (i) directly by co-financing farmer and Small and Medium-sized Enterprises (SME) investments in improved production technologies, and (ii) indirectly by developing the enabling environment for agribusiness development and export.

vi. *Citizen Engagement:* The Program will mainstream citizen engagement in line with the Strategic Framework for Mainstreaming Citizen Engagement in WBG Operations approach. The Grievance Redress Mechanism (GRM) system of the Program would include the following beneficiary feedback indicators in the results framework: (1) percentage of project-related grievances received that have been addressed and communicated within thirty days; and (2) percentage of beneficiaries satisfied with access and quality of the services supporting agri-food value chains provided under the Program. MoA will analyze the findings of the successive surveys, and subsequently, action plans to address feedback compiled through the surveys will be proposed to improve implementation of the program.

**Results Area 1 – Climate Resilience and Sustainability**

50. **Results Area 1's objective** is to strengthen the resilience of the agricultural production system to climate change and to shift the sector toward a more sustainable growth path.

51. **Sub Results Area 1.1 – Scale up of Sustainable Agricultural Rainwater Harvesting (RWH).** Under SRA1.1, MoA's rainwater harvesting programs will be placed on a stronger evidence-based footing to ensure sustainability and expanded at the farm and community levels for building climate resilience to increasing water scarcity.

52. **GoJ will generate the evidence base to improve the sustainability and development effectiveness of its Rainwater Harvesting (RWH) programs**. RWH investments (both at farm/household and community levels) backed by the PforR would be underpinned by a multi-stakeholder national Geographic Information System (GIS) mapping and planning exercise including analysis of existing and cumulative planned water balance impacts at watershed level and improved implementation procedures (targeting, community outreach, storage technology options). This ex ante impact assessment will ensure that potential negative impacts, such as on downstream water users, are avoided including by determining a sustainable density of RWH capacity per square kilometer. A National RWH committee will be established, co-chaired by MoA and MoWI and will include other relevant government entities. It will be tasked with overseeing the preparation of the national agricultural rainwater plan as well as the development of operational guidelines setting out performance standards and specifications for agricultural RWH covering the farm household and community levels.

53. **Resilience of rainfed farming will be strengthened through the sustainable expansion of a farm-level RWH grant program.** Building on an existing successful program, individual grants and technical support will enable eligible farmers to install water harvesting and storage installations on their farms. Targeting and system specifications will be aligned with the national RWH plan and the operational guidelines. Payments will be provided upon verification of functionality (water harvesting capacity, absence of leaks).

54. **Resilience of herders will be supported through an expansion of MoA's integrated RWH and landscape restoration program in the Badia, using an adjusted approach.** Based on the national strategy and new operational guidelines, mapping surveys will be prepared with engagement of local communities to assess the demand, potential, and technical soundness of integrated investments more accurately. This will apply to medium-scale RWH investments embedded in surrounding landscape restoration and sustainable rangeland management activities and include new sites as well as the restoration of existing structures.

**Sub-Results Area 1.2: Building Institutional Adaptive Capacity for Innovation**

55. **Farmers will gain better access to information and increase their capacity to adopt CSA technologies through a restructuring and expansion of MoA's extension services for crop farmers**. As part of a major reform of the extension system, MoA will work with other stakeholder to develop an extension implementation plan and training needs assessment, covering: (i) training and equipment for newly hired agents based on farmer and private sector needs to build a roster of CSA specialists; (ii) a scale up of digital extension tools in collaboration with NARC and other partners, including the development of a farmer registry system; (iii) strengthening a program for the preservation of native species; as well as (iii) the scale up of demand-based face-to-face extension approaches through Farmer Field Schools (FFS) on CSA technologies, post-harvest improvements as well as environmental and social aspects. Three agendas will be mainstreamed into extension service reform: inclusivity of vulnerable groups (women, youth, refugees), climate change context, and opportunities to expand the role of the private sector in extension service provision.

56. **Access to essential veterinary services for herders will be expanded and live animal exports facilitated through a refocusing and expansion of key public functions such as epidemiological surveillance and vaccinations**. Based on a set of recommendations provided by the World Organization for Animal Health (OIE) MoA will build an effective disease surveillance and control program[32]. Based on a strategic implementation roadmap prepared at the outset: (i) the number of staff of the veterinary service (veterinarians, para-veterinarians and laboratory technicians) will be strategically increased, adequately equipped and trained, focusing on young graduates (both women and men); (ii) critical vaccines will be procured and administered using established implementation pathways; and (iii) two regional veterinary centers will be upgraded to provide currently unavailable diagnostics and treatment options complementary to clinics operated by the private sector. As a result, Jordan will be in a position to apply for formal recognition by the OIE of having reached a more advanced level in disease prevention and control.

57. **Farmers will benefit from the rollout of a suite of digital services improving access to critical information such as on agricultural risks and market prices.** Led by NARC, collaboration between research, extension, farmers, and the private sector-driven agri-tech ecosystem in Jordan will generate an improved portfolio of agriculture

[32] OIE PVS Gap Analysis for Jordan, 2017

relevant digital applications and services. These include (i) the development and management of an Early Warning System (EWS) offering alerts to farmers in case of risks such as natural disasters; and (ii) the scale up of a set of extension applications designed to facilitate collaborations between research teams, extension agents, and farmers.

**Results Area 2 – Competitiveness and Export**

58. **RA2 objective and description.** RA2 aims to contribute to improved competitiveness of the agri-food sector by strengthening the enabling environment for agribusiness and making the sector more attractive for investment. Focusing on the value chains strengthened under RA1, RA2 will address structural on- and off-farm constraints, including the development of a coordinated approach to value chain promotion for exports and local markets, removing bottlenecks in public service provision as well as improving water use efficiency to reduce production costs. It will also cover the need to strengthen the supply and facilitate the matching of skilled labor with opportunities in the sector in support of these activities.

59. **Sub-Area 2.1 - Enabling Services for Value Chain Development and Export Promotion:** SRA 2.1 will provide assistance in four key areas relevant to improving the competitiveness of agri-food value chains: (i) the collection and provision of product/market information; (ii) coordinated value chain development and export promotion; (iii) investments in water productivity; and (iv) provision of traceability and certification services.

60. **A coordinated approach to analytics-based market development and export promotion through the establishment of a market intelligence mechanism**. A public mechanism will be created capable of observing agricultural production patterns and trends in local production, taking stock of existing export opportunities, and looking for opportunities for import substitution on the domestic market for national production. A multi-disciplinary advisory group comprised of key public entities (MoA, NARC, Jordan Export, Jordan Enterprise Development Corporation (JEDCO), etc.), private sector representatives, farmer associations, development partners, and international experts in target markets will be established. The group will be supported to build a process for obtaining and analyzing market information on trends and demand for products that are grown or could be grown in Jordan, assessing which new climate-resilient crops or varietals might be optimal for Jordan's conditions, testing these crops, and disseminating this information to farmers (in the form of pilot farms, post-harvest Standard Operating Procedures (SOPs), etc.). The mechanism would also seek to identify opportunities to stimulate private investment into post-harvest value chains, including through regulatory reforms on cooperatives. This would in involve: (i) mapping the current operators and infrastructure available in Jordan for relevant post-harvest value chain activities such as cold chain, sorting, grading, and packing facilities; (ii) identifying gaps, reviewing international approaches for attracting private sector investment in energy-efficient post-harvest value chain development using de-risking instruments (matching grants, first loss guarantees, etc.); and (iii) advancing the readiness of farmers and logistics suppliers to deploy it.

61. **Expanded access to finance for investments in water-efficiency technologies.** To remain competitive agriculture will need to further increase its water use efficiency, as water is already and will increasingly be a critical competitiveness factor, comprising both the sustainability and cost dimensions. Under SRA 2.1, the Agriculture Credit Corporation (ACC) will develop and implement an innovative reimbursable grant product that would base financing on conditionalities and stringent monitoring to ensure investments achieve water savings. The product will be based on existing ACC products and support investments such as converting to crops with

higher water productivity and lower demands, controlled environment production systems like aquaponics and hydroponics, adaptive investment for use of treated wastewater and saline sources, the introduction of crop cover, and smart irrigation systems. Support will be coupled to agreements with beneficiaries not to shift production to less water-efficient cropping systems such as banana trees, and to commit to a cap on fresh water use at farm level. A water use measurement protocol would be developed, combining remote-sensing approaches with field sampling, and cross-referenced with MoWI data.

62. **Improved premium export market access through increased access and improved quality of traceability and certification services for sanitary and phytosanitary (SPS) standards.** Basic traceability regulation will be issued by MoA to ensure appropriate public sector monitoring of food safety standards, and voluntary value chain traceability and added services promoted, i.e., Standard Operating Procedures (SOPs), residue control, child labor certifications. This will improve differentiation and competitiveness of Jordan's products, particularly for niche export markets. On the latter, a review of comparative approaches followed in other competing countries will inform recommendations on which aspects to trace and what added services could be offered in Jordan, as well as support with the initial stages of implementation of a traceability system for three value chains and their associated SOPs. On food safety certification services for the local market and exports, the Program will involve: (i) the expansion and modernization of public laboratory facilities at MoA for sanitary and phytosanitary standards (SPS) and of the laboratory at NARC specialized in the certification of seed quality; (ii) the promotion of an accreditation scheme for private laboratories performing similar or complementary functions, as well as; (iii) advancing the digitalization of all certifications.

63. **Sub-Area 2.2 – Matching skills supply with demand in the agri-food sector.** Agri-food value chains have the potential for employment opportunities (on- and off-farm). For various socioeconomic reasons, Jordanians are not maximizing these opportunities; in particular, the agricultural sector is not attracting young graduates as they are not provided with the right training and not given sufficient incentives to move to rural areas. Investment in building skills and knowledge will increase employability. Modern value chains require skilled and semi-skilled labor for on- and off-farm work. Investing in the skills of women, youth, and refugees, in particular, will contribute to the movement toward more formal job markets. The focus will be on applied skills taking into account the specific circumstances in which they will be used. In that respect, designing and implementing the training program will be achieved by enlisting the participation of key private operators in the targeted value chains.

64. **Labor market entry for unskilled and semi-skilled job seekers facilitated through an upskilling and job-matching program tailored to the agri-food sector inclusive of women, youth, and refugees.** To achieve results under SRA2.2, MoA will first conduct a needs assessment of skills in the agri-food sector overseen by a technical committee with representation of relevant government agencies, Ministry of Labor (MoL) and MoA directorates, the private sector, farmer and civil society organizations representing vulnerable groups covering a broad range of potential topics including those most relevant to specific groups. Second, building on the experience of an existing successful program, MoA will partner with other agencies (such as the National Technical and Vocational Skills Development Commission (TVSDC)) to offer one month of theoretical and two months of practical on-farm training.

**Program Cost and Financing**

65. **The Operation includes a Program for Results (PforR) component and a Project (IPF) component**. It is financed by three financing sources: a loan consisting of a non-concessional portion from IBRD and a concessional portion from GCFF, as well as a grant from Improving Prospects Partnership (PROSPECTS TF), supported by the Kingdom of the Netherlands. Table 2 below summarizes allocations. The GCFF portion is provided on a pari-pasu basis with the IBRD support and enabled the program to mainstream refugee inclusion across all sub-results areas (SRA) but particularly secured direct benefits under SRA1.2 and SRA 2.2.

*Table 2: Overview of World Bank Financing for the Operation*

| Elements of Operation | Total Financing | IBRD non-concessional loan | GCFF concessional loan | PROSPECTS TF |
|---|---|---|---|---|
| **PforR** | US$ 119.3 million | US$ 94.6 million | US$ 23.7 million | US$ 1 million |
| | | | | |
| **IPF** | US$ 5.5 million | US$ 0.8 million | US$ 0.2 million | US$ 4.5 million |
| | | | | |
| *Up-front fee* | *US$ 0.2 million* | *US$ 0.2 million* | | |
| | | | | |
| **Total** | **US$ 125 million** | **US$ 95.6 million** | **US$ 23.9 million** | **US$ 5.5 million** |

66. **The PROSPECTS TF grant co-finances the Delivery Unit (DU) (US$ 4.5 million) and the development of the skills training needs assessment under SRA 2.2 (US$ 1 million).** The objective of the grant is to increase the degree of inclusivity of the JAP in general and ARDI in particular. This would be accomplished through (i) strengthening the targeting of, service delivery for and monitoring of benefits to refugees and vulnerable groups under major support programs implemented by the MoA, the National Agriculture Research Council (NARC) and the Agriculture Credit Corporation (ACC); (ii) building capacity of implementing agencies on a broad range of aspects relevant to inclusion (child labor, occupational health and safety, formalization of labor relations and decent work, etc); and (iii) fostering coordination across GoJ (e.g, Ministry of Labor, Ministry of Social Affairs) and systematic consultation processes with stakeholders (farmer groups, private sector, civil society (eg NGOs/CSOs) as well as international partners (eg ILO, WFP, FAO, UNHCR, etc).

**Description and Assessment of Program Expenditure Framework**

67. **GoJ expenditures in support of the Program are assessed to be supportive of effective Program implementation.** As noted above, JAP is structured around six priorities, which include a set of 75 activities with an initial estimated cost of JOD389 million.[33] The Program is entirely anchored in JAP. Based on the costs initially estimated in 2021 at the time of the JAP preparation, the PforR formulation work undertaken in close collaboration with government partners allowed for the refinement of budget projections for the 13 JAP activities included within the Program boundaries. A review of these elements provided by MoA concludes that the Program's costing is realistic and supportive of effective Program implementation. The MoA has had approximately consistent budget allocations over the past three years with an increase in 2022. Analyses of all implementing agencies' execution rates shows that they have been stable and satisfactory over the last few years

[33] This figure does not take into account the costs of mobilizing the Ministry's staff and the corresponding operational costs.

for which complete budget information is available (at MoA over 95 percent in total in average for the period 2017–2020; the average execution rate for capital expenditure stands at 90 percent).

68. **The expenditure framework was prepared on the basis of actual budget allocations, estimates of budget projections, and commitments from GoJ to expand capital expenditures during Program preparation.** Initial PforR costs have been reassessed and ascertained in close collaboration with MoA. The budget projections have also been adjusted to be consistent with the timeframe for achieving the results indicated in the PforR's results framework, as well as consistency with the DLIs. The 2022 budget, partially reflecting JAP, has been used as a conservative estimate for future allocations.

69. **The expenditure framework identifies an overall Program financing envelope of US$162 million, of which US$88 million are within the baseline budget forecasts, and US$74 million will be required in additional allocations.** The existing budget allocation trends are sufficient to cover approximately 54 percent of the costs of the Program. Taking as a reference the MoA's budget for calendar year 2022, it was estimated that the need for additional capital expenditure allocations to finance the implementation of the Program would be approximately US$12.3 million annually throughout the implementation period. The preparation of the PforR has identified the institutional accountability framework on which the implementation of activities will be based. The allocation of the projected additional resources and the representation of PforR expenditures at the activity level in a timely manner have been identified as critical success factors for the Program and reflected in DLI 5. Table 3 provides an overview of the expenditure framework; a more detailed assessment of implementing agencies' capacity is provided in Annex 3.

*Table 3: Overview of Expenditure Framework*

| Agency | Category | Total included in PforR | | Budget categories (Source: MoA 2022 Budget, ACC Annual Reports) |
|---|---|---|---|---|
| | | JOD | USD | |
| **MoA - Baseline** | Current Expenditure | 28,094,800 | 39,614,268 | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 31,830,000 | 44,880,300 | Fixed assets (3112), goods and services (2211) |
| *MoA - Additional requirement* | Current Expenditure | 0 | 0 | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 41,371,000 | 58,333,110 | Fixed assets (3112), goods and services (2211) , Subsidies to Public Corporations (2511) |
| **NARC - Baseline** | Current Expenditure | 1,587,300 | 2,238,127 | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 563,200 | 794,124 | Fixed assets (3112), goods and services (2211) |
| *NARC - Additional requirement* | Current Expenditure | 0 | 0 | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 1,698,000 | 2,394,180 | Fixed assets (3112), goods and services (2211) |
| *ACC - Additional requirement** | Capital Expenditure | 10,000,000 | 14,100,214 | |
| **Total** | | 115,145,000 | 162,356,909 | |

## C. Program Development Objective(s) (PDO) and PDO Level Results Indicators

70. The **Program Development Objective** is to strengthen the climate resilience and enabling environment for agriculture development in selected value chains in Jordan.

71. **Climate resilience in the context of this Program is defined as the ability of (i) farming households to respond to climatic changes and weather-related shocks and stresses and thrive despite the impacts of those shocks and stresses, and (ii) agricultural services to adapt to changing farmer and agribusiness needs in the context of increasing water scarcity.** For improving farm household resilience to increasing water scarcity, the Program will (i) develop better adaptation strategies that are based on rainwater harvesting technologies, and (ii) directly promote the quantity and seasonal reliability of water available to farming households for production purposes. The latter will be through financing the installation and use of water harvesting technologies at landscape and farm level—dams and ponds, and tanks and cisterns, respectively—based on a rigorous watershed-level rainwater harvesting strategy that assesses cumulative impacts on water balance to identify suitable sites and densities. Resilience of farm households, of which a significant share are refugees, will be promoted by strengthening the adaptive capacity in selecting and applying on-farm technologies that enable more water-saving production practices and effective participation in climate-smart agri-food value chains.

72. **At the policy level the Program supports strengthening the enabling environment for agri-food value chain development in Jordan**. The Program focuses on addressing constraints to value-addition, product quality, and exports. In addition, the Program will support on-the-job training of (semi-skilled) workers and professionals (in particular women, youth and refugees) to fill skills gaps and labor capacity gaps across the agri-food sector.

73. **Selected agri-food value chains**. While the Program would strengthen the overall enabling environment for agri-food value chain development in Jordan, it focuses on the production of commodities with competitive potential and climate-resilient profiles as identified in the Jordan Climate-Smart Agriculture Action Plan: horticulture, rainfed olives, dates and small ruminants. The Program would place specific focus on addressing constraints that producers and agribusiness firms face with regards to post-harvest value-addition, product quality and exports.

74. The **PDO results are measured by:**

i. Sustainable[34] agricultural rainwater harvesting capacity at household and communal levels (in m3);
ii. Number of farmers completing CSA training courses (crops and livestock) (share of which women, youth, and refugees);
iii. Value of agri-food exports covered by a traceability system (US$);
iv. Share of trainees supported by the Program retained by employers after completion of training (share of which women, youth, and refugees);
v. Number of beneficiaries reached with assets and services (percentage of which women, youth, and refugees).

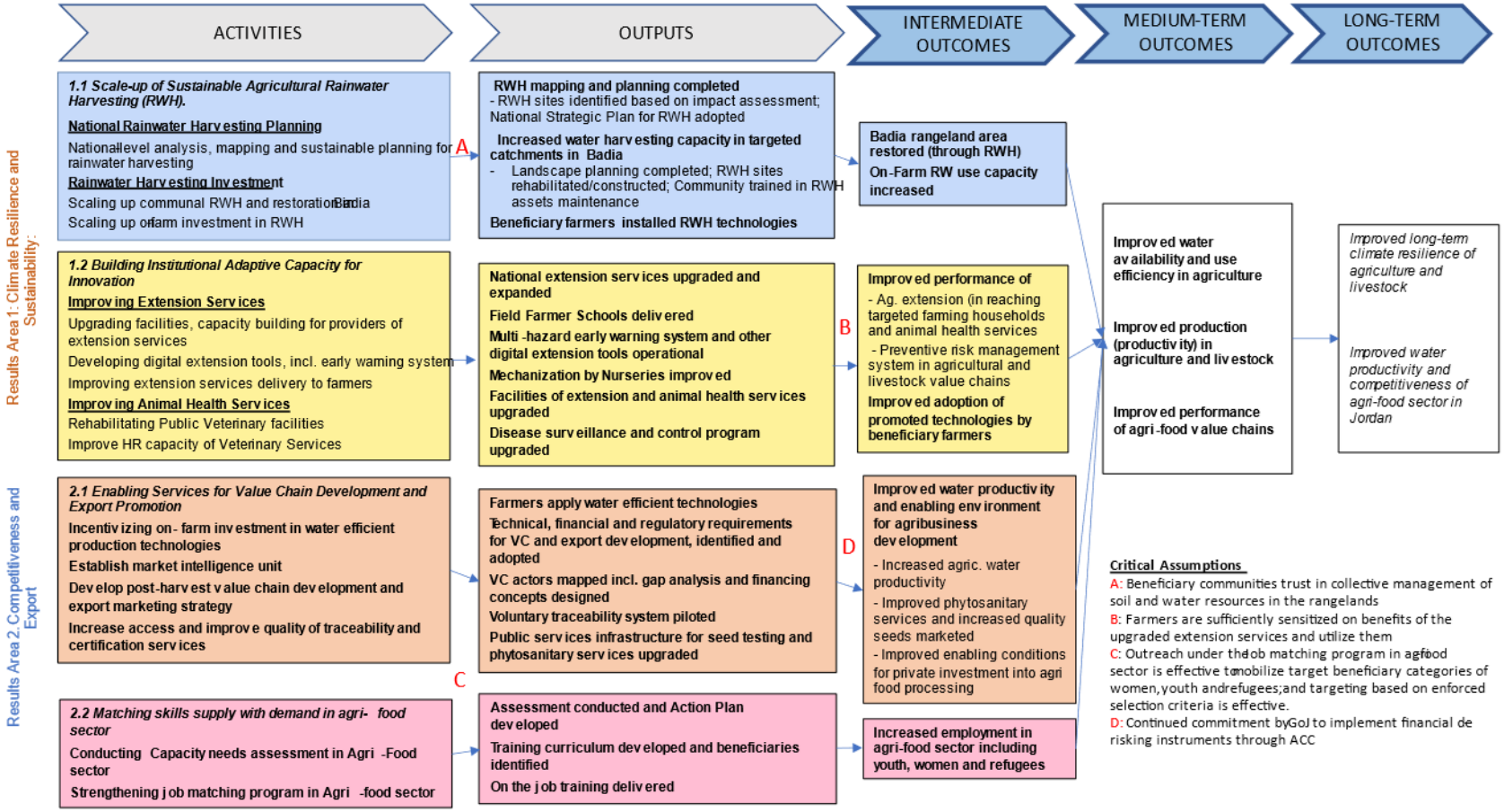
## D. Theory of Change

75. **The Program's theory of change describes how the challenges resulting from worsening climate change to agricultural development and the declining competitiveness of the Jordanian agri-food sector will be addressed.** The Theory of Change is shown in Figure 5 ARDI PforR Theory of Change.

[34] Aligned with the national agricultural rainwater harvesting strategy and operational guidelines developed under the Program.

76. **Critical assumptions behind the results chain logic that have significant influence on the expected impact of the Program relate to prevailing traditional attitudes of farm beneficiaries and value chain actors with respect to water, land, and collective action, as well as the need for a continued commitment by the GoJ to financially de-risking credits programs developed under the Program.** These assumptions will be supported by targeted outreach and communication efforts concerning: access and use of common water resources and land, building community trust in collective management of soil and water resources in rangeland; sensitization of farmers and livestock breeders about the value addition of advisory services and the engagement with new, value chain actors and; targeting of special beneficiary groups of women, youth, and refugees for participation in skill development programs.

Figure 5 ARDI PforR Theory of Change



## E. Disbursement-Linked Indicators

77. **Disbursement-Linked Indicators (DLIs).** The Program is built around five DLIs, one per Sub-Results Area and cross-cutting DLI covering the broader enabling environment for Program delivery. Table 4 summarizes the list of DLIs with details presented in subsequent paragraphs. The full set of DLIs-related information (such as detailed verification protocols and calculation formulas) is found in Annex 2.

*Table 4: Disbursement-Linked Indicators (DLIs)*

| Sub-Results Area (SRA) | Disbursement-Linked Indicator (DLI) | DLI amount (US$ million) | Description |
|---|---|---|---|
| *Sub-Results Area 1.1: Scaling Up Sustainable Rainwater Harvesting for Agriculture* | DLI1: Adoption of sustainable rainwater harvesting practices | 26.5 | Measures the sustainable expansion of the rainwater harvesting capacity for use in rainfed agriculture and pastoral livestock systems at both farm and landscape (Badia) levels to boost resilience to climate change. |
| *Sub-Results Area 1.2: Building Institutional Adaptive Capacity for Innovation* | DLI2: Innovation and improved performance of crop extension and animal health services | 21 | Measures performance upgrades in MoA's climate smart advisory support functions for crop and livestock farmers, including the deployment of digital innovations and private sector participation. |
| *Sub-Results Area 2.1: Enabling services for value chain development and export promotion* | DLI3: Improved public service delivery for value chain development and export promotion | 21.8 | Measures improvements to the enabling environment for private sector-led value chain development and export, including financing focused on stimulating investments in water productivity technologies to enhance sustainable competitiveness. |
| *Sub-Results Area 2.2: Matching skills supply with demand in agri-food sector* | DLI4: On- and off-farm employment skills improved including women and refugees | 8 | Measures skill development of youth, women, and refugees and their successful employment on the agri-food labor market |
| | DLI5: MoA Delivery Capacity Secured | 42 | Measures MoA's ability to lead delivery of the JAPby ensuring minimum capital expenditure budget allocations. |
| | Front-end Fee | 0.2 | |
| TOTAL | | 119.5 | |

**Rationale for selecting DLIs**

78. **DLI #1: Adoption of sustainable rainwater harvesting (RWH) practices.** Rainwater harvesting is one of the main intervention pathways for strengthening climate resilience of rainfall-dependent farmers and herders. DLI 1 measures the sustainable increase in rainwater harvesting capacity for (i) supplemental irrigation in rainfed production systems at farm level using underground cisterns (average capacity 30 m3), (ii) livestock watering by herders in the Badia rangelands using earthen structures (average capacity 50,000 m3) as well as for, (iii)

rangeland restoration purposes while sustaining the water balance in the watershed. RWH is central to Sub-Results Area 1.1 since increasing drought risks threaten the viability of rainfed farming systems. RWH can provide vital water sources to protect perennial plant assets at risk of permanent damage and herders' productive livestock assets by ensuring water availability for small ruminant production in the Badia region. The latter two Sub-DLIs are measured by the rainwater harvesting (i.e., storage) capacity created (in m3) by the Program in alignment with the national plan and operational guidelines as a proxy for RWH adoption performance (scalable DLR).

79. **DLI #1 measures results across the following Sub-DLIs:**

- **DLI 1.1 Planning framework for agricultural rainwater harvesting (RWH) established (US$ 3.5 million):** introduces innovative approaches into RWH and measures key institutional milestones on the way toward the establishment of a digitally-enabled national agricultural RWH planning framework with adequate operational guidelines for agricultural RWH;
- **DLI 1.2 Farm-level RWH practices adopted (US$ 14 million):** measures the adoption performance of RWH practices at farm level with a focus on women-led households; and
- **DLI 1.3 Community-level RWH practices adopted (US$ 9 million):** measures the adoption performance of RWH practices at community level in the Badia rangeland areas.

80. **DLI #2: Innovation and improved performance of crop extension and animal health services.** Improving extension and animal health service delivery is selected as a second pathway for strengthening both farm household and sector-wide climate resilience by introducing, disseminating, and promoting collective/individual learning about climate-smart production and management practices. This is supported by introducing improved enabling systems that leverage digital innovations (farmer registry, e-extension, public tree nurseries, vaccination and FMD control program) and accelerate the transition toward private sector involvement in service delivery (e.g., private sector mandate for veterinary services).

81. **DLI #2 measures results across the following Sub-DLIs:**

- **DLI 2.1 Digital farmer registry established and scaled up (US$ 4.5 million):** monitors whether a functional digital farmer registry is developed and scaled up to a significant coverage of the farmer population, enabling data-driven sector policy approaches for improved targeting, tailoring of climate-smart interventions and extension services, as well as big data agri-tech applications.
- **DLI 2.2 Extension service capacity increased (US$ 2 million):** tracks a comprehensive reform of MoA's extension services and a program of continuous improvement, including the development of an agriculture climate smart extension plan incorporating digital extension approaches with participation from private sector providers and a rigorous learning program to improve the effectiveness of service provision.
- **DLI 2.3 Farmer CSA skills expanded (US$ 4.5 million):** tracks a scale up of farmer and herder skills development on climate-smart on- and off-farm technologies, including tailored programming to boost capacity in the use of digital innovations and to help women, youth, and refugees overcome knowledge and skills barriers toward increased participation in the sector, with climate change resilience a cross-cutting element.
- **DLI 2.4 Animal health service provision capacity expanded (US$ 8 million):** monitors expansion and

development of the coverage and quality of veterinary services, placing the country on a sound pathway for effective foot-and-mouth disease control among small ruminants, strengthening the climate resilience of the livestock sector and unlocking opportunities for the private sector (e.g., through the establishment of a private sector mandate for vaccination). Higher temperatures and heat stress reduce feed intake and increase vulnerability to diseases, with negative impact on production and reproduction, resulting in vulnerability and higher emission intensities of production.

- **DLI 2.5 Digital innovations for the agriculture sector introduced and scaled up (US$ 2 million):** measures the establishment of public-private partnership on climate smart digital agriculture technologies bringing together extension services and research with agribusinesses, start-ups and the wider digital ecosystem (incubators, accelerators, etc.) to develop an integrated offering of digital solutions for farmers and their promotion through extension channels.

82. **DLI #3 - Enabling services for value chain development and export promotion.** The third pathway for strengthening climate resilience and the enabling environment in the agri-food sector is by improving the enabling environment for agribusiness through regulatory reforms and public services that are critical to facilitate more sustainable agri-food value chain development of selected products, their continued competitiveness, and more opportunities to leverage the significant potential for exports to premium markets and segments.

83. **DLI #3 measures results across the following Sub-DLIs:**

- **DLI 3.1. Adoption of water use efficiency technologies scaled up (US$ 10 million):** monitors achievements in (i) the preparation of an innovative reimbursable grant instrument for investments in digitally-enabled water use efficiency technologies (e.g., crop covering, change in cropping pattern, smart irrigation) specifically targeting investment relevant to women and reducing women-specific barriers to access to finance and including remote sensing-supported monitoring of water use, and (ii) the effective use of this financing instrument for building resilience to water scarcity exacerbated by climate change with a minimum share of women participants required.
- **DLI 3.2 Value chain development and export promotion services strengthened (US$ 4.5 million):** monitors the establishment of an interdisciplinary mechanism for market intelligence with participation from GoJ agencies, agribusiness, and farmer associations to establish a coordinated approach to market development and export promotion. The regulatory reform of the cooperative sector establishes the foundation for greater participation of cooperatives in value chains, including associations of women and youth. The mechanism would draw on real-time local and international market and climate data and a mapping of domestic value chains to identify promising commodities resilient to climate change, infrastructure gaps, coordinate trials, and develop, as well as advance, the readiness to implement appropriate financing instruments to stimulate private investment for competitiveness and improved income generation opportunities for farmers and farmer cooperatives.
- **DLI 3.3 Traceability systems in place for key commodities (US$ 3 million):** focuses on results related to the adoption of basic regulatory frameworks for traceability, followed by the conceptualization and implementation of voluntary traceability systems for exports that leverage digital technologies (e.g., blockchain, radio-frequency identification (RFID) tags). The traceability systems, in combination with the internationally certified food safety testing (DLI 3.5), would create an enabling environment for organic

farming which emits reduced greenhouse gas emissions due to no synthetic fertilizers or pesticide use.

- **DLI 3.4 Improved service delivery for food safety (US$ 4.3 million):** monitors the expansion of opportunities for private sector to offer food safety-related testing services through an accreditation program, the creation of internationally certified food safety testing and seed certification capacity to facilitate integration of agri-food value chains and build capacity for monitoring of foodborne disease outbreaks exacerbated by climate change. Improved seeds certification capacity would also contribute to climate resilience by using good quality and climate resilient seeds including heat tolerant varieties with minimal weed seeds and other contaminants used for cultivation. This would be less susceptible to disease, heat, and drought incidences.

84. **DLI #4: On- and off-farm employment skills improved, including women and refugees.** The fourth pathway for enabling a more competitive agri-food sector is by closing the skills gaps that is weakening the sector (while unemployment rates are high) and by more effectively matching job seekers with potential employers based on consultations and needs assessments conducted together with stakeholders. Trainings offered would feature digital technologies across subjects and be tailored to the needs of different groups, including women, youth, and refugees to ensure skills development and matching services are aligned with the most promising areas for increased participation, tackle key knowledge barriers, and personal as well as cultural preferences.

85. **DLI #4 measures results across the following Sub-DLIs:**

- **DLI 4.1. Training needs assessment and program development (US$ 1 million):** tracks completion of a training needs assessment (conducted with private sector, civil society, and farmer organizations), endorsement, and launch of a skills training program. It is envisioned that trainings would focus on off-farm activities in the value chain as well as on-farm activities at production level, which would mainly focus on climate-smart practices that promote technologies that: (i) improve water use efficiency; (ii) deploy more climate-resilient crops (drought, heat, pest, and disease-resistant); (iii) reduce water use in land preparation and loss in crop growth stages. The training curricula would also include awareness raising on key issues such as child labor, occupational health and safety (OHS), as well as decent work and accessibility to the Program's grievance mechanism.
- **DLI 4.2. Skills upgrading and job matching opportunities scaled up (US$ 7 million):** monitors achievement of capacity development targets set by the training program, with particular focus on the inclusion of women, youth, and refugees. Skills upgrading and matching opportunities will increase employment opportunities for vulnerable populations in rural areas and reduce outmigration in part driven by climate change.

86. **DLI #5 MoA delivery capacity secured.** Compared to historic averages, a sustained increase in capital expenditure commitments to MoA will be required to finance the transformation of the sector contemplated under JAP. Given its critical importance, securing MoA's delivery capacity through the budgeting process is also a critical assumption in the overall theory of change of the Program.

87. **DLI #5 measures results across the following Sub-DLIs:**

- **DLI 5.1 Capital expenditure levels aligned with ambition of JAP and the targets under the Program (US$42 million):** DLI 5 promotes MoA's sustained capacity to deliver on the JAP by calling for a consistent trajectory of minimum increases in capital expenditure allocations for MoA. Such increases also support wider GoJ

capital expenditure targets (such as under the IMF program and the Inclusive and Climate-Responsive Investments PforR).

## F. Investment Project Financing (IPF)

88. **The implementation of JAP overall will require considerable, well-coordinated, timely, and focused technical support from the MoA to strengthen the respective technical project management, financial management, procurement, and safeguards systems.** The IPF would aim at providing support to MoA for system development and strategic planning in the JAP's selected priority areas. This would be achieved through the establishment of a Delivery Unit (DU). In support of the DU, the IPF component would finance works, goods, non-consulting services, and consulting services, training and operating costs .

89. **Component 1: JAP Systems Building and Implementation Support.** The DU would provide expertise and support to MoA for JAP implementation; it would be staffed with appropriate expertise in the following areas, inter alia: agri-food sector, financial and procurement management, monitoring and evaluation, communication as well as environmental and social standards with particular expertise on occupational health, child labor and refugee inclusion issues.

90. **Component 2: Inter-Ministerial Coordination and Stakeholder Engagement.** This component will support MoA in: (i) establishing mechanisms for inter-ministerial and agency coordination at a technical level, including MoPIC, MWI, MoENV, ACC, etc.; ii) collecting and analyzing the lessons learned from ILO, UNCHR, and other refugee-related agencies to mainstream mechanisms for inclusion into MoA and inform new regulations or policies; and iii) stakeholder consultation mechanisms (private sector, civil society, producer and farmer organizations). Mechanisms will focus on selected strategic priority areas underpinning the JAP, including *inter alia*: the areas of efficiency of water use in agriculture, opportunities for private sector engagement in extension, the competitiveness of agriculture value chains and agricultural exports, the enabling environment for inclusion of vulnerable groups including refugees.

91. **Component 3: Capacity Development for Implementing Agencies.** The DU will mobilize, on an as-needed basis, targeted technical assistance in support of skills development efforts for employees of the implementing agencies of the JAP, as well as other relevant parties. International and regional experts will be mobilized in response to specific requests and needs identified on themes directly related to the priority areas included in the PforR. Short- and medium-term training programs will be offered for key implementing agency staff. Assistance will also be provided in a more transversal manner on policy analysis and development elements as well as in support of the annual and multiyear budgetary programming process at MoA to ensure an effective mobilization of the budgetary resources necessary for implementing the PforR. Areas identified for capacity building include strategic planning, project management, procurement, safeguards, inclusion, private sector collaboration as well as technical aspects related to agricultural development and value chains.

92. **Component 4: Contingent Emergency Response Component (CERC).** This component would have zero allocation of funding at the onset and would only be triggered in emergency circumstances; the IPF would support the preparation of a procedure manual governing the CERC operations.

## III. PROGRAM IMPLEMENTATION

### A. Institutional and Implementation Arrangements

93. **MoA has the overall responsibility for the implementation of the Program.** It is responsible at the national level for delivering the National Agriculture Development Plan (NADP) and for reporting on the progress of JAP to the Office of the Prime Minister. Oversight of both NADP and JAP would be through a steering committee on agriculture, with frequent (weekly) meetings chaired by the Minister of Agriculture and undertaking the tasks of setting agricultural development goals, approving agricultural policies, and coordinating between relevant government institutions including ACC (see Box 1) and NARC, as well as other ministries) regarding agricultural programs. The implementation of the National Sustainable Agriculture Plan 2022–2025 overall, and the Program, in particular, will require considerable, well-coordinated, timely, and focused technical support from the MoA.

Box 1: The Agriculture Credit Corporation

**The Agricultural Credit Corporation (ACC) is a government-owned lending institution established by a special law in 1963 to support the agricultural sector**. ACC is overseen by a board of nine members, four governmental, and five non-governmental, which is chaired by the Minister of Agriculture. The Deputy Chair is the General Manager of ACC. The other two members from government are from MoF and MoPIC. The non-governmental sector is represented by the cooperative sector/farmers, the private sector and academia. The board sets the general policy of ACC, including its lending rules, rates, annual objectives, and approves external cooperation and MOUs. ACC is headed by its General Manager (GM) and is organized into departments: lending, financing, client services, project implementation, Human Resources, administration, IT, planning and development, financial management (treasury), collection and recovery, legal, international cooperation, risk management and public relations, regional management (three) and twenty-four branches. It also has an internal inspection/audit unit, which prepares audit reports subsequently reviewed by international auditing firms.

**ACC provides both conventional loans and Islamic finance.** Most loans are granted at subsidized interest rates, with some special programs offering reimbursable grants. Increasingly, and in line with the agricultural policy orientations of the MoA, ACC has focused on financing solutions to contribute to public goods, such as the adoption of water use efficiency technologies or energy saving technologies. In 2021, the volume of funding for these types of investment reached JOD8.4 million, significantly up from the 2020 level (JOD6.5 million). On monitoring and reporting, ACC collects and presents data on all its lending and recovery rates, and disaggregates all data by region, gender, and month. ACC is collaborating with partner organizations, such as a dedicated credit line for smallholders funded by IFAD.

**ACC implements capacity development programs for its employees and its clients.** Around 20% of employees benefit from technical, managerial, and financial capacity development programs. ACC has also collaborated with partners to strengthen capacity on specific technical agendas, such as the effective deployment of finance for water use efficiency investments by the United States Agency for International Development (USAID). For its clients, ACC offers technical trainings (and limited extension services as part of follows up visits to monitor implementation).

94. **A Delivery Unit will be established at MoA under the Assistant Secretary General Assistant for Projects and Rural Development to provide technical assistance (TA) as part of the IPF component.** The DU will support the Directorate of Projects Management, the other Directorates involved in Program implementation and the overall implementation of the Jordan Agriculture Plan ("JAP") in the following functions: (i) provision of implementation support for the JAP; (ii) coordination with other government entities and stakeholders; and (iii) capacity development for implementing agencies of the JAP.

95. **The provision of this TA through the IPF component will accelerate program implementation beyond what could have been achieved within the PforR structure and enhance the sustainability of the overall Program.** This is driven by two considerations: (i) the need to recruit high-quality consultants with specific expertise, such as on critical current capacity gaps at implementing agencies on occupational health and safety or monitoring and evaluation where highly qualified consultants would be needed to contribute to implementation in the early stages as well as train implementing agencies' staff to build lasting capacity; and (ii) the opportunity to support the development of systems within implementing agencies covering technical aspects related to project management, fiduciary financial management and procurement, as well as related safeguards.

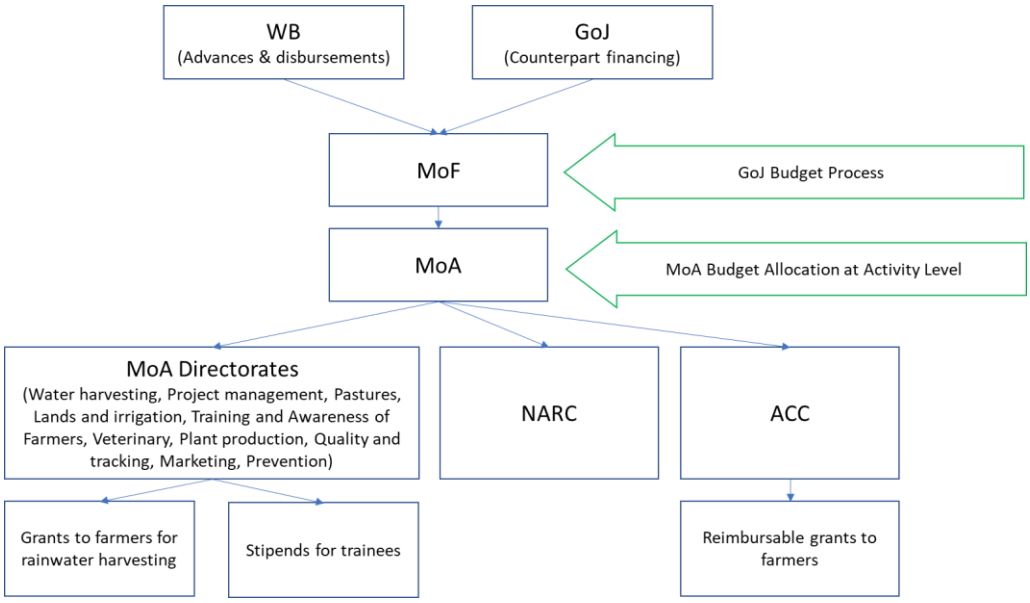
96. **The responsibilities of line ministries and agencies for the results areas are summarized in Table 5:**

*Table 5: Key Implementation Agencies*

| Result Area | Results | Implementing Agency |
|---|---|---|
| RA 1.1 | Rainwater Harvesting | MoA |
| RA 1.2 | Extension System Performance<br>Veterinary System Performance<br>Digital tools, including early warning system developed, e.g., frost alert<br>Performance of nurseries improved | MoA<br>MoA<br>NARC<br><br>MoA |
| RA 2.1 | Water use efficiency financing instrument<br>Traceability System development<br>Public services for value chain development<br>SPS and seed certifications | ACC, MoA<br>MoA<br>MoA<br>MoA, NARC |
| RA 2.2 | Skills development and job matching | MoA |
| Delivery Unit | Implementation support, coordination, and capacity building | MoA, NARC, ACC |

97. **The flow of funds for the PforR is summarized in Figure 6 below.** The resourcing of the Program will be secured yearly through the national budget system. Through the budget process, funds will be allocated to MoA by MoF. MoA will further allocate funds to activities across MoA directorates, and to NARC and ACC. The Water harvesting department will administer grants to farmers based on the successful completion of RWH structures within the parameters of the operational guidelines. The Training directorate will provide trainees with stipends. ACC will provide reimbursable grants to farmers for water use efficiency investments. In addition, funds from the PROSPECTS TF in support of the IPF component would flow into a designated account fiduciarily managed by MOPIC.

*Figure 6 – Overview of flow of funds of the PforR*




98. **The implementation of the Program will be guided through an Operation Manual.** The manual, among others, will include specific provisions regarding the application of the anti-corruption guidelines (ACGs) in the Program, and the obligation of all the implementing agencies to cooperate with World Bank investigations. The operation manual will be adopted by MoA no later than 90 days after effectiveness.

99. **A review of implementation capacities showed that implementing agencies have significant experience implementing similar programs—**albeit at a smaller scale. Implementation capacities were assessed based on an analysis of past performance, bibliographic sources, interviews with actors directly involved, field visits, and interactions with development partners active in the sub-sectors covered by the Program. This review of implementation capacities shows that a significant base of experience exists at the level of the implementing agencies concerned. This is particularly true for those actions where the most substantial DLIs have been defined. The challenge for the Program will nevertheless be to move to a larger scale of implementation in most cases, and to refine the modalities of implementation. Finally, several development partners have complementary programs with capacity building components (see annex 7 for more detail).

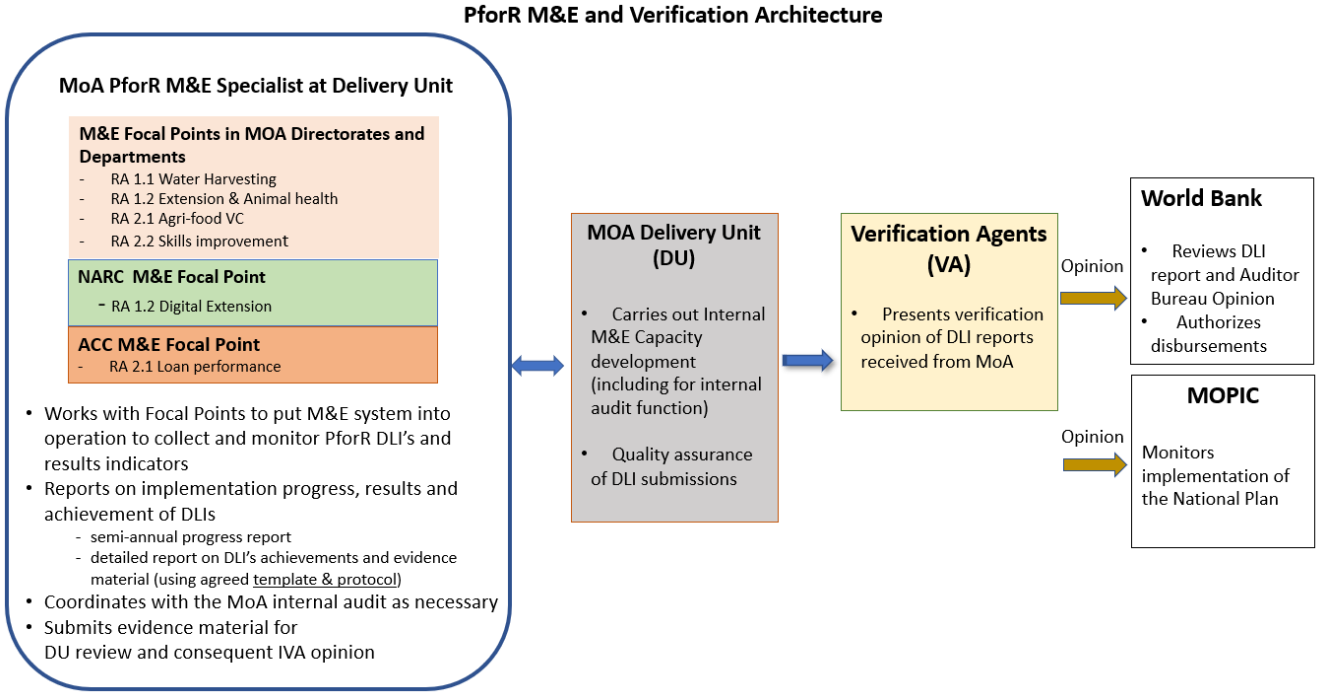
## B. Results Monitoring and Evaluation

100. **The DU established under the Assistant Secretary General for Projects and Rural Development will have the overall responsibility for monitoring, evaluation and reporting of the Program results.** All MoA Directorates and departments involved in the Program will have a dedicated monitoring and evaluation (M&E) focal point, who will be closely working with the M&E Specialist in the DU. The DU will also establish close links with the unit of internal audit.

101. **The DU will coordinate and lead overall Program progress and results reporting including reporting on the DLIs.** To fulfill their M&E responsibilities, the Directorate of Projects Management, the network of M&E focal points and staff of the internal audit unit will receive technical support through the DU. The support will relate, in particular, to areas of (i) modernization and digitization of MoA's M&E system; (ii) strengthening capacity on results-based M&E for M&E staff and on international good practices in non-financial audits (i.e., performance audits, compliance audits, environmental audits, and KPI audit) for internal audit staff; and (iii) quality assurance in monitoring and evaluation of the Program results and implementation progress including the preparation of DLI reports in collaboration with the internal audit unit. The Program M&E system will use a cloud-based Management Information System in (i) routine monitoring and regular reporting on semiannual implementation progress and results, and (ii) in consolidating DLI reports, providing evidence supporting DLI achievement and ensuring that all supporting evidence is compiled systematically, documented digitally and made available for external auditing purposes (Figure 7).

102. **The DLI verification process will be managed by the MoA in coordination with the Jordan Audit Bureau and other possible verification entities selected as needed.** The World Bank has confirmed that the Jordan Audit Bureau has sufficient credibility to act as the verifier of some of the DLIs of the Program. The Audit Bureau applies International Auditing Standards (ISSAIs) issued by the International Organization of Supreme Audit Institutions (INTOSAI) in accordance with its amended Law of 2018. However, the nature of some of the DLIs could require the services of an independent third party with the appropriate technical expertise. The verified MoA DLI reports are submitted to MoPIC and the World Bank.

*Figure 7 Organizational Chart of Verification Process*



## C. Disbursement Arrangements

103. **Disbursements will be made based on verified results, as measured by DLIs.** An advance of up to 25 percent of the loan amount will be paid upon effectiveness of the Program. This advance can be used for documentation of future achieved DLIs.

104. **For each achieved disbursement-linked result (DLR), a specific verification protocol has been established, as described in Annex 2 and will be further detailed in the Operation Manual.** As needed, verifications will be carried out by an verification agent hired under the Program. Verification reports are expected to be submitted within two months following the achievement of results.

105. **Once the verification report has been completed, MoA will submit the documentation accompanied by the verification report to the World Bank.** The World Bank will review and notify GoJ to confirm (fully or partially) the achievement of results and the amount to be paid. Based on the notification, GoJ will submit the related Withdrawal Applications through Client Connection.

106. **Within six months after the end of the Program, GoJ will carry out an expenditure reconciliation to ensure that the total Program Expenditure Framework exceeds the total amount paid by the World Bank**. Any excess amount will be reimbursed by GoJ. Likewise, any balance of the advance not documented by achieved DLIs will be refunded to the World Bank.

## D. Capacity Building

107. **Building capacity and strengthening public institutions and processes are at the core of the PforR and will be critical for supporting its goals**. The key institutional strengthening efforts under the Program will be directed at implementing agencies, i.e., the Ministry of Agriculture (MoA, including NARC) and the Agriculture Credit Corporation (ACC). Capacity building activities will be driven by several complementary elements: (i) direct capacity building actions enabled by the IPF attached to the PforR; (ii) elements included in the Results Framework, DLIs, and the Program Action Plan (PAP) that incentivize the required reinforcement; (iii) capacity building actions undertaken in a related manner by development partners, including some operations supported by the World Bank Group.

108. **The DU will mobilize—on an as-needed basis—targeted technical assistance for skills development efforts for key human resources of the implementing agencies of JAP, as well as other relevant parties**. International and regional experts will be mobilized in response to specific requests and needs identified on themes directly related to the priority areas included in the PforR. Short- and medium-term training programs will be offered for key implementing agency staff. Assistance will also be provided on cross-cutting thematic areas such as policy analysis as well as in support of the annual and multiyear budgetary programming process at MoA to ensure an effective process of mobilization of the budgetary resources necessary for the implementation of the PforR. Areas identified for capacity building include notably: strategic planning, project management, procurement, safeguards, inclusion of vulnerable groups, private sector collaboration, as well as a range of technical aspects related to agricultural development and value chains.

109. **The allocation of DLIs and the advance will help further institutionalize and build the capacity of the main implementing agencies**. When relevant, capacity building related indicators have been included in the PforR results framework, DLIs, and Program Action Plan (PAP). These elements represent milestones in the capacity building process. Each of these milestones represents a developmental challenge to the implementing agencies, while providing incentives for achieving these, particularly through the use of DLIs. The advance will help finance capacity needs to achieve targeted results in the first year, and along the Program cycle, so that capacity needs to achieve DLRs are addressed in advance.

110. **The main capacity building and systems strengthening activities supported by the PAP and the DLIs are:**

i. Establishment of a national RWH planning framework with adequate operational guidelines and the appointment and operation of a National Committee on RWH co-chaired by MoA and MoWI;
ii. Establishment of an operational farmer and herder registry and the completion of a training plan for 300 Extensionists (incl. veterinarians); and
iii. For the ACC, the design and adoption by ACC's board of an instrument for farm-level water use efficiency investments and the development of a de-risking instrument for post-harvest improvement.

111. **The Program builds on the substantial technical assistance provided in parallel to the Program.** Significant resources for building MoA and ACC's capacities are being mobilized by the World Bank and by development partners. This includes: (i) existing programmatic TA from the World Bank on export promotion; (ii) existing programmatic TA from the World Bank in the education sector on skills development (SRA 4); (iii) ongoing capacity development effort on extension system development mobilized through FAO (national and regional projects) ; (iv) complementary program by FAO piloting a farmer registry, piloting the FFS approach and digital applications with extension services; (v) FAO and OIE technical assistance on veterinary services; and (vi) USAID strengthening ACC on water-efficient technologies (follow-up of the ongoing USAID Water Innovation Technologies program). Other development partners have also expressed interest in joining the PforR platform (French Development Agency, Islamic Development Bank) and further contributing to the PForR capacity building efforts.

112. **Capacity building needs in the relation to fiduciary and safeguards aspects are covered in the respective assessments.**

## IV. ASSESSMENT SUMMARY

### A. Technical (including program economic evaluation)

113. **The new impetus given by the preparation of the NSAD was rapidly followed by the preparation of JAP**. There is strong support from MoA for this plan, the realization of which would represent a major change in the scope and nature of the interventions guided by the Ministry. The plan recognizes the most significant strategic challenges that Jordan's agri-food sector is facing and identifies a comprehensive set of costed interventions across the public and private sectors, as well as international partners, with the potential to

significantly shift the sector's path. The Program is entirely anchored in the government program, both in terms of its development objectives as well as results areas.

114. **The relevance of the Program can be assessed in terms of the response it provides to two major strategic challenges facing the agri-food sector in Jordan**: building resilience in a context of water scarcity and climate change and the need to position the Jordanian agri-food sector to become more competitive to better access existing markets and generate benefit streams that can improve rural living conditions. The Program's Theory of Change illustrates how the selected Program activities provide a coherent set of responses that converge on these two objectives while addressing critical issues. The issue of climate resilience of the agricultural sector is extremely important in Jordan. The water resources available for agriculture are extremely limited and will continue to diminish under the dual pressure of population growth and climate change. In this context, the relevance of promoting water-efficient production systems (technologies, types of production) as well as strengthening the capacity to store and use runoff water is direct and obvious. The current weakness of the existing extension systems represents a major constraint to the necessary rapid adoption of water-efficient and climate-smart technologies. The public extension system is embryonic and requires a major overhaul of its approaches (collaboration with the private sector, e-extension, etc.). Jordan also needs to equip itself with the tools to quickly and efficiently disseminate the key information needed by farmers (climate risk and prices in particular).

115. **The need to strengthen agricultural technology dissemination systems is also relevant to the objective of improving the competitiveness of the sector by speeding up the adoption of standards and techniques that will improve the quality of Jordan's agricultural products**. Export market opportunities exist for Jordanian products but positioning them in these markets requires investments in systems to ensure that: i) the quality of Jordanian products is intrinsically better; and ii) the requirements of traceability and quality certification as well as sanitary requirements (including vaccination for animals) for products that are candidates for export are met. Finally, the positioning toward higher value-added products requires investments along the value chains and in particular in the post-production stages (grading, sorting, cold chain), as well as a better qualified workforce.

116. **In summary, the relevance and priority for economic development and poverty reduction of the Program is based on the following elements:**

i. Jordan's agri-food sector is an important source of income and employment with a significant untapped productivity and export potential;
ii. Climate change raises the risk of extreme weather events and, along with significant water stress, puts Jordan's agricultural production at risk; and
iii. To meet growing domestic demand and ensure food security while exporting high-value products to premium markets, Jordan's agri-food sector needs to become more competitive and resilient.

117. **The technical soundness of the Program is deemed satisfactory.** The identified activities are adapted to the Jordanian context and have already been tried and tested at different scales. Under Results Area 1 (Climate Resilience and Sustainability) water harvesting is widely recognized as an appropriate option for augmenting the available water supply to allow for supplemental irrigation in the Jordanian context (FAO, 2016). There are several factors that make the Highlands and Badia suitable for widespread water harvesting: both include traditionally

rainfed agricultural systems where there is a history of water harvesting use and that are now suffering from rainfall shortages; both have highly variable agricultural production and are experiencing land degradation; and neither have a steady supply of surface water for irrigation, making them reliant on rapidly depleting groundwater. With regard to Jordan's extension system, the Ministry's ambition, that is backed by the Program, is broadly in line with best practices and adequately reflects the recommendations of a recent evaluation of the Jordanian extension system, which emphasized the need for these reforms. Finally, the Ministry intends to reform its approach to agricultural extension by applying the Farmer Field School (FFS) approach, which is considered effective. With regard to veterinary services, the Ministry's plans to expand and modernize its veterinary services are relevant and in line with good practices. Close cooperation exists between Jordan and OIE and FAO, with the latter providing continuous support in realizing these plans. The expansion of the national coverage of veterinary services, which will be strengthened by the equipping of two additional veterinary centers, is coherent with the Ministry's ambition to improve equity in terms of access to veterinary services.

118. **Under Results Area 2 (Competitiveness and Exports), the technologies that will be promoted at farm level are well identified and recognized as effective in promoting greater productivity of water use for agriculture.** Their adoption is underway in Jordan and their fit with local conditions as well as their profitability are well demonstrated. For the traceability system that would be supported by the Program, the approach is technically sound, as the system will be comprehensive, with many underpinnings including quality assurance, residue testing, customs certificates, etc. Establishing a traceability system is key in accessing European markets for horticulture (fruits, vegetables) but also meat and milk-based products. On SPS and seed testing, NARC and MoA scientists and laboratory technicians have already received some training and guidance. Assistance from the Dutch development cooperation has already produced some good results including a doubling of seed producing companies. The development of the traceability system will also require additional legislation that would complete the existing legislation on food safety by adding the traceability dimension to inspections by JFDA, MoA and others and build on a draft text that IFC has helped to develop. On matching skills supply with demand in the agri-food sector, relevance stems from the fact that the Jordanian labor market is affected by a mismatch between education outcomes and employers' needs, and between education quality and students' expectations. Recent experience shows significant results in labor force integration if unemployed people in the agricultural sector receive training (550 out of 3700). Similar results have been obtained under a UNESCO-sponsored program in Jordan[35].

119. **Financial analysis.** A cost-benefit analysis was conducted on Program investments with direct quantifiable benefits in Result Areas 1 and 2 which found that all activities had positive internal rates of return above 20%. This includes the following activities: (i) farm- and home garden-level rainwater harvesting, (ii) rainwater harvesting and Badia restoration, (iii) encouraging farmer investments in advanced production technologies, (iv) veterinary services, and (v) training on agricultural professions. While a direct assessment of the improved extension services, including the use of digital extension tools, is currently not feasible, current research shows that extension services facilitate knowledge transfer and skills acquisition and have a positive impact on technology adoption, yields, and profits. In addition, measures to enhance the quality and export market access including, addressing inefficiencies in food safety management facilities, issues with traceability and lack of compliance with internationally recognized certification would increase the competitiveness of agriculture products on the international market and generate additional resources for the country.

[35] UNESCO. Tracer Study of Agriculture Vocational Secondary Education in Jordan. FINAL REPORT. November 2020

120. **Economic analysis**. An economic analysis was undertaken for the Program as a whole. The benefit streams estimated for the financial analysis were converted to economic prices and investments were rolled out throughout the five years of Program implementation according to the Program's results matrix targets. Overall, the Program would yield an internal rate of return (IRR) of 26.5 percent and a net present value (NPV) of US$215.8 million. The results are robust, remaining positive even with large variation in costs and benefits.

121. **Environmental externalities in the economic analysis.** The reduction of net GHG emissions due to Program interventions are integrated into the Economic and Financial Analysis (EFA) by using an economic value for carbon pricing with a high and low case scenario following the guidelines of the World Bank, "Guidance note on the shadow price of the carbon in the economic analysis" (September 2017). Net reduction in GHGs were calculated by using the FAO's Ex-ACT Tool (version 9.3.2). The GHG analysis indicates that, over the implementation period of twenty years (implementation phase 5 years, capitalization 15 years), the project could reduce carbon emissions by 69,781 tCO2e. This implies an average mitigation of 3,489 tCO2e tCO2e per year. Under the high price of carbon (HPC) scenario, the Economic Rate of Return (ERR) for the entire Program is 26.9 percent, and the NPV is approximately US$220.8 million. Under the lower carbon price (LCP) scenario, the ERR was 26.7 percent and the NPV was approximately US$218.8 million.

## B. Fiduciary

122. **A Fiduciary Systems Assessment (FSA) was carried out through analysis of available documents and working sessions with the main stakeholders**. The FSA covered the Program's institutional arrangements, financial management, procurement, and governance systems. Subject to the implementation of the agreed mitigation measures, the FSA concluded that the overall fiduciary systems provide a reasonable assurance that the Program funds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency and accountability. The FSA also concluded that the fiduciary systems and implementation capacity of MoA, including NARC, and ACC will require strengthening to meet the Program implementation needs, particularly given the significant increase in budget allocation and procurement activities envisaged under the Program compared to previous years. The Program fiduciary risk is assessed as Substantial.

123. **The Program will be implemented in accordance with the legal framework for Public Financial Management (PFM) and public procurement.** PFM systems have been improving in recent years with several reforms being introduced including i) the development of the PFM Reform Strategy; ii) the revision of the Jordan Audit Bureau law with provisions providing better independence and immunity; iii) the amendment of the anti-corruption law to provide additional power to the Jordan Anti-corruption Commission and the amendment of the 2007 Access to Information law; and iv) the strengthening of regulatory governance through the mainstreaming of consultative impact assessment for policy and legal reforms. Public procurement reforms are also ongoing and significant improvement has been brought to the legal and institutional framework as well as to procedural aspects for public procurement. The recently enacted Public Procurement Bylaw is generally consistent with international good practice and abides by procurement principles of transparency, fairness, economy, integrity and value-for-money; however, its effective implementation is still a work in progress, and weaknesses persist throughout the procurement cycle.

124. **In relation to enhancing accountability for the use of public funds, the Jordan Audit Bureau has fully withdrawn from conducting ex ante auditing in all line ministries starting in 2019 in compliance with INTOSAI standards**. This has provided the Bureau with operational independence from the auditee and led it to focus on financial and performance audits. Additional progress is witnessed by the establishment of a special committee to review and solve the main audit issues raised in the audit reports during the past years including the most recent audit report of 2020. This shows GoJ's commitment to following up and addressing the audit concerns reported by the Audit Bureau in the annual audit reports. Since 2020, the Jordan Audit Bureau has issued quarterly audit reports that are reviewed and discussed by a special committee as well as by respective ministries to solve the main reported observations in a timely manner.

125. **The FSA also noted that MoA and NARC implement procurement activities that are similar to those envisaged under the Program, albeit at a smaller scale.** The total value of awarded contracts in 2021 amounted to JOD3 million and JOD3.5 million in 2019. The contracts for goods and works awarded by MoA were generally of small value, and no contracts for technical or consultants' services or IT systems are on record. NARC has a modest procurement budget and a similar profile of contracts (small contracts). There is no procurement planning or systematic tracking and monitoring of procurement performance throughout the procurement cycle. The analysis of procurement transactions and awarded contracts shows room for consolidation of purchases to improve cost efficiency and reduce transaction costs. There is also room for improving the planning and scheduling of procurement to avoid concentration of transactions during the last quarter of the fiscal year or

slippage to the following fiscal year. Instances of cancellation and rebidding were also noted; however, the reason was not mentioned. While contract implementation appears to be generally satisfactory, instances of cost and time overruns were reported. Those were mainly attributed to poorly drafted technical specifications and/or contractors lacking the financial and technical capability for contract implementation, and delays in payments.

126. **Procurement exclusion.** Multiple procurement activities are envisaged to be implemented by MoA and NARC under the Program, including civil works, goods and IT systems, technical assistance and consultants' services. Exclusion of contracts is not envisaged since all individual contracts under this Program are deemed to be estimated below the Operations Procurement Review Committee thresholds following values per contract: (i) works US$75,000,000 equivalent; (ii) goods US$50,000,000 equivalent; (iii) non-consulting services US$50,000,000 equivalent; and (iv) consulting services US$20,000,000 equivalent.

127. **Given the significant increase in expenditures forecasted under the Program, the PAP includes several actions related to strengthening implementation capacity**, including assisting MoA, NARC and ACC in structuring tasks around important process steps (e.g., preparation of Terms of Reference (ToRs), expansion of procurement, Financial Management and safeguards capacities) and improvement of related systems. The DU includes additional implementation capacity and resources for capacity building in areas relevant to delivery capacity.

128. **To mitigate the identified fiduciary risks, the following actions were agreed**: (i) the World Bank will closely monitor annual budgetary allocations of MoA and ACC as well as their implementation; (ii) a new Enterprise Resource Planning (ERP) system (with a new accounting module) will be purchased and installed by ACC (PAP); (iii) new accounting policies will be developed and implemented by ACC that are consistent with international standards (PAP); (iv) MoA's procurement capacity will be strengthened with a full-time procurement specialist with knowledge of the methods and innovations introduced by the procurement bylaw and experience in good procurement practices (IPF Component); (v) at least one month before the end of each fiscal year, MoA, including NARC, will prepare and publish in the Jordan On-line E-Procurement System (JONEPS), an annual procurement plan and update it at least quarterly, based on the Program annual work plan and budget (PAP); (vi) a Special Tenders Committee (STC) was established for the Program to expedite the procurement processing and decision-making; (vii) MoA and NARC staff and members of the STC will receive specialized training on procurement of works, goods, and consultants' services in accordance with the new methods, techniques, and innovations introduced in the procurement bylaw and on the use of the national standard bidding documents, contract conditions, and bid evaluation templates for various types of procurement currently being finalized by GoJ with the World Bank's support (PAP); and (viii) starting January 1, 2023, all procurement transactions, including planning, tendering and award, contract management, and acceptance of goods/works/deliverables, will be processed through JONEPS, following the provision of necessary training to MoA staff (PAP).

129. **The MoA will execute the activities in accordance with the World Bank's "Guidelines on Preventing and Combating Fraud and Corruption in Program for Results Financing", dated February 1, 2012, and revised July 10, 2015.** MoA will: (i) share information with the World Bank regarding all allegations of fraud and corruption in connection with the Program, ensure that all credible allegations received are reported to and investigated by Jordan Anti-Corruption Commission (JACC), report to the World Bank on actions taken, and cooperate in any inquiry that may be conducted by the World Bank into allegations or other indications of fraud and corruption in connection with the Program; and (ii) monitor and abide by the World Bank's list of debarred/suspended firms.

130. The full FSA is included in the operation's files, while Annex 4 provides a summary of the assessment, including identified risks and mitigation measures.

## C. Social and Environmental Safeguards

131. **The implementation of interventions under the Program will rely on the existing national legal framework and institutional systems to manage environmental and social risks**. An Environment and Social Systems Assessment (ESSA) was prepared to assess Jordan's authority and organizational capacity to achieve environmental and social objectives against the range of environmental and social impacts that may be associated with the Program. This assessment was undertaken against a set of core principles set out in the Operational Policy on Program for Results Financing (OP/BP 9.00). The ESSA highlights areas where the management system lacks the regulatory authority or organizational capacity to effectively manage environmental or social effects and proposes several actions for inclusion in the PAP to enhance environmental and social management and increase sustainability and impact.

132. **Considering both benefits and opportunities, as well as potential adverse negative risks and impacts, the Program risk is rated Substantial for both environmental and social effects.** The Program's activities have been screened for environmental and social effects. The benefits of Result Area 1 to scale up Climate-Smart Water Use for agriculture primarily relate to the reduced use of scarce groundwater resources through the increased number of Rainwater Harvesting structures that include water catchment basins with earthen walls in more arid areas (*hafirs*) and household-level cisterns for home gardens in other areas. The *hafir* structures may use natural geological features as a partial enclosure of the basin or may use structural walls, though large dams will be excluded under the Program. These activities will benefit the livelihoods of livestock owners, farmers associations, and households since the cost of treated water sources and groundwater for crops and livestock is high. *Hafirs* also provide roosting areas for migratory birds with potential for eco-tourism and can support fish. These effects can be indirectly realized and optimized through development of a national strategy for RWH and Badia Restoration, as well as directly through constructing RWH structures under Sub-Result Area 1.1 by MoA, and grants from ACC for existing farm-level operations including conversion to crops with stronger water sustainability profiles, aquaponics, hydroponics, connections to treated wastewater sources, and advanced smart irrigation systems (under Sub-Results Area 2.1). The Program also offers opportunities for other positive effects including: (i) extension and veterinary services under sub-result area 1.2 which are expected to: a) promote integrated pest-management practices resulting in positive impacts on valued environmental components including soil, water, and living organisms through efficient use of pesticides and agricultural inputs and efficient use of water and energy resources, b) improve farmer livelihoods and reduce animal losses, and c) provide potential entry points to improve environmental, worker health and safety, and labor management practices; (ii) NARC's development of software applications and early weather warning systems (Sub-Result Area 1.2); (iii) connecting farmers to export markets (Result Area 2) which will also positively affect farmers' resilience and livelihoods; and (iv) positive livelihood impacts for women, youth, and refugees from job matching and training in the agricultural sector under Sub-Result Area 2.2, as well as access to water-smart grants from ACC under Sub-Result Area 1.

133. **The Program will also result in negative environmental and social effects, if not properly managed**. National-level analysis, mapping and planning for rainwater harvesting might result in negative effects on downstream users, if no strategic environmental and social impact assessment is conducted to align with other

strategies. At a national scale, *hafirs* can cause habitat fragmentation and introduce non-native species through cultivation of fodder crops. If not well sited, *hafirs* may impact semi-nomadic Bedouin groups and their traditional land use patterns or may flood cultivated lands of small existing informal users. Increases in availability of water, may also lead to unsustainable use of the collected water for irrigation, if not properly monitored and managed. There is also a risk of elite capture by larger livestock herders if communities and small-scale herders are not adequately represented and consulted on site selection and sites monitored. Construction of *hafirs* and other civil works under the Program, e.g., household RWH cisterns and laboratories, and water-smart equipment installations such as hydroponics for water use efficiency technologies, might increase water and energy use, pose risks for workers' health and safety, and generate dust or noise emissions and waste during construction. During operations, *hafirs* pose public health and safety risks from drowning and require structural maintenance. The ESSA notes that supporting water-smart technologies and rainwater harvesting structures might cause agriculture intensification/expansion. Program activities are also expected to result in increased use of fertilizers and pesticides which would eventually lead to generation of hazardous wastes from on-farm operations including pesticides, fertilizers, and wastewater from agricultural operations. Other types of wastes which might be generated by the implementation of Program activities include biomedical waste (veterinary services include biomedical waste.). Finally, the Program takes place within the context of the agriculture sector with significant risks related to decent work conditions, child and contracting labor (including potential forced labor), and occupational health and safety for agricultural workers. The Program is not expected to require land acquisition as MoA owns extensive areas of rangeland, forestry, and treasury lands. The installation of household RWH cisterns and related activities supported by ACC grants will take place on privately held land.

134. **An Environment and Social Systems Assessment (ESSA) was prepared to assess the environmental and social system at the Program level.** The ESSA assesses the potential Environmental and Social (E&S) effects of the Program, including direct, indirect, induced, and cumulative effects as relevant. It also assesses the Borrower's capacity (legal framework, regulatory authority, organizational capacity, and performance) to manage those effects in line with the core principles of the World Bank policy for PforR and identifies measures to enhance both E&S management systems and E&S outcomes during Program implementation.

135. **The ESSA includes a list of the interventions which are excluded from financing**. Program activities and the expenditure framework have been screened against exclusion criteria including large scale land use conversion, child and forced labor, significant expansions of industrial facilities, large dams, and any other high-risk activity. This Program is not expected to finance large rainwater harvesting infrastructure, earthen dams, or *hafirs* which have a dam wall of 10 meters or higher. The Program will exclude financing large dams as defined by OP 4.37, as well as small dams which might cause significant impacts on sensitive receptors such as ecological habitats.

136. **Consultation and Disclosure of the ESSA**. The preparation of the ESSA included consultations and inputs from MoA, Program Institutions and key stakeholders relevant to the agriculture sector including governmental institutions, farmers' organizations, civil society organizations, women's organizations, and international donor agencies supporting the agriculture sector. The World Bank team collected qualitative information relevant to the assessment and conducted field visits to interact with local authorities, farmers' cooperatives, and private sector. A first draft ESSA was shared with MoA on April 23, 2022. The World Bank and MoA conducted consultations with stakeholders on the draft ESSA in May 2022. The ESSA has been disclosed on the World Bank website on May 18,

2022 and was disclosed by the Borrower on May 25, 2022[36].

137. **Proposed Actions**. The Program can be used strategically to strengthen MoA's environmental and social management system by reinforcing the human, financial and logistic capacities to promote good environmental and social practices and monitor for compliance. Beyond limitations in human resources, the implementing agencies lack procedures for environmental and social screening, assessment and management of investments. In this context, the Program recommends developing site-level E&S screening methodology and an Environmental, Health, and Safety Guidelines (ESHS) monitoring protocol for RWH structures as well as incorporating ESHS into procurement documents. Similarly, the Program will support ACC to develop formalized procedure for E&S screening of loan applicants, enhance E&S specifications within grant agreements (including adherence to appropriate technologies when using treated wastewater for irrigation), and will assign and train environmental and social focal points to monitor ESHS performance. Furthermore, the Program will support the incorporation of strategic environmental and social assessment aspects in the National Agriculture RWH Plan at a national/regional scale, including the preparation of a stakeholder engagement plan. The Program includes several measures to mitigate against the risks of child labor in the sector and to strengthen MoA's capacity in this area (detailed in Annex 12).

138. **To improve implementation capacity, the Program will support the training of MoA's technical specialists and extension agents** in several topics, including biological control, child labor, gender, Occupational Health and Safety (OHS), and other topics on labor and working conditions. Additionally, the DU will include one Environmental Health and Safety Specialist and one Social Inclusion Specialist. In implementing the intervention for 'Matching skills supply with demand in the agri-food sector' under SRSA 2.2, the ESSA recommends conducting a Training Needs Assessment and Outreach Plan for women, refugees, and youth, disclosing clear eligibility criteria and including environment, social, health and safety, decent work topics, and accessibility to grievance mechanism.

139. **To ensure the adequate management of pesticides of agricultural waste, the ESSA recommends a strategic dialogue between MoA and the Ministry of Environment on developing mechanisms for the tracking, collection and efficient disposal of empty pesticide containers**. Moreover, MoA is recommended to develop a plan to manage agricultural waste such as manure and wastewater of slaughterhouses. Finally, the ESSA recommends that MoA should develop and implement regular monitoring programs to verify that farmers adhere to requirements of pesticide dosage and preharvest interval.

140. **The environmental and social risks of the Technical Assistance activities under the IPF component are rated Low.** There are no physical works under this component. Technical Assistance will support an implementation unit (Delivery Unit) at MoA, as well as 'just-in-time' technical studies on as-needed basis that have not been identified at this time. An Environmental and Social Commitment Plan (ESCP), proportionate to the risks and consistent with World Bank Environmental and Social Framework (ESF), has been prepared that includes E&S staffing requirements, reporting, stakeholder engagement, and labor management procedures. The ESCP has been disclosed on May 21, 2022.

[36] https://www.mop.gov.jo/EBV4.0/Root_Storage/EN/EB_HomePage/ESSA_Jordan_ARDI_MAY_17_2022_CLEAN_(2).pdf
https://www.mop.gov.jo/EBV4.0/Root_Storage/EN/EB_HomePage/Stakeholder_Engagement_Plan_(SEP)_FINAL_APPRAISAL_May_19_2022.pdf
https://www.mop.gov.jo/EBV4.0/Root_Storage/EN/EB_HomePage/ESCP_FINAL_APPRAISAL_May_19_2022_.pdf

141. **Communities and individuals who believe that they are adversely affected as a result of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the WB's Grievance Redress Service (GRS).** The Program will maintain a Grievance Mechanism (GM) with enhancements as per the Program Action Plan. In addition, the World Bank's Grievance Redress Service (GRS) ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention and World Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS) please visit: https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit http://www.inspectionpanel.org.

## V. RISK

142. **The overall risk of the Program is assessed as Substantial due to technical design, fiduciary, Institutional capacity for implementation and sustainability, environment and social risks. The political and governance, macroeconomic and sector policies and strategies risks are rated as moderate.**

143. **Technical design risk is rated as Substantial.** The risk rating stems from two factors. The first relates to uncertainties regarding the pace at which the water-saving investment instruments will be deployed and the speed at which farmers will adopt these practices, compared to the pace anticipated by the Program. The adoption of such practices is at the core of the Program's theory of change and determinant to achieving the PDO. To mitigate this risk, adoption of good practices will be supported by two Program design elements: (i) the expansion of agricultural advisory and knowledge transfer services regarding the introduction of good practices for farmers; and (ii) access to export markets for competitive producers. Farmers do, however, eventually make their own decisions regarding production activities, and experience shows that fostering practice change on a large scale often remains a challenge. Also, the implementing agencies will receive technical support through the Delivery Unit and some specialized partners with whom cooperation is in place. The second factor relates to uncertainties regarding the implementation of policy measures of the JAP and risks outside the Program boundary (e.g., availability of rainwater for farmers, efficiency of extension services). These risks are as well mitigated by technical support.

144. **Institutional Capacity for Implementation and Sustainability is rated as Substantial.** The primary risk identified relates to the adequacy of the implementing capacity of MoA, ACC and NARC to deliver on the JAP and the Program. This risk was mitigated through three key features of the design: (i) DLI results relate in large part to activities where the agencies have significant implementation experience; (ii) a number early DLRs target planning processes to ensure strong analytical underpinnings and implementation strategies; and (iii) the supporting IPF component places strong emphasis on capacity building, also linked to efforts of other partners.

145. **Fiduciary Risk is assessed as Substantial.** Fiduciary risks identified during the assessment include: (i) the lack of financial sustainability and funding predictability due to possible budget cuts considering Jordan's fiscal stress; (ii) the ACC Enterprise Resource Planning (ERP) system is inefficient; (iii) MoA and ACC have limited prior experience with World Bank-financed operations; (iv) ACC's accounting policies are not consistent with international standards; (iv) a lack of procurement planning and systematic tracking and monitoring of procurement performance throughout the procurement cycle; (v) poor quality of technical specifications, terms of reference, bidder qualification requirements, and bid evaluation criteria could negatively affect the bidding process and result in cost and time overruns and a poor quality of deliverables; and (vi) inefficiency in procurement processing and cumbersome procurement clearances. The risks are addressed through introducing PAP actions and capacity strengthening through the IPF component.

146. **Environmental Risk is assessed as Substantial.** Environmental risks are mainly associated with pressure on water resources as well as the national-level analysis, mapping and planning for rainwater harvesting and potential negative effects on downstream users if no strategic environmental and social impact assessment is conducted to align with other strategies. As resilience and sustainability is a key element in the PDO and is being mainstreamed throughout the Program, this risk will be mitigated through Program actions aimed at the adoption of good water conservation and climate-smart practices. Furthermore, a strategic environmental and social assessment will be conducted for the National Rainwater Harvesting Strategy to ensure that water resources are preserved.

147. **Social Risk is assessed as Substantial.** Social risks are associated with the ability of small and medium farmers and households, including women, youth, or refugees to benefit from access to better public agricultural services or skills training due to remoteness and lack of access to information, and the potential for appropriation of Program benefits by large established farmers (especially in the livestock sector). There are also social risks related to labor and working conditions for agricultural workers within on- and off-farm beneficiary operations. To mitigate these risks the RWH Operational Framework will require robust community consultations and clear, disclosed eligibility criteria, and labor and OHS will be part of the core training curriculum of extension agents. Finally, the program will put in place a GRM that builds on existing national-, directorate-, and community-level systems.

## ANNEX 1. RESULTS FRAMEWORK MATRIX

**Results Framework**
**COUNTRY: Jordan**
**Agriculture Resilience, Value Chain Development and Innovation (ARDI) Program**

### Program Development Objective(s)

To strengthen the climate resilience and enabling environment for agriculture development in selected value chains in Jordan.

### Program Development Objective Indicators by Objectives/Outcomes

| Indicator Name | DLI | Baseline | End Target |
|---|---|---|---|
| **Strengthen the climate resilience and enabling environment for agriculture development in selected v** | | | |
| Sustainable agricultural rainwater harvesting capacity at household and communal levels (Cubic Meter(m3)) | | 0.00 | 10,450,000.00 |
| Volume of national communal RWH capacity at catchment level (Cubic Meter(m3)) | | 0.00 | 10,000,000.00 |
| Volume of sustainable on-farm rainwater harvesting capacity by beneficiaries of financing under the Program (Cubic Meter(m3)) | | 0.00 | 450,000.00 |
| Number of farmers completing training on climate smart agricultural technologies (Number) | | 0.00 | 3,000.00 |
| Percentage of female trainees on climate smart agricultural technologies (Percentage) | | 0.00 | 20.00 |

| Indicator Name | DLI | Baseline | End Target |
|---|---|---|---|
| Percentage of refugees completing training on climate smart agricultural technologies (Percentage) | | 0.00 | 10.00 |
| Percentage of youth trainees on climate smart agricultural technologies (Percentage) | | 0.00 | 10.00 |
| Value of agri-food exports covered by traceability systems (Amount(USD)) | | 0.00 | 5,000,000.00 |
| Share of trainees supported by the Program retained by employers after completion of training (Percentage) | | 0.00 | 20.00 |
| Sub-share of women supported by the Program retained by employers after completion of training (Percentage) | | 0.00 | 30.00 |
| Sub-share of youth supported by the Program retained by employers after completion of training (Percentage) | | 0.00 | 20.00 |
| Sub-share of refugees supported by the Program retained by employers after completion of training (Percentage) | | 0.00 | 20.00 |
| Farmers reached with agricultural assets or services (CRI, Number) | | 0.00 | 77,521.00 |
| Farmers reached with agricultural assets or services - Female (CRI, Number) | | 0.00 | 23,256.00 |
| Farmers reached with agricultural assets or services - Youth (Number) | | 0.00 | 15,504.00 |
| Farmers reached with agricultural assets or services - Refugees (Number) | | 0.00 | 11,628.00 |

## Intermediate Results Indicator by Results Areas

| Indicator Name | DLI | Baseline | End Target |
|---|---|---|---|
| **Sub RA 1.1 Scaling Up Sustainable Rainwater Harvesting (RWH) in Agriculture** | | | |
| Micro catchment systems constructed or rehabilitated (Number) | | 0.00 | 200.00 |
| Households in Badia region benefitting from improved water availability for animal herds (Number) | | 0.00 | 15,000.00 |
| **Sub RA 1.2 Building Institutional Adaptive Capacity for Innovation** | | | |
| Farmers subscribed to digital extension tool based on the e-NARC platform (Number) | | 0.00 | 6,000.00 |
| Drought-resistance seedlings disseminated to farmers by nurseries supported by the Program (Number) | | 0.00 | 300,000.00 |
| National Control Program for FMD submitted to World Organization for Animal Health (OIE) (Yes/No) | | No | Yes |
| **Sub RA 2.1 Enabling Services for Value Chain Development and Export Promotion** | | | |
| Farmers who received ACC financing and adopted water efficient technologies promoted by the Program (Number) | | 0.00 | 1,400.00 |
| Producers participating in the Traceability system (Number) | | 0.00 | 750.00 |
| Value of fruit and vegetable seeds certified by internationally accredited national labs for export (Amount(USD)) | | 0.00 | 18,000,000.00 |
| **Sub RA 2.2 Matching skills supply with demand in agri-food sector** | | | |
| Skills Training Program Design incl. Digital Job-matching Platform approved by MoA and Technical Committee (Yes/No) | | No | Yes |
| Persons completing the skills matching program (Number) | | 0.00 | 12,121.00 |
| Women completing the skill-matching program (Percentage) | | 0.00 | 30.00 |
| Refugees completing the skills matching program | | 0.00 | 20.00 |

| Indicator Name | DLI | Baseline | End Target |
|---|---|---|---|
| (Percentage) | | | |
| Program-related grievances received that have been addressed and communicated within 30 days (Percentage) | | 0.00 | 100.00 |
| Beneficiaries satisfied with access and quality of the services supporting agri-food value chains provided under the Program (Percentage) | | 0.00 | 80.00 |
| Women beneficiaries satisfied with access and quality of the services supporting agri-food value chains provided under the Program (Percentage) | | 0.00 | 80.00 |

| Monitoring & Evaluation Plan: PDO Indicators | | | | | |
|---|---|---|---|---|---|
| **Indicator Name** | **Definition/Description** | **Frequency** | **Datasource** | **Methodology for Data Collection** | **Responsibility for Data Collection** |
| Sustainable agricultural rainwater harvesting capacity at household and communal levels | The total cumulative volume of communal capacity for RWH for use at household and catchment level for agriculture and livestock in Jordan. Sub-indicators disaggregated for the national community and on-farm (farming household) levels. | Annual | MOA Water Harvesting Directorate; Pastures Directorate | The MOA Water Harvesting Directorate and Directorate of Pastures collect data and share with the Directorate of Project Management (M&E Specialist) | MOA Water Harvesting Directorate; Pastures Directorate; Directorate of Project Management |
| Volume of national communal RWH capacity at catchment level | | | | | |
| Volume of sustainable on-farm rainwater harvesting capacity by beneficiaries of financing under the Program | | | | | |
| Number of farmers completing training on climate smart agricultural technologies | The cumulative number of beneficiaries who graduated from training on climate smart agricultural technologies and covers only training related to farmer field schools. Complementary indicators are the percentage of women and refugees in the total number of graduates. | Annual | MOA Directorate of Training and Awareness of Farmers | Records of attendance/completion summarized by the MOA Directorate of Training and Awareness of Farmers reported to the Directorate of the Project Management (M&E Specialist) | MOA Directorate of Training and Awareness of Farmers; Directorate of the Project Management |

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|---|---|---|---|---|---|
| Percentage of female trainees on climate smart agricultural technologies | | | | | |
| Percentage of refugees completing training on climate smart agricultural technologies | | | | | |
| Percentage of youth trainees on climate smart agricultural technologies | | | | | |
| Value of agri-food exports covered by traceability systems | The total cumulative value of agri-food products exported that has been certified according to the international standards. The indicator is focused on the ESTA certification. | Annual | MOA Prevention and Plant Protection Directorate | MOA Prevention and Plant Protection Directorate collects data from accredited labs and reports the aggregated data to the Directorate of Project Management (M&E Specialist) | MOA Prevention and Plant Protection Directorate; Directorate of Project Management |
| Share of trainees supported by the Program retained by employers after completion of training | The total cumulative number of beneficiaries who completed the skills matching program and was retained by participating businesses or newly hired within 6 months after completion. Disaggregation for women, youth and refugees. | Annual | Tracer/employment study commissioned by the Technical Commission and MOA | Tracer/employment study | MOA |
| Sub-share of women supported by the Program retained by employers after completion of training | | | | | |
| Sub-share of youth supported by the Program retained by employers after | | | | | |

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|---|---|---|---|---|---|
| completion of training | | | | | |
| Sub-share of refugees supported by the Program retained by employers after completion of training | | | | | |
| Farmers reached with agricultural assets or services | This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), | Annual | Records of the MOA Directorate of Project Management | The MOA Directorate of Project Management summarizes the number of all Program beneficiaries. | MOA Directorate of Project Management |

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|---|---|---|---|---|---|
| | production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project. | | | | |
| Farmers reached with agricultural assets or services - Female | | | | | |
| Farmers reached with agricultural assets or services - Youth | | | | | |
| Farmers reached with agricultural assets or services - Refugees | | | | | |

| Monitoring & Evaluation Plan: Intermediate Results Indicators | | | | | |
|---|---|---|---|---|---|
| **Indicator Name** | **Definition/Description** | **Frequency** | **Datasource** | **Methodology for Data Collection** | **Responsibility for Data Collection** |
| Micro catchment systems constructed or rehabilitated | The number of micro catchment sites that have been constructed or rehabilitated | Annual | MOA Directorates of Water Harvesting and Pastures | MOA Directorates of Water Harvesting and Directorate of Pastures collect data quarterly and semi-annually report to the M&E Specialist at the Project Management Directorate | MOA Directorates of Water Harvesting and Pastures, Directorate of Project Management |
| Households in Badia region benefitting from improved water availability for animal herds | The number of households in the Badia region using RWH water for animals | Annual | MOA Pastures Directorate | MOA Directorate of Water Harvesting and Directorate of Pastures collect data quarterly and semi-annually report to the M&E Specialist at the Project Management Directorate | MOA Directorate of Water Harvesting, Directorate of Pastures, Project Management Directorate |
| Farmers subscribed to digital extension tool based on the e-NARC platform | The cumulative number of farmers subscribed to the e-extension tool | Semi-annual | NARC | NARC collects the subscription data semi-annually and reports to the MOA Directorate of Project Management | NARC, MOA Directorate of Project Management |
| Drought-resistance seedlings disseminated to farmers by nurseries supported by the Program | The total cumulative number of drought-resistant seedlings produced by nurseries supported by the Program | Annual | MOA Plant Production Directorate | The MOA Plant Production Directorate collects data from nurseries supported by the | The MOA Plant Production Directorate, Directorate of Project Management |

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|---|---|---|---|---|---|
| | and distributed to farmers. | | | Program on distribution of seedlings to farmers and reports the Directorate of Project Management annually | |
| National Control Program for FMD submitted to World Organization for Animal Health (OIE) | The package of documentation for FMD control required by OIE for recognition of the Stage 3 submitted by the MOA | Annual | MOA Veterinary Directorate | MOA Veterinary Directorate informs the Directorate of Project Management on the submission and documentation acceptation by the OIE. | MOA Veterinary Directorate, Directorate of Project Management |
| Farmers who received ACC financing and adopted water efficient technologies promoted by the Program | The cumulative number of farmers participating in the Program who received financing and adopted promoted water-efficient technologies.<br>Supplementary sub-indicators:<br>- Percentage of women who received ACC financing and adopted water-efficient technologies promoted by the Program (%) | Annual | Records of ACC; Farmer survey | ACC collects data on sub-projects and provide a summary to the MOA project Management Directorate | ACC, MOA Directorate of Project Management |
| Producers participating in the Traceability system | A cumulative number of producers in the selected value chains participating in the Traceability system | Annual | MOA Quality and Tracking Directorate; Farmer Survey | MOA Directorate for Quality and Tracking collects data on producer participation in the Traceability System and reports to the | MOA Directorate for Quality and Tracking; Directorate of Project Management |

| | | | | | |
|---|---|---|---|---|---|
| | | | | Directorate of Project Management | |
| Value of fruit and vegetable seeds certified by internationally accredited national labs for export | The physical volume of fruit and vegetable seeds ESTA certified for export by the internationally accredited national labs. | Annual | MOA Plant Production Directorate | MOA Plant Production Directorate collects data from accredited labs and reports the aggregated data to the Directorate of Project Management | MOA Plant Production Directorate; Directorate of Project Management |
| Skills Training Program Design incl. Digital Job-matching Platform approved by MoA and Technical Committee | Approval status of the Skills Training Program including functional Digital Job-matching Platform by the Technical Committee and MOA | Annual | MOA Projects Directorate, Rural Development and Women Empowerment Directorate | Involved MOA Directorates inform the Directorate of Project Management on the status of approval. | MOA Projects Directorate, Rural Development and Women Empowerment Directorate |
| Persons completing the skills matching program | The total cumulative number of persons who completed the skills matching training program. Supplementary sub-indicators:<br>- Percentage of women completing the skills matching program (%)<br>- Percentage of refugees completing the skills matching program (%) | Annual | MOA, Technical and Vocational Skills Development Commission (TVSDC), the National Company for Training and Employment (VTC) | MOA in cooperation with the Technical and Vocational Skills Development Commission (TVSDC) and the National Company for Training and Employment (VTC) collects data on attendees and graduates of the skills matching program. | MOA, Project Management Directorate |
| Women completing the skill-matching program | | | | | |
| Refugees completing the skills matching program | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Program-related grievances received that have been addressed and communicated within 30 days | The percentage of Program-related grievances received that have been addressed and communicated within 30 days | Semi-annual | MOA Directorate of Project Management | GRM data | MOA Directorate of Project Management |
| Beneficiaries satisfied with access and quality of the services supporting agri-food value chains provided under the Program | The percentage of direct beneficiaries satisfied with access and quality of services supporting agri-food value chains under the Program. Disaggregated by gender. | Annual | Farmer survey; Beneficiary survey | Survey | MOA Directorate of Project Management |
| Women beneficiaries satisfied with access and quality of the services supporting agri-food value chains provided under the Program | | | | | |

## ANNEX 2. DISBURSEMENT LINKED INDICATORS, DISBURSEMENT ARRANGEMENTS AND VERIFICATION PROTOCOLS

| Disbursement Linked Indicators Matrix | | | | |
|---|---|---|---|---|
| **DLI 1** | Adoption of sustainable rainwater harvesting (RWH) practices | | | |
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 26,500,000.00 | 0.00 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | - | | 0.00 | - |
| 2024 | - | | 0.00 | - |
| 2025 | - | | 0.00 | - |
| 2026 | - | | 0.00 | - |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 26,500,000.00 | - |
| **DLI 1.1** | Planning framework for agricultural rainwater harvesting (RWH) established | | | |
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 3,500,000.00 | 3.01 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |

| | | | |
|---|---|---|---|
| Baseline | 0.00 | | |
| 2023 | National Agricultural RWH Plan and operational guidelines for agricultural RWH at farm- and community level adopted by national RWH committee | 2,000,000.00 | Amount paid upon completion and verification |
| 2024 | Piloting of three technological innovations to reduce evaporation in Badia RWH completed | 1,500,000.00 | Amount paid upon completion and verification |
| 2025 | - | 0.00 | - |
| 2026 | - | 0.00 | - |
| 2027 | - | 0.00 | - |
| 2028 | - | 0.00 | - |

| **DLI 1.2** | Farm-level RWH practices adopted | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 14,000,000.00 | 9.04 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |
| 2023 | Farm-level RWH capacity created (m3, including 10% of women headed households – (75,000) | | 2,333,333.33 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |

| | | | |
|---|---|---|---|
| 2024 | Farm-level RWH capacity created (m3, including 10% of women headed households – (150,000) | 2,333,333.33 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |
| 2025 | Farm-level RWH capacity created (m3, including 10% of women headed households – (225,000) | 2,333,333.33 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |
| 2026 | Farm-level RWH capacity created (m3, including 10% of women headed households – (300,000) | 2,333,333.33 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |
| 2027 | Farm-level RWH capacity created (m3, including 10% of women headed households – (375,000) | 2,333,333.34 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |
| 2028 | Farm-level RWH capacity created (m3, including 10% of women headed households – (450,000) | 2,333,333.34 | US$ 31.11 for each m3 of RWH capacity created on a pro rata basis with a minimum of 10% of women headed households. |

| **DLI 1.3** | Community level RWH practices adopted | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 9,000,000.00 | 7.08 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| | | | | |

| | | | |
|---|---|---|---|
| Baseline | 0.00 | | |
| 2023 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (2,000,000) | 1,800,000.00 | US$ 0.9 for each m3 of RWH capacity created |
| 2024 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (3,600,000) | 1,440,000.00 | US$ 0.9 for each m3 of RWH capacity created |
| 2025 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (5,200,000) | 1,440,000.00 | US$ 0.9 for each m3 of RWH capacity created |
| 2026 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (6,800,000) | 1,440,000.00 | US$ 0.9 for each m3 of RWH capacity created |
| 2027 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (8,400,000) | 1,440,000.00 | US$ 0.9 for each m3 of RWH capacity created |
| 2028 | Communal RWH capacity integrated with landscape restoration created or refurbished in Badia area (in m3) - (10,000,000) | 1,440,000.00 | US$ 0.9 for each m3 of RWH capacity created |

| **DLI 2** | Innovation and improved performance of crop extension and animal health services. | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 21,000,000.00 | 0.00 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |

| | | | |
|---|---|---|---|
| Baseline | 0.00 | | |
| 2023 | - | 0.00 | - |
| 2024 | - | 0.00 | - |
| 2025 | - | 0.00 | - |
| 2026 | - | 0.00 | - |
| 2027 | - | 0.00 | - |
| 2028 | - | 21,000,000.00 | - |

| **DLI 2.1** | Digital farmer registry established and scaled up | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 4,500,000.00 | 2.39 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |
| 2023 | Data entry software and storage systems for registry are used in at least 1 area (Y/N) | | 900,000.00 | Amount paid upon completion and verification |
| 2024 | Registry system is operational (Y/N) | | 900,000.00 | Amount paid upon completion and verification |
| 2025 | Farmers and herders registered – Scalable (11,250) | | 675,000.00 | US$ 60 for each farmer and herder registered |
| 2026 | Farmers and herders registered – Scalable | | 675,000.00 | US$ 60 for each farmer and herder |

| | | | |
|---|---|---|---|
| | (22,500) | | registered |
| 2027 | Farmers and herders registered – Scalable (33,750) | 675,000.00 | US$ 60 for each farmer and herder registered |
| 2028 | Farmers and herders registered – Scalable (45,000) | 675,000.00 | US$ 60 for each farmer and herder registered |

| **DLI 2.2** | Extension service capacity increased | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 2,000,000.00 | 1.20 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |
| 2023 | Agriculture extension plan submitted and 300 Extensionists (incl. veterinarians) trained (20% women) (Y/N) | | 1,000,000.00 | Amount paid upon completion and verification |
| 2024 | Survey of technology adoption by FFS alumni farmers completed (Y/N) | | 1,000,000.00 | Amount paid upon completion and verification |
| 2025 | - | | 0.00 | - |
| 2026 | - | | 0.00 | - |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 0.00 | - |

| DLI 2.3 | Farmer CSA skills expanded | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 4,500,000.00 | 5.42 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |
| 2023 | Trainees graduate from FFS on CSA technologies (20 % women, 10 % refugees) - Scalable 1'000) | | 1,500,000.00 | US$ 1,500 for each beneficiary on a pro rata basis |
| 2024 | Trainees graduate from FFS on CSA technologies (20 % women, 10 % refugees) - Scalable (2'000) | | 1,500,000.00 | US$ 1,500 for each beneficiary on a pro rata basis |
| 2025 | Trainees graduate from FFS on CSA technologies (20 % women, 10 % refugees) - Scalable (3'000) | | 1,500,000.00 | US$ 1,500 for each beneficiary on a pro rata basis |
| 2026 | - | | 0.00 | - |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 0.00 | - |

| DLI 2.4 | Animal health service provision capacity expanded | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 8,000,000.00 | 7.23 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |

| | | | |
|---|---|---|---|
| 2023 | 70% of total registered small ruminants vaccinated for FMD (Scalable) | 1,866,667.00 | (USD0.444 per small ruminant vaccinated for FMD up to a maximum of 2,580,000 goats and sheep) |
| 2024 | 75% of total registered small ruminants vaccinated for FMD (Scalable) | 2,000,000.00 | (USD0.444 per small ruminant vaccinated for FMD up to a maximum of 3,010,000 goats and sheep) |
| 2025 | 80% of total registered small ruminants vaccinated for FMD (Scalable) | 2,133,333.00 | (USD0.444 per small ruminant vaccinated for FMD up to a maximum of 3,440,000 goats and sheep) |
| 2026 | FMD Control Program developed and submitted to OIE for endorsement (Y/N) | 1,000,000.00 | Amount paid upon completion and verification |
| 2027 | Private veterinarians performing vaccinations under a sanitary mandate program in one governorate (Y/N) | 1,000,000.00 | Amount paid upon completion and verification |
| 2028 | - | 0.00 | - |

| **DLI 2.5** | Digital tools for e-extension introduced and scaled up | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 2,000,000.00 | 1.20 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | 0.00 | | | |

| | | | |
|---|---|---|---|
| 2023 | AgTech workshop on digital extension tools held with participation from agribusiness, ag tech stakeholders (Y/N) | 250,000.00 | Amount paid upon completion and verification |
| 2024 | Roadmap adopted for public private partnership on data, digital technology | 250,000.00 | Amount paid upon completion and verification |
| 2025 | Digital extension tool subscribers – Scalable (1'500) | 375,000.00 | $250 for each digital extension tool subscriber |
| 2026 | Digital extension tool subscribers – Scalable (3'000) | 375,000.00 | $250 for each digital extension tool subscriber |
| 2027 | Digital extension tool subscribers – Scalable (4’500) | 375,000.00 | $250 for each digital extension tool subscriber |
| 2028 | Digital extension tool subscribers – Scalable (6,000) | 375,000.00 | $250 for each digital extension tool subscriber |

| **DLI 3** | Enabling services for value chain development and export promotion | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 21,761,000.00 | 0.00 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | - | | 0.00 | - |
| 2024 | - | | 0.00 | - |

| | | | |
|---|---|---|---|
| 2025 | - | 0.00 | - |
| 2026 | - | 0.00 | - |
| 2027 | - | 0.00 | - |
| 2028 | - | 21,761,000.00 | - |

| **DLI 3.1** | Adoption of water use efficiency technologies scaled up | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 10,000,000.00 | 5.06 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Reimbursable grant financing instrument for water use efficiency (GFI) adopted and manual for the GFI approved (Y/N) | | 2,000,000.00 | Amount paid upon completion and verification |
| 2024 | Famers use GFI to adopt water use efficiency technologies – Scalable (280) | | 1,600,000.00 | US$ 5’714.28 for each farmer use GFI to adopt water-efficiency technologies |
| 2025 | Famers use GFI to adopt water use efficiency technologies – Scalable (560) | | 1,600,000.00 | US$ 5’714.28 for each farmer use GFI to adopt water-efficiency technologies |
| 2026 | Famers use GFI to adopt water use efficiency technologies – Scalable (840) | | 1,600,000.00 | US$ 5’714.28 for each farmer use GFI to adopt water-efficiency technologies |

| | | | |
|---|---|---|---|
| 2027 | Famers use GFI to adopt water use efficiency technologies – Scalable (1120) | 1,600,000.00 | US$ 5’714.28 for each farmer use GFI to adopt water-efficiency technologies |
| 2028 | Famers use GFI to adopt water use efficiency technologies – Scalable (1400) | 1,600,000.00 | US$ 5’714.28 for each farmer use GFI to adopt water-efficiency technologies |

| **DLI 3.2** | Value chain development and export promotion services strengthened | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 4,500,000.00 | 3.31 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Market Intelligence Mechanism established, Opportunity Diagnostic submitted; and simplified regulation on cooperatives adopted (Y/N) | | 2,500,000.00 | Amount paid upon completion and verification |
| 2024 | De—risking financial instrument for post-harvest infrastructure investments approved (Y/N) | | 1,000,000.00 | Amount paid upon completion and verification |
| 2025 | Additional post-harvest SOPs approved by MoA and trials initiated for at least two crops (Y/N) | | 1,000,000.00 | Amount paid upon completion and verification |
| 2026 | - | | 0.00 | - |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 0.00 | - |

| DLI 3.3 | Traceability systems in place for key commodities | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 3,000,000.00 | 1.81 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Traceability regulation approved and traceability system implementation roadmap adopted; (Y/N | | 250,000.00 | Amount paid upon completion and verification |
| 2024 | Pilots for three commodities completed (Y/N) | | 750,000.00 | Amount paid upon completion and verification |
| 2025 | Value of commodities covered by traceability systems - Scalable - (Target value: US$ 1.25 Million) | | 500,000.00 | $.4 for each $ of commodities covered by traceability systems |
| 2026 | Value of commodities covered by traceability systems - Scalable - (Target value: US$ 2.5 Million) | | 500,000.00 | $.4 for each $ of commodities covered by traceability systems |
| 2027 | Value of commodities covered by traceability systems - Scalable - (Target value: US$ 3.75 Million) | | 500,000.00 | $.4 for each $ of commodities covered by traceability systems |
| 2028 | Value of commodities covered by traceability systems - Scalable - (Target value: US$ 5 Million) | | 500,000.00 | $.4 for each $ of commodities covered by traceability systems |

| DLI 3.4 | Improved service delivery for food safety | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 4,261,000.00 | 2.87 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Private laboratory accrediting mechanism adopted - (Y/N) | | 1,250,000.00 | Amount paid upon completion and verification |
| 2024 | Seed testing laboratory ESTA accredited – (Y/N) | | 1,250,000.00 | Amount paid upon completion and verification |
| 2025 | Reduction in test turnaround time by 20% compared to baseline – (Y/N) | | 1,250,000.00 | Amount paid upon completion and verification |
| 2026 | Reduction in average test turnaround time by 30% compared to baseline – (Y/N) | | 511,000.00 | Amount paid upon completion and verification |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 0.00 | - |

| DLI 4 | On and off farm employment skills improved, including women and refugees | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 8,000,000.00 | 0.00 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |

| | | | |
|---|---|---|---|
| Baseline | - | | |
| 2023 | - | 0.00 | - |
| 2024 | - | 0.00 | - |
| 2025 | - | 0.00 | - |
| 2026 | - | 0.00 | - |
| 2027 | - | 0.00 | - |
| 2028 | - | 8,000,000.00 | - |

| **DLI 4.1** | Training needs identified and program developed | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 1,000,000.00 | 0.60 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Needs-based skills training program approved by technical committee (Y/N) | | 1,000,000.00 | Amount paid upon completion and verification (incl. private sector involvement) |
| 2024 | - | | 0.00 | - |
| 2025 | - | | 0.00 | - |
| 2026 | - | | 0.00 | - |

| | | | | |
|---|---|---|---|---|
| 2027 | - | | 0.00 | - |
| 2028 | - | | 0.00 | - |

| DLI 4.2 | Needs-based skills upgrading and job matching opportunities scaled-up | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | Yes | Text | 7,000,000.00 | 5.77 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 2,020 (including minimum of 673 women, 673 youth and 404 refugees) | | 1,166,666.66 | $577.51 for each trainee completing the program on a pro rata basis |
| 2024 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 4,040 (including minimum of 1,347 women, 1,347 youth and 808 refugees) | | 1,166,666.66 | $577.51 for each trainee completing the program on a pro rata basis |
| 2025 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 6,061 (including minimum of 2,020 women, 2,020 youth and 1,212 refugees) | | 1,166,666.67 | $577.51 for each trainee completing the program on a pro rata basis |
| 2026 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 8,081 (including minimum of 2,693 women, 2,693 youth and 1,616 refugees) | | 1,166,666.67 | $577.51 for each trainee completing the program on a pro rata basis |

| | | | |
|---|---|---|---|
| 2027 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 10,101 (including minimum of 3,367 women, 3,367 youth and 2,020 refugees) | 1,166,666.67 | $577.51 for each trainee completing the program on a pro rata basis |
| 2028 | Trainees completed Skills Upgrading and Job Matching Program - Scalable - 12121 (including minimum of 4040 women, 4040 youth and 2424 refugees) | 1,166,666.67 | $577.51 for each trainee completing the program on a pro rata basis |

| **DLI 5** | MoA delivery capacity secured | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 42,000,000.00 | 0.00 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | - | | 0.00 | - |
| 2024 | - | | 0.00 | - |
| 2025 | - | | 0.00 | - |
| 2026 | - | | 0.00 | - |
| 2027 | - | | 0.00 | - |
| 2028 | - | | 42,000,000.00 | - |

| DLI 5.1 | Capital expenditure levels aligned with JAP ambition and PforR targets | | | |
|---|---|---|---|---|
| **Type of DLI** | **Scalability** | **Unit of Measure** | **Total Allocated Amount (USD)** | **As % of Total Financing Amount** |
| Intermediate Outcome | No | Text | 42,000,000.00 | 6.02 |
| **Period** | **Value** | | **Allocated Amount (USD)** | **Formula** |
| Baseline | - | | | |
| 2023 | Minimum increase in MoA CapEx allocation of JD 2 M over the 2022 budget baseline (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |
| 2024 | Minimum increase in MoA CapEx allocation of JD 2 M over the previous year's minimum increase (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |
| 2025 | Minimum increase in MoA CapEx allocation of JD 2 M over the previous year's minimum increase (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |
| 2026 | Minimum increase in MoA CapEx allocation of JD 2 M over the previous year's minimum increase (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |
| 2027 | Minimum increase in MoA CapEx allocation of JD 2 M over the previous year's minimum increase (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |
| 2028 | Minimum increase in MoA CapEx allocation of JD 2 M over the previous year's minimum increase (Y/N) | | 7,000,000.00 | Amount paid upon completion and verification |

| Verification Protocol Table: Disbursement Linked Indicators | |
|---|---|
| **DLI 1** | Adoption of sustainable rainwater harvesting (RWH) practices |
| **Description** | DLI 1 measures the sustainable increase in rainwater harvesting capacity for (i) supplemental irrigation in rainfed production systems at farm-level using underground cisterns (average capacity 30 m3), (ii) livestock watering by herders in the Badia rangelands using earthen structures (average capacity 50'000 m3) as well as for (iii) rangeland restoration purposes while sustaining the water balance in the watershed. |
| **Data source/ Agency** | MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions:**<br>a. **National Committee on RWH** meets at least quarterly and is chaired by MoA. MOWI holds deputy chairmanship, other members include JVA and MoENV. Decisions are taken by consensus. Other competent national and international institutions are invited to provide inputs as needed, such as NARC, the Royal Scientific Society, FAO and ICARDA for meetings related to the national RHW plan and operational guidelines development.<br>b. **National Agricultural RWH Plan** will comprise: (a) a review of lessons learned from past RWH interventions, (b) a mapping of existing and potential future RWH sites based on water availability and land use suitability assessments, as well as community outreach, (c) an ex-ante impact assessment at watershed level of water balance impacts, (d) a technology assessment at site level and (e) a cumulative and strategic environmental and social assessment (SESA) on the national agricultural RWH plan, that has been consulted and disclosed.<br>c. **Operational Guidelines On-Farm RWH** will be aligned with the national RWH plan, and include (a) a revised mechanism for beneficiary targeting and eligibility criteria focusing on vulnerability and women-headed households, and (b) strengthened monitoring & quality assurance procedures to ensure full functionality of structures.<br>d. **Operational Guidelines Community Level Badia RWH** will be aligned with the national RWH plan, and include (a) a revision of technical specifications and options including integration with landscape restoration interventions, and (b) a revised mechanism for beneficiary targeting based on community outreach.<br>e. **Innovation Pilots will comprise RWH** projects that pilot the use of technologies that reduce evaporation by a minimum of 10% (e.g., cover, wind- protection, depth of pond) in the context of the creation or refurbishment of communal RWH in Badia under DLI 1.3. |

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| **DLI 1.1** | Planning framework for agricultural rainwater harvesting (RWH) established |
| **Description** | Introduces innovative approaches into RWH and measures key institutional milestones on the way towards the establishment of a digitally enabled national agricultural RWH planning framework with adequate operational guidelines for agricultural RWH; |
| **Data source/ Agency** | MoA; National RWH Committee Meeting Proceedings |
| **Verification Entity** | VA |
| **Procedure** | **MoA provides the following supporting evidence: DLR 1.1.1:** (1) Terms of Reference of National Committee (NC) on RWH, including its composition, (2) Copy of written inputs provided by NARC, the Royal Scientific Society, FAO, ICARDA and other invited national and international institutions, (3) Copy of the relevant official meeting proceedings by the NC, specifying agenda items where the (i) National RWH Plan and (ii) Operational Guidelines were fully endorsed, (4) Copy of the final National RWH Plan as adopted by the NC (including a dedicated section explaining how provisions in the definition (above) have been incorporated), (5) Copy of Operational guidelines for (i) household level agricultural RWH and (ii) agricultural RWH at community level – as adopted by NC. **MoA provides the following supporting evidence for DLR 1.1.2:** (1) Completion Reports of the three Innovation Pilots, detailing how the technology approaches differ from the common standards implemented, **(2) VA audits evidence for compliance with DLRs and provides opinion.** |
| **DLI 1.2** | Farm-level RWH practices adopted |
| **Description** | This Sub-DLI measures the adoption performance of RWH practices at farm-level with a focus on women-led households |
| **Data source/ Agency** | MoA reports about on-farm RWH storage capacity created/refurbished with financing through MoA results-based grants |
| **Verification Entity** | VA |
| **Procedure** | **(A) MoA Water Harvesting Directorate provides the following supporting evidence for on-farm RWH structures constructed:** (1) Copy of report by MoA Technical committee with list of selected grantees, (2) Copy of signed grant approval letter for each grantee supported by the program, (3) Copy of signed MoA disbursement announcement letter to grantees, (4) Signed final supervision completion report by responsible MoA agricultural field office staff (full name, phone number and signature) confirming satisfactory completion of construction, (5) Dated photo of financed on-farm structure with GPS location **(B) VA conducts performance audits using the evidence listed above against the national strategic plan and operational guidelines for RWH (and any amendments)** |

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| | **Pro-Rata:** The minimum share of women will determine the capacity against which it can be disbursed. |
| **DLI 1.3** | Community level RWH practices adopted |
| **Description** | This Sub-DLI measures the adoption performance of RWH practices at community level in the Badia rangeland areas. |
| **Data source/ Agency** | MoA reports on communal RWH structures (i.e., soil ponds/hafirs, earthen dams and gabions) newly constructed or rehabilitated in the Badia. |
| **Verification Entity** | VA |
| **Procedure** | **(A) MoA Directorate of Project Management provides the following evidence on communal RWH structures constructed/rehabilitated** 1) Copy of signed contract with construction firm for each RWH structure financed under the program, 2) Progress reports by construction firms and copy of receipts/records on tranche disbursements to contractor issued by MoA, 3) Signed inspection reports by joint supervisory team of MoA/MoWI and JVA certifying completion and hand-over of RWH structure to GoJ AND dated photo of each structure with GPS location, 4) Evidence that a minimum of 1/3 of interventions relate to the refurbishment of existing Hafirs and that all interventions include landscape restoration activities surrounding the Hafirs (representing a minimum of 20% of the total cost), 5) Copy of E&S screenings. **(B) VA conducts compliance audits using the evidence listed above against the national strategic plan, operational guidelines for RWH (and any amendments) and the agreed specifications above.** |
| **DLI 2** | Innovation and improved performance of crop extension and animal health services. |
| **Description** | Improving extension and animal health service delivery is selected as a second pathway for strengthening both farm households and sector-wide climate resilience by introducing, disseminating and promoting collective/individual learning about climate-smart production and management practices. This is supported by introducing improved enabling systems that leverage digital innovations (farmer registry, e-extension, public tree nurseries, vaccination and FMD control program) and accelerate the transition towards private sector involvement in service delivery (eg. private sector mandate for veterinary services). |
| **Data source/ Agency** | MoA |
| **Verification Entity** | VA |
| **Procedure** | |

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| **DLI 2.1** | Digital farmer registry established and scaled up |
| **Description** | This DLI sub-measure monitors whether a functional digital farmer registry is developed and scaled up to a significant coverage of the farmer population, enabling data-driven sector policy approaches for improved targeting, tailoring of climate smart interventions and extension services as well as big data ag tech applications. |
| **Data source/ Agency** | Registry manual and system reports / MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions: Digital Registry System**: The term "operational" refers to the ongoing operations of the digital farmer registry system, including specification of the number of farmers registered (and the respective share of women); identification of channels used to incentivize registration; staffing and equipment for registration efforts; the ongoing improvement mechanism of the underlying software; lessons learned and adjustments undertaken from initial stages of implementation and evidence of updating of at least 5% of existing registry entries per year.<br>**Verification protocol:** MoA will provide the following documentation as evidence:<br>• Contact information of administrator and access rights to the application to allow auditor to test the functionality of the application; provision of online demo if requested by VA<br>• Copy of completion report for registry pilot phase, including lessons learned<br>• Copy of registry manual of full operational version<br>• Copy of registry implementation plan, identifying channels used to incentivize registration; staffing and equipment for registration efforts; ongoing improvement mechanism of the underlying software; lessons learned and adjustments undertaken from initial stages of implementation and evidence of updating of at least 5% of existing registry entries per year.<br>• Copy of NARC Roadmap for Public Private Partnerships on data and digital technology innovation (endorsed by NARC Board)<br>VA will test the functionality of the application for its purpose and audit the validity of registrations by conducting spot checks for a sample of registrations. VA will also assess the roadmap against agreed specifications. |
| **DLI 2.2** | Extension service capacity increased |
| **Description** | This DLI sub-measure tracks a comprehensive reform of MoA's extension services and a program of continuous improvement, including the development of an agriculture extension plan incorporating digital extension approaches with |

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| | participation from private sector providers and a rigorous learning program to improve the effectiveness of service provision. |
| **Data source/ Agency** | Records of MoA Extension Directorate/ MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions:** **Agriculture Extension Plan** comprises the implementation roadmap for the expansion of the crop extension service, budgets for staff and equipment, timelines for deploying FFS geographically and by subject-matter, the opportunities for engagement with the private sector, the use of digital technology, deliverables and intended results using KPIs (including recruitment of agents, procurement of equipment, delivery of FFS and other services, number of farmers expected to be reached. The plan will also include a detailed extension agent training plan including a needs assessment highlighting capacity gaps of existing staff vis-à-vis farmer and agribusiness needs and a detailed training schedule outlining training of trainers (ToT) timings and locations across 2023. **Innovation Adoption Survey**: refers to a representative sample survey of FFS alumni farmers to assess whether participating farmers that were educated through a (i) season-long training process, actually have developed interest in the innovation promoted, thus (ii) trialed it on their own plots and eventually (iii) decided to continue practice the innovation on their land in the following seasons. The survey will also collect data for assessing the determinants of adoption (e.g., household characteristics, access to inputs and markets).<br>**Verification protocol:** MoA Extension Directorate will provide the following evidence: **DLR 2.2.1 :** Copy of adopted National Agricultural Extension Plan, evidence for completion of full training package of extensionists and veterinarians as per training plan (i.e., training schedules and agendas, signed lists of participants including full names and contact information, training completion reports and evaluations) **DLR 2.2.2** Copy of Adoption survey reports of FFS alumni farmers; Evidence for FFS curricula improvements made based on Survey results. **VA will conduct compliance audit using the evidence submitted and provide opinion on the degree of (non-) compliance.** |
| **DLI 2.3** | Farmer CSA skills expanded |
| **Description** | This DLI sub-measure tracks a scale-up of farmer and herder skills development on climate smart on- and off-farm technologies, including tailored programing to boost capacity in the use of digital innovations and to help women, youth and refugees overcome knowledge and skills barriers towards increased participation in the sector. |
| **Data source/ Agency** | Documentation of completed FFS training activities by MoA Extension Directorate in collaboration with field offices/ MoA |
| **Verification Entity** | VA |

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| **Procedure** | Formula: Pro-Rata Basis: Whatever is the lowest relative achievement across sub-targets and the total target will proportionally set the disbursement of the DLIs.<br>**Verification protocol: MoA Extension Directorate will consolidate and provide the following evidence for DLI 2.3:** 1) Data file (e.g., EXCEL) with title of FFS training package, date/period of delivery, duration in days, total number of participating trainees that completed the FFS (with separate list of their names, address and phone number), title of certificate issued (if applicable), 2) Copy of schedule/agenda for each FFS package delivered ,3) Copy of curriculum of each FFS package (as prepared by trainers), 4) For each training package fully delivered provide a data file (e.g., EXCEL) with full names of participants, national ID number or farmer registration ID, address/ home village, phone number, gender, refugee status (a package refers to a series of training events addressing on subject matter – e.g. a FFS for pest-management in olive tree farming), 5) Identify participants that have attended more than one training package. **VA will audit compliance, including the verification of participation by beneficiaries reported as fully trained (contacting a random sample of reported beneficiaries).** |
| **DLI 2.4** | Animal health service provision capacity expanded |
| **Description** | This DLI sub-measure monitors the expansion and development of the coverage and quality of veterinary services, placing the country on a sound pathway for effective Foot & Mouth Disease (FMD) control among small ruminants, strengthening the climate resilience of the livestock sector and unlocking opportunities for the private sector (eg, through the establishment of a private sector mandate for vaccination). |
| **Data source/ Agency** | Records by Veterinary Services / MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions: Sanitary Mandate Program** refers to a process anchored in an event bringing together the government's Veterinary Services and accredited private veterinarians, which enables the GoJ to provide vaccination campaigns against regulated animal diseases, such as FMD, free of charge to all farmers. **Percentage shares of small ruminants vaccinated for FMD** refers to the number of animals vaccinated against FMD in a given year expressed as a share of the total small ruminant population, assumed to be approximately 3 000 000 head.<br>**Verification protocol:** MoA Veterinary Services will provide the following supporting evidence to its report: **DLR 2.4.1, 2.4.2 and 2.4.3**: Copy of field reports for FMD vaccination campaigns that were completed; procurements receipts for FMD vaccine administered during the vaccination campaign; national data on small ruminant population. **DLR 2.4.4**: Copy of FMD Control Program documentation submitted to OIE for endorsement. **DLR 2.4.5:** Evidence on the implementation of a |

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| | 'sanitary mandate pilot program', including program design document, budget, list of accredited private veterinarians that participate and number of vaccinations delivered through the program in the pilot governorate. **VA will review supporting evidence and provide opinion on (non-)compliance with agreed DLRs.** |
| **DLI 2.5** | Digital tools for e-extension introduced and scaled up |
| **Description** | This DLI sub-measure measures the establishment of public private partnership on digital agriculture technologies, bringing together extension services and research with agribusinesses, startups and the wider digital ecosystem (incubators, accelerators, etc) to develop an integrated offering of digital solutions for farmers and the promotion of digital solutions through extension channels. |
| **Data source/ Agency** | Roundtable & roadmap - NARC Early Warning System Application user data - NARC E-extension applications - MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions:** **AgTech roundtable on digital extension tools**, refers to an event bringing together stakeholders from GoJ, academia and the private sector (including actors that form part of the wider ag tech ecosystem such as start-ups, incubators and accelerators). **Roadmap for public private partnership (PPP) on data and digital technology innovations** (or equivalent) refers to a NARC planning document defining goals and investments, partnership approaches with roles and responsibilities and deliverables in promoting the introduction and use of modern digital technologies and better data for agricultural development. The development of a roadmap would involve consultations with GoJ, agribusiness and agricultural technology suppliers (including start-ups, incubators, accelerators).<br>**Verification protocol:** **NARC will provide (through MoA) the following documentation as evidence: DLR 2.5.1:** Copy of agenda, proceedings and participants list of the Agtech roundtable on digital extension tools held. **DLR 2.5.2:** Copy of Roadmap for PPP in promoting data and digital technology innovation (as adopted by NARC Board). **DLR 2.5.3**: 1) Contact information of administrator and access rights to the application to allow auditor (i) to test the functionality of e-NARC and its associated specialized applications, (ii) to view the subscriber number and profile information of e-NARC; 2) Copy of Manuals for e-extension tools developed under the program; 3) Provision of online demo if requested by VA. **VA will (i) assess the roadmap against agreed specifications (ii) test the functionality of e-narc and its associated specialized applications for its purpose per stated objectives and its manual (iii) audit subscription numbers.** |
| **DLI 3** | Enabling services for value chain development and export promotion |
| **Description** | The third pathway for strengthening climate resilience and the enabling environment in the agri-food sector is by improving |

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| | the enabling environment for agribusinesses through regulatory reforms and public services that are critical to facilitate more sustainable agri-food value chain development of selected products, their continued competitiveness, and more opportunities to leverage the significant potential for exports to premium markets and segments. |
| **Data source/ Agency** | |
| **Verification Entity** | |
| **Procedure** | |
| **DLI 3.1** | Adoption of water use efficiency technologies scaled up |
| **Description** | Monitors achievements in (i) the preparation of an innovative reimbursable grant instrument (GFI) for investments in digitally enabled water use efficiency technologies (e.g. crop covering, change in cropping pattern, smart irrigation) specifically targeting investment relevant to women and reducing women-specific barriers to access to finance and including remote-sensing supported monitoring of water use; and (ii) the effective use of this financing instrument aimed at building resilience to water scarcity exacerbated by climate change with a minimum share of women inclusion. |
| **Data source/ Agency** | ACC Board minutes /ACC |
| **Verification Entity** | VA |
| **Procedure** | **Definitions: Manual for the reimbursable grant financing instrument (GFI)** refers to a document providing information on the design and implementation mechanism for the GFI, including the eligibility criteria, the controls carried out by ACC before and after the allocation of grants , the list of projects/ technologies eligible, the methodology used to ensure grants lead to improvements in water use efficiency gains and water savings, including specific conditionalities to exclude water intensive crops, farmer agreements to maintain or reduce freshwater use for financing of irrigation technologies and the integration M&E approaches to track water use at beneficiary level, including through remote sensing data and field sample surveys conducted in partnership with MoA.<br>**ACC will provide (through MoA) the following evidence**: **DLR 3.1.1**: Copy of Board minutes demonstrating the approval of a new "reimbursable grant financing instrument" aimed at promoting the installation of more efficient water use technologies for irrigated agriculture. Additionally: 1) Board approved Program Design Document and implementation manual for a new reimbursable grant financing instrument supported by the program. 2) Copy of Board Minutes demonstrating the approval of the Program Design Document and Implementation Manual. **DLR 3.1.2**: 1) Digital table file (e.g., Excel) listing grantee names, address, phone number and GPS location of land holding where water saving technology |

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| | was installed, 2) Copy of signed grant approval letter for each grantee supported by the program, 3) Copy of disbursement announcement letter to grantee; 4) Signed final supervision completion report by responsible MoA Agricultural Field Office staff (full name, phone number and signature) confirming satisfactory completion of installation; 5) Dated photo of financed on-farm technology installed with GPS location. **VA reviews supporting evidence and provides audit opinion.** |
| **DLI 3.2** | Value chain development and export promotion services strengthened |
| **Description** | Monitors the establishment of an interdisciplinary mechanism for market intelligence with participation from GoJ agencies, agribusiness and farmer associations to establish a coordinated approach to market development and export promotion. Regulatory reform of the cooperative sector establishes the foundation for greater VC participation of cooperatives, incl. associations of women and youth. The mechanism would draw on real time international market data and a mapping of domestic value chains to identify promising commodities, infrastructure gaps, coordinate trials and develop as well as advance the readiness to implement appropriate financing instruments to stimulate private investment for competitiveness and improved income generation opportunities of farmers and farmer cooperatives. |
| **Data source/ Agency** | ACC grant approval, disbursement, audit, and supervision records / MoA and ACC |
| **Verification Entity** | VA |
| **Procedure** | **Definitions:** **Market Intelligence Mechanisms** refers to a multi-disciplinary advisory group comprised of key public entities (MoA, NARC, Jordan Export, JEDCO, etc.), private sector representatives, farmer association, development partners and international experts that will be established and anchored at MoA. The group will meet regularly and be supported by MoA staff to build a process for obtaining and analyzing market information on trends and demand for products that are grown or could be grown in Jordan, assessing which new climate resilient crops or varietals are optimal for Jordan's conditions, testing these crops, and disseminating this information to farmers (in the form of pilot farms, post-harvest SOPs, etc.). **Market Opportunity Diagnostic** refers to an analytical report that (i) maps the current operators and infrastructure available in Jordan for relevant post-harvest value chain activities such as cold-chain, sorting, grading, and packing facilities; (ii) identifies gaps, reviews international approaches for attracting private sector investment in energy efficient post-harvest value chain development using de-risking instruments (matching grants, first loss guarantees, etc), and (iii) identifies approaches for advancing the readiness of farmers, cooperatives, SMEs (especially logistics suppliers) to engage.<br>**Verification protocol:** MoA provides the following supporting evidence: **DLR 3.2.1**: Copy of ToR for a Market Intelligence Mechanism; MoA issued order or similar document formalizing the new market intelligence mechanisms. 1) Copy of final Market Opportunity Diagnostic Report published, 2) Copy of the adopted revised regulation governing Cooperatives. **DLR** |

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| | **3.2.2:** 1) Design document for a de-risking instrument aimed at financing post-harvest VC improvements as approved by the mechanism. **DLR 3.2.3**: 1) Copies of adopted Standard Operating Procedures for producing, post-harvest treatment and aggregation of at least two crops that were formally introduced with support of the program, 2) Evidence that at least three product trials with farmers have been completed (i.e., sensitization material, list of trial farmers recruited with names and contacts, progress and completion reports). **VA will review evidence for compliance with DLR agreement** |
| **DLI 3.3** | Traceability systems in place for key commodities |
| **Description** | Focuses on results related to the adoption of basic regulatory frameworks for traceability, followed by the conceptualization and implementation of voluntary traceability systems for exports that leverage digital technologies (eg blockchain, RFID tags). |
| **Data source/ Agency** | Records by MoA Advisory Group /MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definition:** **Traceability Systems** refers to a product tracking application that helps to track harvested field crops from field to exporters by lot through unique codes using digital process.<br>**Verification protocol:** MoA provides the following supporting evidence: **DLR 3.3.1**: 1) Copy of formally issued traceability regulation (e.g., MoA order, announcement). **DLR 3.3.2** 1) Copy of "Implementation Roadmap for Traceability System" adopted by MoA. 2) Traceability Pilot completion report covering at least three field crops. **DLR 3.3.3**: Evidence on the volume and final sales value of commodities recorded and traced by the system . **VA reviews evidence for compliance with DLR agreement.** |
| **DLI 3.4** | Improved service delivery for food safety |
| **Description** | Monitors the expansion of opportunities for private sector to offer food safety related testing services through an accreditation program, the creation of internationally certified food safety testing and seed certification capacity to facilitate integration of agri-food value chains and build capacity for monitoring of foodborne disease outbreaks exacerbated by climate change. |
| **Data source/ Agency** | Regulatory documents, implementation reports / MoA |
| **Verification Entity** | VA |
| **Procedure** | MoA and NARC provide the following supporting evidence: **DLR 3.4.1**: Copy of official procedures and forms for private labs |

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| | to seek official accreditation to perform food testing. **DLR 3.4.2:** Copy of ESTA accreditation letter of seed testing lab at NARC. **DLR 3.4.3 and 3.4.4.:** Data file with: (i) list of seed testing requests received in 2022 – 2025, 2026 (name of requesting business or person, date request received (ii) test results and date of letter with results submitted. **VA will review evidence, draw random sample from seed testing requests and verify response time (by asking NARC for copy of original correspondence between NARC and requesting business/person); provide opinion about compliance with reported DLR** |
| **DLI 4** | On and off farm employment skills improved, including women and refugees |
| **Description** | The fourth pathway for enabling a more competitive agri-food sector is by closing the skills gaps that is weakening the sector (while unemployment rates are high) and to more effectively match job seekers with potential employers based on consultations and needs assessment conducted together with stakeholders. Trainings offered would feature digital technologies across subjects and be tailored to the needs of different groups, including women, youth and refugees to ensure skills development and matching services are aligned with most promising areas for increased participation, tackle key knowledge barriers and personal as well as cultural preferences. |
| **Data source/ Agency** | |
| **Verification Entity** | |
| **Procedure** | |
| **DLI 4.1** | Training needs identified and program developed |
| **Description** | Tracks completion of a training needs assessment (conducted with private sector, civil society and farmer organizations), endorsement and launch of a skills training program. It is envisioned that trainings would focus on off-farm activities in the value chain as well as on-farm activities at production level, which would mainly focus on climate smart practices that promote technologies that: (1) improve water use efficiency; (2) deploy more climate resilient crops (drought, heat, pest and disease resistant); (3) reduce water use in land preparation and loss in crop growth stages. Training curricula would also include awareness raising on key issues such as child labor, occupational health and safety as well as decent work and accessibility to Program's grievance mechanism. |
| **Data source/ Agency** | Skills training program progress reports by MoA and implementing partners/ MoA |
| **Verification Entity** | VA |

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| **Procedure** | **Definitions Technical Committee (TC)** is composed of representatives from MoA, MoL, TVSDC, ILO, the agriculture sector skills council and the private sector. **Skills Upgrading and Job Matching Program** defines (a) skills gaps and needs (informed by separately commissioned skill needs assessment under the Program Action Plan); (b) criteria for targeting and selecting trainees ( including youth, women and refugees); (c) all implementation arrangements relevant to the training program, such as the training topics as derived from the findings of the needs assessment, the process for updating existing curricula where available and creating new curricula as needed; (d) the reflection of key issues such as child labor, occupational health and safety as well as decent work and accessibility to program grievance mechanism across curricula; (e) budget and timeline of implementation; and (f) M&E system design.<br>**Verification protocol:** MoA provides the following evidence:1) Copy of skill needs assessment report, 2) Terms of Reference of Technical committee, including its composition. 3) Minutes of TC meeting where Skills Training program design document was approved 4) Copy of approved Program design document. **VA conducts compliance audit of DLR** |
| **DLI 4.2** | Needs-based skills upgrading and job matching opportunities scaled-up |
| **Description** | Monitors achievement of capacity development targets set by the training program, with particular focus on the inclusion of women, youth and refugees. Skills upgrading and matching opportunities will increase vulnerable populations employment opportunities in rural areas and reduce outmigration in part driven by climate change. |
| **Data source/ Agency** | Progress Reports by Technical Committee/ MoA |
| **Verification Entity** | VA |
| **Procedure** | **Pro-Rata Basis:** Whatever is the lowest relative achievement across sub-targets and the total target will proportionally set the disbursement of the DLIs.<br>**MoA provides the following evidence:** 1) Copy of implementation progress reports by implementing partners. 2) Evidence on the application of agreed criteria for targeting and selecting trainees, including minimum age of 18. 3) Copy of agreed Curricula. 4) List with names and contact of participating employers. 5) List with names (including gender, age and refugee status) and contacts of trainees that have completed the program. 6) Written contracts for each trainee with terms and conditions consistent with National labor law, specifically the agricultural by-law. **VA conducts audit of (i) actual implementation of agreed criteria for targeting and selecting trainees (ii) actual participation and completion of program by reported participants (on a sample basis)** |

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| **DLI 5** | MoA delivery capacity secured |
| **Description** | Compared to historic averages, a sustained increase in capital expenditure commitments to MoA will be required to finance the transformation of the sector contemplated under the JAP and to reach the targets set under the PforR. Commitments will also need to occur in a timely way and be reflected at activity level to ensure policy continuity. Given its critical importance, securing MoAs delivery capacity through the budgeting process is also a critical assumption in the overall theory of change of the PforR Program. |
| **Data source/ Agency** | |
| **Verification Entity** | |
| **Procedure** | |

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| **DLI 5.1** | Capital expenditure levels aligned with JAP ambition and PforR targets |
| **Description** | Setting a level of annual MoA capital expenditure budget allocations aligned with the ambition of the JAP, sufficient to reach PforR targets and in support of wider GoJ capital expenditure targets. |
| **Data source/ Agency** | MoA records/ MoA |
| **Verification Entity** | VA |
| **Procedure** | **Definitions**: Baseline, refers to the total capital expenditure allocation in the GoJ 2022 budget for the Ministry of Agriculture.<br>**Verification protocol:** MoA provides as evidence: Copy of the approved GoJ budget indicating the level of capital expenditure allocations for MoA in each program year. VA reviews evidence and provides audit opinion. |

## ANNEX 3. SUMMARY TECHNICAL ASSESSMENT

### Jordan ARDI PforR Technical Assessment

### 1. Program Description

1. **Despite enjoying a strong comparative advantage in the production of almost all types of vegetable crops** as well as livestock and selected tree types, the Jordanian agriculture sector has remained until recently overlooked in the economic development policy priorities of the government.

2. **The National Strategy for Agricultural Development (NSAD) 2020–2025 "in the footstep of renaissance" was prepared in order to shift the attention toward the importance of the agricultural sector** in creating added value and its role in economic, social, and environmental development and to act in accordance with the national development efforts of Jordan Vision 2025. The new impetus given by the preparation of the NSAD was rapidly followed by the preparation of JAP. The latter is essentially an investment plan translating the strong will of the government to implement a proactive investment policy for the agricultural sector, mobilizing public (MoA, ACC, municipalities), and private contributions as well as those of development partners. There is strong support from across GoJ for the plan, with the MoA leading its implementation, the realization of which would represent a major change in the scope and nature of the interventions guided by the Ministry. JAP is structured around six priorities, which include a set of 75 Activities that represent investment projects. The plan recognizes the most significant strategic challenges that Jordan's agri-food sector is facing and identifies a comprehensive set of costed interventions across the public and private sectors and international partners with the potential to significantly shift the sector's path.

3. **The Program is entirely anchored in the JAP**, both in terms of its development objectives as well as results areas. The definition of Program boundaries was done in a progressive and iterative way. Initially, based on the information provided by MoPIC and the MoA, and considering the broad outlines of the program, agreement was reached on a Program scope focused on two results areas (RAs) deemed most urgent and critical for the sector's transformation: (i) Climate Resilience and Sustainability; and (ii) Competitiveness and Exports, as well as a set of activities deemed foundational in nature, which would pave the way for other partners including the private sector to engage in the sector's development in general and within the framework of JAP in particular.

### 2. Description and Assessment of Program Strategic Relevance and Technical Soundness

#### a. *Strategic Relevance*

4. **The strategic relevance of the Program can be assessed in terms of the response it provides to two major strategic challenges facing the agri-food sector in Jordan:** building resilience in a context of water scarcity and climate change and the need to position the Jordanian agri-food sector to become more competitive in order to better access existing markets and generate benefit streams that can improve rural living conditions. The Program's Theory of Change illustrates how the selected Program

activities provide a coherent set of responses that converge on these two objectives while addressing critical issues. The issue of climate resilience of the agricultural sector is extremely important in Jordan. The water resources available for agriculture are extremely limited and will continue to diminish under the dual pressure of population growth and climate change. In this context, the relevance of promoting water-efficient production systems (technologies, types of production) as well as strengthening the capacity to store and use runoff water is direct and obvious. The current weakness of the existing extension systems represents a major constraint to the necessary rapid adoption of water-efficient and climate-smart technologies. The public extension system is embryonic and requires a major overhaul of its approaches (collaboration with the private sector, e-extension, etc.). Jordan also needs to equip itself with the tools to quickly and efficiently disseminate the key information needed by farmers (climate risk and prices in particular).

5. **The need to strengthen agricultural technology dissemination systems is also relevant to the objective of improving the competitiveness of the sector** by speeding up the adoption of standards and techniques that will improve the quality of Jordan's agricultural products. Export market opportunities exist for Jordanian agri-food products but positioning them in these markets requires investments in systems to ensure that: (i) the quality of Jordanian products is intrinsically better; and (ii) the requirements of traceability and quality certification as well as sanitary requirements (including vaccination for animals) for products that are candidates for export are met. Finally, the positioning toward higher value-added products requires investment along the value chains and in particular in the post-production stages (grading, sorting, cold chain), as well as a better qualified workforce.

6. **In summary, the relevance and priority for economic development and poverty reduction of the Jordan Program is based on the following elements:**

- Jordan’s agri-food sector is a major source of income and employment with a significant untapped productivity and export potential.
- Climate change raises the risk of extreme weather events and, along with significant water stress, puts Jordan’s agricultural production at risk.
- In order to meet growing domestic demand and ensure food security while exporting high-value products to premium markets, Jordan’s agri-food sector needs to become more competitive and resilient.

**b. Technical Soundness**

**Results Area 1: Climate Resilience and Sustainability**

Sub-Result Area 1.1 – Scale up of Sustainable Agricultural Rainwater Harvesting (RWH):

Technical Soundness

7. **Water harvesting is widely recognized as an appropriate option for augmenting the available water supply to allow for supplemental irrigation in the Jordanian context** (FAO, 2016). There are a

number of factors that make the Highlands and Badia suitable for widespread water harvesting: both include traditionally rainfed agricultural systems where there is a history of water harvesting use and that are now suffering from rainfall shortages; both have highly variable agricultural production and are experiencing land degradation; and neither have a steady supply of surface water for irrigation, making them reliant on rapidly depleting groundwater. By concentrating rainfall runoff in the winter and during storms, water harvesting structures can increase the amount of supplemental irrigation available per unit of cropping area and may also support small-scale home gardens for household income generation. Water harvesting is therefore a way to improve water security for vulnerable farmers in a high-risk climate. Water harvesting may also help to reduce the pressure currently exerted on Jordan's aquifers and could contribute to improved groundwater recharge rates by concentrating water in a way that allows more infiltration before the water is ultimately used or evaporates.

*Delivery capacities*

8. **MoA has demonstrated effective and geographically differentiated approaches to target farmers** in (i) household-level rainwater harvesting structures, via a performance-based program implemented by MoA's extension services in areas with rainfall over 200 millimeters per square meter, with 1,000–2,000 beneficiaries per year; and (ii) community-level programs for rangeland restoration and water harvesting in the Badia—areas with rainfall under 200 millimeters per square meter—implemented by the MoA. The experience gained by MoA comes notably from implementing 1,000 to 2,000 individual water harvesting investments per year (with budget allocations coming from the central budget) and the Ministry was also able to assemble a list of 10,000 applicants through calls for proposals. For collective water harvesting infrastructure (Badia area), MoA has gained experience in the implementation of this type of investment in the region concerned. The technical stages of implementing these investments are fairly well known to the Ministry's engineers.

Transformative agenda promoted by the PforR under SRA 1.1

9. **For the water harvesting investments (both individual and collective ones), future investments backed by the PforR** would be underpinned by a multi-stakeholder national mapping and planning exercise including analysis of water balance impacts at watershed level and community outreach.

**Sub-Result Area 1.2 – Building Institutional Adaptive Capacity for Innovation**

Technical Soundness

10. **The ongoing Ministry's plan to overhaul its extension system reflects a broader and relevant ambition to develop a pluralistic service system that is more market oriented and able to cover a broader range of economic, technical, and organizational services.** This ambition is accompanied by a plan to consolidate within a single department the Ministry's staff who are engaged in various extension activities but scattered in technical departments. The recruitment of additional staff will effectively reinforce this effort. Once recruited, these agents will be assigned to their workplaces at the provincial level (depending on the needs of each province). Their training (training of trainers - TOT) will then be organized by the department of extension services taking into consideration their diploma and the needs at the province level in terms of necessary training of farmers or problems faced by farmers. The use of

digital technologies is likely to increase the coverage of extension services significantly and cost-effectively. The Ministry plans to implement a vigorous training plan for a contingent of subject matter specialists, some of whom will be positioned on emerging themes: value-addition, quality management, farm management, water savings. Finally, the Ministry intends to reform its approach to agricultural extension by applying the Farmer Field School approach, which effectiveness can be considered satisfactory. The Ministry's ambition, backed by the Program, is broadly in line with best practices and adequately reflects the recommendations of a recent evaluation of the Jordanian extension system[37], which emphasized the need for these reforms.

11. **The plan presented and discussed with the MoA to refurbish two tree seedlings production units appeared sound and coherent.** The ambition is focused on providing a stable supply of high-quality native varieties of stone fruit trees, where the private sector is not involved. The sale of seedlings at cost price will allow the set up a cost-recovery scheme that can contribute to a proper maintenance of the facilities with a modest fiscal effort. The dissemination of these native species contributes to the resilience of the plantations, while producing fruits and oils recognized for their quality and typical of Jordan, that can find outlets in niche markets.

Delivering capacities

12. **As highlighted by several recent studies and evaluations[38], in its current state, the extension service is not very effective**. However, with the support of development partners, the Ministry has gained significant project-based experience in implementing participatory and demand-driven approaches, e.g., FFS, and has had several opportunities to test the use of digital technologies for extension. An effort is underway to streamline the extension team and provide it with operating resources under the MoA's budget, including the planned purchase of 35 electric vehicles. The Ministry considers that it has learned many useful insights and practical tools (including training curricula, TOT manuals, FFS manuals, etc.) from this experience and that it can usefully build on this experience to implement its ambition to reform its extension system. Regarding the deployment of digital technologies in agriculture, the COVID-19 pandemic acted as a trigger for the realization by the Ministry's agents of the usefulness of these technologies for the diffusion of messages. Also, the Ministry has gained significant exposure with the support of development partners and recognizes the value of using low-cost communication technologies such as WhatsApp for communicating content and stimulating farmer to farmer exchanges.

13. **The MoA has been operating nurseries since at least the 1980s and the two nurseries still operated by the Ministry have maintained their activities while these need to be modernized.**

Transformative agenda promoted by the PforR under SRA 1.2

[37] FAO. "Assessment of Pluralistic and Market-Oriented Extension and Advisory Services (PMO-EAS). The Case of Jordan"2022, to be published.
[38] Notably Radi Altarawneh, Ali Al-Sharafat and Mohammad Altarawneh (2020). An Assessment of the use of Agricultural Marketing Extension among Extension Methods: Insight from Jordan. Asian Journal of Agriculture and Rural Development, 10(1), 109-119 and Boubaker, D., Kassam, S. N., Aw-Hassan, A., and Al Rusheidat, J. (2017). Enhancing agricultural extension services for rural development in Jordan. International Journal of Agricultural Extension, 5(2), 51-60.

14. **Regarding agricultural extension, the entire reform plan is based on and aims to achieve a strong transformation agenda**. The PforR will provide resources and set mutually agreed milestones to motivate the realization of certain key steps of the reform to materialize.

**Animal health extension service will be strengthened through:**

Technical Soundness

15. **The Ministry's plans to expand and modernize their veterinary services appear relevant and in line with good practices.** Close cooperation exists between Jordan and OIE and FAO, and the latter is providing continuous support to the realization of these plans. This cooperation has already resulted in the development of an FMD-PCP[39] for Jordan. The actions selected in the PforR are in the nature of helping Jordan in moving up to OIE-defined 'stage 3' in the progressive prevention and control of FMD.

16. **The expansion of the national coverage of veterinary services, which will be strengthened** by the equipping of two additional veterinary centers is coherent with the Ministry's ambition to improve equity in terms of access to veterinary services.

Delivery capacities

17. **The Ministry is currently already operating satisfactorily veterinary clinics which are routinely and adequately delivering veterinary services.** A list of equipment and refurbishment needed for the operationalization of the two additional clinics is under preparation and will be confirmed before the PforR is effective.

18. **The ministry has over the past years gained adequate experience in the procurement of vaccines, management of stocks and rolling out vaccination campaigns including for FMD.**

**Results Area 2: Competitiveness and Exports**

**Sub-Result Area 2.1 – Enabling Services for Value Chain Development and Export Promotion**

Technical Soundness

19. **Several technologies are well identified and recognized as effective in promoting greater productivity of water use for agriculture.** Their adoption is underway in Jordan and their adaptation to local conditions as well as their profitability are well demonstrated. Facilitating access to finance can play a critical role in accelerating the adoption of these technologies at smallholder level, which in turn can lead to a decrease in water consumption, provided that incentives are in place to maintain water-efficient crops.

[39] The Progressive Control Pathway for Foot-and-Mouth Disease (PCP-FMD) developed by FAO and EuFMD and endorsed by the OIE, is a risk and evidence-based framework to guide endemic countries to progressively improve the management of FMD risks and reduce disease impacts and viral circulation

20. **For the traceability system initiative that would be supported by the Program**, as currently envisioned, the approach appears technically sound, as the system will be comprehensive, with many underpinnings including quality assurance, residue testing, customs certificates, etc. Establishing a traceability system is key in accessing European markets for horticulture crops (fruits, vegetables) but also meat and milk-based products. It can be instrumental in differentiating Jordanian exports in high-value export markets by promoting providing multi-dimensional traceability systems with export-oriented farmers. The MoA intends to develop the system gradually starting with two to three key commodities. The system would be developed in partnership with the Food and Drug Administration (FDA), Standards and Meteorology Institution, Greater Amman Municipality (F (marketing board), private sector and customs. Specific SOPs will be developed for each product.

Delivery capacities

21. **On traceability, the MoA has established a quality tracking directorate already and received over the past years support from Development Partners including the European Union (EU).** Further refining and operationalizing the system will require capacity development and international expertise on this subject. In 2010, the EU evaluated Jordan's traceability system and regulatory context and is providing technical assistance to GoJ. IFC is also engaged to improve the enabling environment related to traceability. Guidelines and instructions are in place but remain to be operationalized. Some quality standards remain to be translated into English. An inter-administration (MoA, Customs, FDA) national team has been established to ensure coordination and develop the system.

22. **On seed testing, NARC and MoA scientists and laboratory technicians have already received some training and guidance on testing methodologies.** Assistance from the Dutch development cooperation has already produced some good results including a doubling of seed producing companies.

23. **On financing the on-farm adoption of water saving technologies, ACC has demonstrated effective and geographically differentiated approaches to target farmers, offering zero-interest loans.** In 2020, the volume of ACC lending for water-saving technologies investment was above JOD5.5 million. ACC has already been receiving substantial technical assistance on this subject through the Water Innovation Technologies (WIT) project (a five-year USAID-funded initiative). The WIT team worked closely with ACC to increase their awareness of the economic benefits of water conservation technologies. Both NARC and MoA technical staff have received training on water accounting through the WIT project already.

Transformative agenda promoted by the PforR under SRA 1.2

24. **The Program would pursue results related to critical reforms and increased investment.** MoA has proposed to develop a value chain and export promotion plan as part of the Program that would (i) identify the technical requirements of the traceability system and underpinning export promotion functions, e.g., residue control; and (ii) identify optimal solutions to stimulate investment through instruments such as a de-risking fund involving first loss- or minimum-usage guarantees to be implemented by ACC and other financial sector institutions. The development of the traceability system will also require additional legislation (IFC has developed a draft text that could be implemented) the finalization of which could be incentivized by the Program. The additional legislation would complete the

existing legislation on food safety by adding the traceability dimension to inspections by the JFDA, MoA and others.

25. **On incentivizing on-farm water-saving investments, discussions on the Program design and DLIs have identified the possibility of linking support to improved farm-level irrigation systems** zero-interest loans with caps on freshwater use at farm level, enforced by ACC based on data from MoWI. The Program could also pave the way for a scaling up of the tripartite approaches already tested by ACC in providing loans for investments in water-saving technologies. In this scheme, private providers of these equipment intervene by making an offer combining the equipment with a financing product developed by ACC.

**Sub-Result Area 2.2: Matching skill supply with demand in the agri-food sector**

Technical Soundness

26. **The Jordanian labor market is affected by a mismatch between educational outcomes and employers' needs**, and between the quality of education and students' expectations. These are compounded by insufficient job creation to absorb the increasing influx of jobseekers, both nationals and migrants (UNESCO, 2021). In particular, there is a large lack of skills in the use of water-saving technologies in the agricultural sector. A report prepared by USAID in 2014 states that this is true at all levels of the agricultural workforce. Farmers and local community organizations have little knowledge about or access to new water-saving technologies as training and information dissemination via the extension system is inadequate and limited research has been conducted to field test new technologies and practices. Recent experience shows significant results in integration in the labor force if unemployed people in the agricultural sector receive training (550 out of 3,700). Similar results have been obtained under a UNESCO-sponsored program in Jordan[40].

Delivery capacities

27. **Implementation experience has been gained by the MoA under a similar arrangement with OPEC[41] funding.** 3,700 beneficiaries benefited from training and received stipends through social security. As an outcome, 550 unemployed youth gained access to jobs. An OPEC-funded project has opened a window for women to receive training mostly in cottage industries including agro-processing.

Transformative agenda promoted by the PforR under SRA 2.2

28. **The Program would support results achieved under such a program and include the following features:** (i) a labor market needs assessment with the private sector; (ii) inclusiveness of refugees; (iii) possible collaboration with ongoing World Bank-financed operations targeting complementary training needs; (iv) additional curricula focusing on climate-smart technologies will be prepared by the MoA with accreditation from the national technical and vocational training (TVET) authority. Also, an outcome evaluation will be conducted in partnership with the Ministry of Labor. There will be engagement with the private sector in the design of training and the identification of the needed sets of skills via connections with associations, buyers, outlets, etc. Such engagement is expected to help to: (i) identify essential areas

[40] UNESCO. Tracer Study of Agriculture Vocational Secondary Education in Jordan. FINAL REPORT. November 2020
[41] Organization of the Petroleum Exporting Countries

such as standards, quality control, etc.; (ii) create work experience opportunities; and (iii) provide a network of potential employers.

### 3. Description and Assessment of Program Expenditure Framework

29. **Jordan's economy is undergoing a nascent recovery, with real GDP growth of 2 percent in 2021, strengthening to 2.4 percent in 2022, and 3.1 in 2023.** IMF's Third Review report[42] indicates that the government program of expenditure is fully consistent with the IMF fiscal projections under the ongoing Extended Fund Facility program. Sound policies have helped maintain macroeconomic stability during a challenging period. The government of Jordan expects significant savings in non-priority current expenditures, including to allow space for the budgeted increase in capital expenditures. The Program, which essentially implies an increase in capital expenditure in the sector under consideration, is consistent with the projections made for the evolution of capital expenditure in the coming years. Under the Third Review of the (IMF) program (January 2022), the cumulative projected increase in dollar capital expenditures in 2022–2026, over the 2021 level is US$2.96 billion. That is several times more than the increase targeted by and needed for the Program. Given the current high level of political commitment to Program implementation, these prospects, and the fiscal constraints associated with them, provide a strong indication that prioritization of an adequate portion of government spending to the Program is realistic. Recurrent expenditures are also projected to increase by over US$6.4 billion over the Program timeline.

30. **JAP is structured around six priorities, which include a set of 75 activities that represent investment projects.** JAP is essentially an investment and policy plan translating the strong will of the government to implement a proactive regulatory and investment policy for the agri-food sector. The total capital expenditure envelope of the investment plan was estimated at JOD389 million. The plan foresees contributions from the private sector, development partners, municipalities, and ACC, as well as the mobilization of the budget of the MoA and of the Ministry of Finance. The 75 activities listed in the plan are each considered as policy or investment items that if included in the regular budget of the MoA would figure in the capital expenditure section of the budget. The initial estimated cost of implementing the plan (JOD389 million) therefore did not take into account the costs of mobilizing the Ministry's staff and the corresponding operational costs. This implies that the actual cost of implementing the plan is significantly higher than this estimate.

31. **The Program formulation work allowed for the refinement of budget projections.** Based on the capital expenditure costing developed as part of JAP preparation, work with the budget unit of the MoA allowed to include current expenditures and additional adjustments for the 13 activities included in the Program boundary. The relevant teams in each of the Ministry's programs and directorates prepared updated cost estimates, as well as an implementation schedules and expenditures reflecting technical needs. The review of these elements concludes that the Program's costing is realistic and supportive of effective Program implementation, including the timely and cost-effective achievement of planned objectives.

[42] IMF Country Report No. 22/4. Jordan. Third Review Under The Extended Arrangement Under The Extended Fund Facility And Request For Modification Of Performance Criteria—Press Release; Staff Report; And Statement By The Executive Director For Jordan Jan 2022

32. **The Ministry's annual budget is organized by 'program'**. There are six programs in total, each program grouping 4 to 12 directorates around a technical area.

33. **The alignment between the JAP investment plan and the Ministry's budget remains partial for the year 2022**. The main reason for this is that the JAP plan was finalized after the 2022 budget was prepared and submitted to cabinet for approval. Nevertheless, the MoA is in discussion with the MoF to adjust the structure of the MoA's budget to accommodate JAP more broadly as well as the Program. The 13 activities funded by the PforR would be integrated into the existing six programs in the form of 'activities' with dedicated budget allocations and clear accountability for results through the relevant directorates in charge. This would include the part of the MoA's budget relating to NARC. In addition, an existing budget line in support of public institutions at the MoA, would be utilized to allocate funding to ACC to cover the operational costs of the establishment and implementation of the reimbursable grant scheme (Table A3.1).

34. **The exchanges undertaken with the budget team during the PforR formulation mission** showed that the Ministry is well aware of the nature of the PforR funding instrument and that they have begun to plan for the formulation of annual budgets that reflect the PforR.

35. **At the level of each of MoA's six programs, the budget is organized into three main categories of expenditures: personnel, operational costs, and capital expenditures.** The capital expenditures relate to the implementation of projects financed by the Ministry's budget and a significant proportion of these projects, which are considered capital expenditure in MoA's budget document, are implemented by the Ministry's decentralized teams. Each of the Ministry's six programs includes a set of 'projects', the number of which varies from a dozen to thirty depending on the program and over the years. The budget lines are generally characterized by moderately high personnel and recurrent costs, with the capital expenditure allocations not exceeding 24 percent in average. Budget outturns have been consistently good over the past years (98 percent for Fiscal Year 2019).

36. **The following expenditure framework was prepared based on ex-post budget allocations, the estimates of budget projections and the commitment from the Government during Program preparation.** Initial Program costs have been reassessed and ascertained in close collaboration with MoA. The budget projections have also been reworked to be consistent with the timeframe for achieving the results indicated in the Program results framework, as well as consistent with the DLIs. The budget allocation in 2022, partially reflecting planned expenses for JAP, was used as the conservative basis for future allocations.

*Table A3.1: Overview of Expenditure Framework*

| Agency | Category | Total included in PforR | | Budget codes / lines | Budget categories (Source: MoA 2022 Budget, ACC Annual Reports) |
|---|---|---|---|---|---|
| | | JOD | USD | | |
| **MoA - Baseline** | Current Expenditure | 28,094,800 | 39,614,268 | P4001/P4005/P4010/P4015/P4020/P4025 (601) | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 31,830,000,1 | 44,880,300 | P4001 (001, 002, 009, 010, 706), P4005 (017, 018, 701, 702, 709, 710, 711, 713, 715) P4010 (702, 705, 710, 715), P4015 (013, 014, 708, 716), P4020 (024, 704, 706, 707, 709, 710, 713, 716, 718, 721, 722, 726, 728, 731) | Fixed assets (3112), goods and services (2211) |
| *MoA - Additional requirement* | Current Expenditure | 0 | 0 | | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 41,371,000 | 58,333,110 | P4001/P4005/P4010/P4015/P4020 (new budget lines to be created) | Fixed assets (3112), goods and services (2211), Subsidies to Public Corporations (2511) |
| **NARC - Baseline** | Current Expenditure | 1,587,300 | 2,238,127 | P4025 (601) | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 563,200 | 794,124 | P4025 (003, 022 , 703, 705) | Fixed assets (3112), goods and services (2211) |
| *NARC - Additional requirement* | Current Expenditure | 0 | 0 | | Salaries and wages (2111), social security (2121) |
| | Capital Expenditure | 1,698,000 | 2,394,180 | P4025 (new budget lines to be created) | Fixed assets (3112), goods and services (2211) |
| *ACC - Additional requirement** | Capital Expenditure | 10,000,000 | 14,100,214 | P4001 (2511, 012) | |
| **Total** | | 115,145,000 | 162,356,909 | | |

37. **The prepared costing tables indicates an overall cost of implementing the PforR of US$162 million, to which World Bank funding would contribute US$119.5 million, a share of 74 percent. In addition, the World Bank will provide financing of US$5.5 million for the IPF component supporting JAP and PforR implementation and building MoA capacity.**

38. **The level of commitment to the JAP demonstrated by GoJ suggests that MoF would be able to mobilize funds to the implementing agencies responsible for implementing the program.** This would imply in a significant increase in MoA's capital expenditure ratio (relative to its total expenditure), reflecting a significant efficiency gain for the ministry and contributing to GoJ's IMF program targets. Since the PforR is included in a new plan, the analysis of past expenditures only partially assesses the alignment between the Ministry's budget and the budget needed to implement the PforR.

39. **To assess the capacity of implementing agencies to implement the required increases in capital expenditures, a detailed review of execution rates by implementing agency and type of activity was conducted.** The implementation of the Program involves three implementation agencies: MoA, NARC, and the Agriculture Credit Corporation (ACC). MoA has had stable budget allocations over the past three years, with an increase in 2022 reflecting the GoJ's renewed engagement in the sector. The execution rates can be considered satisfactory as shown in the following table. The Ministry has indicated that this disbursement rate was high for all three main categories of expenditures (recurrent wages, recurrent non-wages, and capital). The execution rates can be considered satisfactory as shown in the following tables, showing detailed execution rates for MoA (Table A3.2) and NARC (Table A3.3), as well as lending data for ACC (Table A3.4).

*Table A3.2: Overview of MoA execution rates overall and by activities and budget lines*

| Execution rate | Type of Expenditure | *2017* | *2018* | *2019* | *2020* | Average 2017-2020 |
|---|---|---|---|---|---|---|
| **Overall** (Actual vs. re-estimated | Recurrent | 99% | 102% | 102% | 101% | **101%** |
| | Capital | 101% | 96% | 97% | 113% | **102%** |
| **Detailed execution rates for relevant activities:** | **Budget lines by activity** | | | | | |
| | Rainwater Harvesting at farm level (lines 4015(710,712,714) + 4020 (024, 701,703->710, 713, 716, 722, 726, 728, 729, 740) | 98% | 96% | 97% | 120% | **103%** |
| | Rainwater Harvesting at Badia level (lines 4010 (715) and 5015 (712,737)) | 100% | 100% | 98% | 100% | **100%** |
| | Extension System Performance (lines 4001 (723, 719, 716) + 4010 (010,706, 710) + 4015 (702, 704, 706, 707, 713, 715, 717)) | 101% | 95% | 99% | 98% | **98%** |
| | Veterinary System Performance (lines 4005 (014, 701, 702, 705, 709, 715)) | 100% | 98% | 100% | 99% | **99%** |
| | Performance of nurseries improved (lines4010 (702, 705, 710)) | 102% | 99% | 98% | 99% | **100%** |
| | Traceability System development (4001 (009, 010), 4005 (017, 716) 4015 (013,014, 702, 704, 706, 707, 713, 715, 717)) | 99% | 95% | 96% | 100% | **98%** |
| | Public services for value chain development (4001 (002, 010, 706, 711, 712, 714) | 103% | 98% | 96% | 102% | **100%** |
| | SPS and seed certifications (4015 (017, 701, 716) | 99% | 100% | 100% | 99% | **100%** |
| | Skills development and job matching | NA | NA | NA | NA | **NA** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Implementation support, coordination/inclusion, and capacity building (4001 program) | 99% | 94% | 97% | 103% | **98%** |

*Table A3.3: Overview of NARC execution rates overall and by activities and budget lines*

| **Execution rates** | **Types of Expenditures/Budget Lines** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | **Average 2017-2020** |
|---|---|---|---|---|---|---|
| **Overall** | Recurrent | 99 | 99 | 96 | 98 | **98** |
| (Actual vs. re-estimated) | Capital | 102 | 107 | 84 | 104 | **98** |
| **Detailed execution rates for relevant activities:** | **Budget lines by activity** | | | | | |
| | Digital tools, including early warning system developed, e.g., frost alert (lines 4025, 001, 003) | 110 | 106 | 102 | 109 | **106** |
| | SPS and seed certifications (lines 4025, 001, 003, 022, 703, 705) | 69 | 106 | 94 | 102 | **90** |

*Table A3.4: Overview of ACC execution rates overall and by activities and budget lines*

| | *2017* | *2018* | *2019* | *2020* | **Average 2017-2020** |
|---|---|---|---|---|---|
| **Lending volume/portfolio (million JOD)** | 51 | 47 | 46.7 | 38.7 | 45.85 |
| **Loan Repayment Volume (million JOD)** | 41 | 46.5 | 46.8 | 32.4 | 41.675 |
| **Loan Repayment Rate (%)** | 83% | 81% | 90% | 59%* | 78% |
| **Volume and share of lending relevant to the Program** | | | | | |
| **Detailed lending volume for relevant activities under ARDI (million JOD)** | 11.9 | 3.5 | 3.7 | 6.4 | 6.375 |
| **Percentage of activity lending volume under ARDI from overall lending portfolio (%)** | 23.40% | 7.40% | 8% | 19% | 14% |

** 2020 had low repayment rate due to external factors (COVID-19 GoJ measures)*

40. **Based on the execution rate analysis and taking the additional capacity building support offered in particular by the Program's IPF component into account, the technical assessments find implementing agencies capacities to be adequate.** Tables A3.2 and A3.3 show that MoA and NARC have satisfactory execution rates overall as well as for the budget lines and activities of relevance to the Program, such as rainwater harvesting (MoA), or the development of digital tools (NARC). Table A3.4 shows lending performance data for ACC, also with satisfactory loan repayments rates except in 2020, which was strongly affected by external factors, such as the COVID-19 pandemic and related government interventions, pausing loan repayments across financial institutions, which were not specific to ACC. In addition to this significant existing capacity, the Program offers three avenues for capacity building: (i) the DU will offer both direct implementation support as well as systematic capacity building for all implementing agencies of JAP and the Program; (ii) several PAP items support capacity building where gaps were identified, such as the electronic processing of grants at ACC or the scale up of the digital procurement system at MoA; and (iii) technical assistance for a number of activities is available from the World Bank and other partners as outlined under the Capacity Building section above.

41. **The preparation of the PforR has clearly identified the institutional accountability framework on which the implementation of activities will be based, as shown in Table A3.5 below.** As indicated in

the section on institutional arrangements, for each of the Program's actions an institution is clearly identified at the implementing agency level. In most cases, this is a single Directorate, sometimes a set of two or three Directorates. The direct implication of this is that each of the costs associated with the implementation of the Program can be mapped specifically in terms of its inclusion in the budget of the Ministry (Directorate and Ministry Program to which the Directorates are specifically attached), to NARC and ACC. For the construction of the expenditure framework, the budgetary mapping used was that from the six existing programs of the Ministry.

*Table A3.5: Key Implementation Agencies*

| Result Area | Results | Responsible Implementing Agency | Directorate(s) | Partnering institutions |
|---|---|---|---|---|
| RA 1.1 | Rainwater Harvesting | MoA | Water Harvesting Directorate,<br>Projects Management Directorate,<br>Pastures Directorate,<br>Lands and Irrigation Directorate | MoWI, JVA, MoENV |
| RA 1.2 | Extension System Performance | MoA | Directorate of Training and Awareness of Farmers, Human Resources Development, and NARC | |
| | Veterinary System Performance | MoA | Veterinary Directorate | OIE |
| | Digital tools, including early warning system developed, e.g., frost alert | NARC | | MoA, Agriculture Risk Fund, Agri-tech ecosystem |
| | Performance of nurseries improved | | Plant Production Directorate | Private sector |
| RA 2.1 | Water use efficiency financing instrument | ACC<br>MoA | Loans department | MoWI |
| | Traceability System development | MoA | Quality and Tracking Directorate | Customs<br>JFDA |
| | Public services for value chain development | MoA | Directorates: Marketing project management, studies and production chain development. and Irrigation and land | Ministry of Commerce, JEDCO, MoPIC JSDF, JSMO |
| | SPS and seed certifications | MoA, NARC | Prevention and Plant Protection Directorate | |

| | | | | |
|---|---|---|---|---|
| RA 2.2 | Capacity Development in the Agri-food Sector | MoA | Technical Committee with the participation of relevant Directorates | TVSDC, Farmer and private sector associations, civil society |

## 4. Program Economic Evaluation

42. **Financial analysis**. A cost-benefit analysis was conducted on project investments with direct quantifiable benefits, in Result Areas 1 and 2. This includes the following activities: (i) farm- and home garden-level rainwater harvesting; (ii) rainwater harvesting and Badia restoration; (iii) encouraging farmer investments into advanced production technologies; (iv) veterinary services; and (v) training on agricultural professions. Regarding rainwater harvesting structures, the investment in individual and collective structures could improve farmers' income and yield Internal Rates of Returns (IRR)s above 20 percent (although results are sensitive to changes in water availability and variation in output). In climate-smart technologies, investment in wicking beds, greenhouses for cherry tomatoes, and investment in grow bags for growing baby cucumbers could yield to IRRs of 23 percent, 54 percent, and 71 percent, respectively. Training in agricultural professions is expected to secure jobs for 34 percent of the trainees and would yield an IRR of 59 percent.

43. **While a direct assessment of the improved extension services, including the use of digital extension tools, is currently not feasible,** current research shows that extension services facilitate knowledge transfer and skills acquisition and have a positive impact on technology adoption, yields, and profits. In addition, measures to enhance the quality and export market access including, addressing inefficiencies in food safety management facilities, issues with traceability and lack of compliance with internationally recognized certification would increase the competitiveness of agriculture products on the international market and generate additional resources for the country.

44. **Economic analysis.** An economic analysis was undertaken for the Program as a whole. The benefit streams estimated for the financial analysis were converted to economic prices, and investments were rolled out throughout the five years of Program implementation according to the Program's results matrix targets. Overall, the Program would yield an IRR of 26.5 percent and an NPV of US$215.8 million. The results are robust, remaining positive even with large variations in costs and benefits.

45. **Environmental externalities in the economic analysis.** The reduction of net GHG emissions due to Program interventions are integrated into the EFA by using an economic value for carbon pricing with a high and low case scenario following the guidelines of the World Bank: "Guidance note on the shadow price of the carbon in the economic analysis" (September 2017). Net reduction in GHGs were calculated by using the FAO's Ex-ACT Tool (version 9.3.2). The GHG analysis indicates that, over the implementation period of twenty years (implementation phase 5 years, capitalization 15 years), the Program could reduce carbon emissions by 69,781 tons of carbon dioxide equivalent. This implies an average mitigation of 3,489 tons of carbon dioxide equivalent per year. Under the high price of carbon (HPC) scenario, the Economic Rate of Return (ERR) for the entire Program is 26.9 percent, and the NPV is approximately US$220.8 million. Under the lower carbon price (LCP) scenario, the ERR was 26.7 percent and the NPV was approximately US$218.8 million.

### 5. Inputs to the PAP

46. **Based on the technical and risk assessments, the PAP includes actions aimed at strengthening the capacity of implementing agencies in the following three areas**: (i) Program delivery (including reform agenda); (ii) fiduciary systems; and (iii) environmental and social management. As such, it is focused on mitigating the moderate risks identified with regards to Program implementation, which are: (i) inter-agency coordination; (ii) risks associated with public service delivery crowding out private sector provision; (iii) weaknesses identified in the fiduciary systems; and (iv) the need to increase the capacity of the Program implementation entities with regards to social and environmental aspects. Details are provided in Annex 6.

## ANNEX 4. FIDUCIARY SYSTEMS ASSESSMENT

1. **This Annex provides the Fiduciary Systems Assessment (FSA)** of the World Bank-financed Jordan Agriculture Resilience, Value Chain Development, and Innovation (ARDI) Program-for-Results (PforR). The FSA assessed the PFM procurement and governance systems for the implementing agencies, namely MoA, NARC, and ACC.

2. **The fiduciary risk of the Program is assessed as Substantial.** The overall Program's fiduciary framework is assessed adequate to provide reasonable assurance that the Program financing proceeds will be used for intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. However, the FSA concluded that the fiduciary systems and implementation capacity of MoA, including NARC, and ACC will require strengthening to meet the Program implementation needs, particularly given the significant increase in budget allocation and procurement activities envisaged under the Program compared to previous years.

3. **Key risks that potentially could impact the Program** are: (i) the lack of financial sustainability and funding predictability due to possible budget cuts considering Jordan's fiscal stress; (ii) the ACC Enterprise Resource Planning (ERP) system is inefficient; (iii) MoA and ACC have limited prior experience with World Bank-financed operations; (iv) ACC accounting policies are not consistent with international standards; (v) a lack of procurement planning and systematic tracking and monitoring of procurement and contract performance throughout the procurement cycle; (vi) procurement and contract management capacity is weak due to delays in deploying training and capacity building of line ministries and government agencies, on the methods, techniques, and innovations introduced in the procurement bylaw and the associated standard procurement documents, contract conditions, and evaluation templates; (vii) inefficiency in processing procurement transactions and cumbersome clearances, especially for procurement processed through the central procurement departments; and (viii) poor quality of technical specifications, terms of reference and qualification requirements for procurement (Goods, IT, works, and consultants' services) may affect the bidding process and contract implementation and may result in cost and time overruns, and poor quality of deliverables.

4. **Specific risk mitigation measures have been identified.** Measures to mitigate the identified risks include: (i) The World Bank will closely monitor annual budgetary allocations of MoA and ACC and their implementation; (ii) a new Enterprise Resource Planning (ERP) system (with a new accounting module) will be purchased and installed by ACC (PAP); (iii) new accounting policies will be developed and implemented by ACC that are consistent with international standards (PAP); (iv) MoA's procurement capacity will be strengthened with a full-time procurement specialist with knowledge of the methods and innovations introduced by the procurement bylaw and experience in good procurement practices to meet the Program implementation requirements; (v) at least one month before the end of each fiscal year, MoA, including NARC, will prepare and publish an annual procurement plan in JONEPS, and update it at least quarterly, based on the Program annual work plan and budget (PAP); (vi) a Special Tenders Committee (STC) and members of the STC was established for the Program to expedite the procurement processing and decision making; (vii) MoA and NARC staff, and members of the STC will receive specialized training on procurement of works, goods and consultants' services in accordance with the new methods, techniques and innovations introduced in the procurement bylaw and on the use of the national standard

bidding documents and contract conditions and bid evaluation templates for various types of procurement, currently being finalized by GoJ with the World Bank's support (PAP); and (viii) starting January 1, 2023, all Program procurement transactions, covering planning, tendering and award, contract management and acceptance of deliverables, will be processed through JONEPS, following the provision of necessary training to MoA staff (PAP).

**Overview of PFM and Procurement Systems**

5. **The overall picture is of continuing gradual improvement in Public Financial Management (PFM) systems despite a very unfavorable external economic environment**. PFM systems have been improving in recent years with several reforms being introduced including: the development of the PFM Reform Strategy; PIM/PPP governance framework (2018) and PPP law revised (2020); public procurement bylaw (2022), and its associated instructions, enacted and e-government procurement system (JONEPS) being deployed; Supreme Audit Institution (SAI) law revised with provisions providing better independence and immunity; anticorruption law amended providing more power to Jordan Anticorruption Commission; income tax law (revised 2018); amendment to the 2007 Access to Information law (yet to be enacted); and strengthening of regulatory governance through the mainstreaming of consultative impact assessment for policy and legal reforms.

6. **Public procurement reforms are ongoing**. The enactment of public procurement bylaw No. 28 of 2019 subsequently replaced by bylaw No. 8 of 2022 (Procurement Bylaw), has brought significant improvement to the legal and institutional framework as well as to procedural aspects for public procurement. The scope of application of the Procurement Bylaw covers all government entities and units. It established two independent committees: (i) a Procurement Policy Committee (PPC), with the mandate for policy making, oversight and development of the procurement system; and (ii) a Procurement Complaint Committee (PCC), with the mandate for administrative review of unresolved complaints from bidders alleging unfair treatment in the procurement proceedings. The Procurement Bylaw is generally consistent with international good practice and abides by procurement principles of transparency, fairness, economy, integrity, and value-for money, however, its effective implementation is still work-in-progress. Several of its implementation tools are under development (e.g., standard procurement documents and evaluation templates for several types of procurement, procurement planning template, etc.) and JONEPS is being gradually deployed, with full deployment at the level of Ministries planned by 2023. Capacity building and professionalization of the procurement workforce will particularly require a few years to be completed. Therefore, weaknesses persist throughout the procurement cycle.

7. **In relation to enhancing accountability for the use of public funds, the Jordan Audit Bureau has fully withdrawn from conducting ex ante auditing in all line ministries starting in 2019 in compliance with INTOSAI standards**. This has provided the Bureau with operational independence from the auditee as well as allowing it to focus on financial and performance audits. Additional progress is witnessed with the establishment of a special committee to review and solve the main audit issues raised in the audit reports during the past years including the most recent audit report of 2020. This shows GOJ's commitment to follow up and address the audit concerns reported by the Audit Bureau in the annual audit reports. Since 2020, the Jordan Audit Bureau has issued quarterly audit reports that are reviewed and discussed by a special committee as well as by respective ministries to solve the main reported observations in a timely manner.

**Budgeting Preparation and Execution**

8. **The assessment confirms that MoA and ACC's budget systems are adequate for the Program**. The Program will be included in the annual national budget law under MoA's chapter and ACC's budget (outside the national budget law considering its financial and administrative independence from the central government). NARC's annual budgetary allocation is included in MoA's yearly budget.

9. **The GoJ's annual budget, including MoA's, continues to be timely prepared and submitted to the Parliament for endorsement, including the 2022 budget**. However, it took until mid-February 2022 for the Parliament to approve the 2022 budget. Jordan has a robust classification system, which includes the essential classifications and is broadly consistent with the IMF's Government Finance Statistics Manual 2001, including administrative, economic, functional, geographical, and program classifications. These classifications are included in the current chart of accounts, allowing for all transactions to be reported following the appropriate standards. The Ministry of Finance has provided MoA with the monthly allocations of its approved annual budget as per the approved budget law for the last two years. No issues were identified during the previous years except the delay in providing the full monthly allocation to MoA in 2022 due to the delay in approving the national budget by the Parliament (February 2022). Full monthly allocations resumed starting in March 2022.

10. **MoA's budget includes strategic objectives and key performance indicators to monitor progress toward achieving those objectives.** All line ministries' budgets, including MoA's budget, are annually published—on the General Budget Department website—their strategic objectives, key performance indicators, and outputs of the preceding two years and programs for the ensuing three years. This provides a sufficient basis for tracking and evaluating service delivery by ministries and public entities. Like all line ministries in Jordan, MoA uses the Government Financial Management Information System (GFMIS) for budget preparation and execution. GFMIS has been fully rolled out to all budget units (ministries, departments, and regional financial centers) encompassed in the Budget Law. GFMIS is fully utilized for budget preparation, but manual interventions with various IT tools are used. GFMIS offers limited functionalities for (a) presentation of an initial policy-focused budget submission; (b) entering of multiple quarter and multiyear commitments; and (c) capturing and populating the outstanding commitments and outstanding invoices for arrear monitoring. As a result, arrears have continued to be a problem. Therefore, the Program's financial control management will be strengthened by using GFMIS contracts management and semiannual reporting on commitments and arrears will be submitted to the World Bank. As of December 31, 2021, MoA (including NARC) had minimal arrears of only JOD90K, which were paid entirely in 2022.

11. **ACC uses Microsoft Excel to prepare its annual budget, which is presented to the Board of Directors for approval**. The budget covers twelve months with projections for revenues, expenses, and liquidity. The budget is very detailed and covers the main components of revenues and expenses, e.g., interest income from agriculture loans, salaries, administrative expenses, fixed assets, and other operational expenses.

12. **Procurement Planning:** As per Article 4 of Procurement bylaw No. 8 of 2022 (and Article 4 of Procurement bylaw No. 28 of 2019), government agencies, including MoA, are mandated to prepare an

annual procurement plan to rationalize and control public expenses. The procurement plan shall be prepared at least one month before the end of the fiscal year in accordance with the procedures of preparing the annual budget. The agency shall publish on its official website and on the e-procurement portal a summary of its annual procurement plan. Pursuant to the above requirement, the PPC issued a policy note on procurement planning describing the objectives, the requirements (market research, supply chain review, monitoring performance of planning versus actual, etc.) as well as defining the template of the procurement plan, which will allow extracting pertinent data for performance monitoring purposes.

13. The assessment verified that MoA has not prepared or published annual procurement plans pursuant to the Procurement bylaw. Given the significant increase in the annual procurement budget and activities forecasted under the Program, effective procurement planning and monitoring would be critical to ensure that procurement is carried out with due attention to economy, efficiency, effectiveness, transparency, and accountability. As part of the PAP, it was agreed that MoA, including NARC, will prepare and publish in JONEPS an annual procurement plan and update it at least quarterly, based on the Program annual work plan and budget. The plan will be prepared at least one month before the end of each fiscal year. It will be the main tool for tracking and monitoring procurement implementation.

**Budget Execution Analysis**

14. **MoA (including NARC) and ACC's budgets for the last three years have been implemented without significant deviations.** The comparison of actual aggregate expenditure against the approved budget for MoA and ACC for 2018, 2019, and 2020 found no significant deviations for MoA, while there are significant deviations in ACC budget execution. The latter could be attributed to the weak financial planning at ACC. However, the significant deviations in 2020 could be attributed to the unprecedented economic circumstances due to the COVID-19 pandemic.

*Table A4.1: Budget expenditures outturn analysis for MoA (including NARC) and ACC*

| | 2018 | | % | 2019 | | % | 2020 | | % |
|---|---|---|---|---|---|---|---|---|---|
| **Agency** | **Budget** | **Actual** | | Budget | Actual | | Budget | Actual | |
| **MoA (Including NARC)** | 65,201,000 | 65,376,202 | -0.3% | 62,650,000 | 62,661,465 | -0.02% | 56,196,000 | 58,236,841 | -4% |
| **ACC** | | | | | | | | | |
| Expenses | 7,286,700 | 6,680,960 | 8.3% | 7,546,000 | 6,860,910 | 9.08% | 7,606,500 | 6,577,864 | 13.52% |
| Revenues | 9,780,000 | 8,418,818 | 13.9% | 10,204,000 | 8,409,986 | 17.58% | 10,344,000 | 7,143,996 | 30.94% |

15. **Procurement procedures and processes are implemented in accordance with Procurement bylaw No. 28 for 2019 and the subsequent bylaw No.8 for 2022 and its associated Instructions.** Procurement arrangements under the Procurement Bylaw are a combination of centralized and decentralized procurement. For government agencies, including line ministries such as MoA, procurement processing is centralized at the General Tendering Department (GTD) for procurement of works estimated to cost an amount equal to or more than the equivalent of JOD500,000 and related technical consultancies estimated to cost an amount equal to or more than the equivalent of JOD50,000, and at the General Procurement Department (GPD) for supplies, non-consulting services and consultants' services estimated to cost an amount equal to or more than the equivalent of JOD60,000. Procurements estimated to cost less than the previously mentioned thresholds are processed by the government agency (MoA in this

case). The Procurement Bylaw also provides the option of establishing a Special Tenders Committee to handle procurement processing regardless of the estimated cost, without the need to go through GTD and GPD. During the assessment, MoA confirmed that the PPC approved the establishment of a Special Tenders Committee for the Program.

16. **Contracts for goods and works awarded by MoA are generally of very small value with few contracts exceeding the above-mentioned thresholds for centralized procurement.** In 2021, 188 procurement transactions (99 open tenders and 89 invitations to quote) were implemented, and contracts awarded totaled around JOD3 million, with procurement entirely processed by MoA. In 2020, few procurements were implemented due to the COVID-19 pandemic and associated budget cuts. In 2019, which is considered a normal year, 129 procurement transactions (45 open tenders and 84 invitations to quote) were implemented, and contracts awarded totaled around JOD3.5 million. The list includes contracts with scope of work/supply similar to those envisaged under the Program, however, no contracts for technical or consultants' services or IT systems are on record. NARC has a modest procurement budget and a similar profile of contracts (small contracts). The analysis of procurement transactions and awarded contracts shows a possibility for consolidation of purchases to improve economies of scale and reduce transaction costs. There is also room for improving the planning and scheduling of procurement to avoid the concentration of transactions during the last quarter of the fiscal year or slippage to the following fiscal year. Instances of cancellation and rebidding were also noted; however, the reason was not mentioned.

17. **The FSA reviewed sample tender documents and bid evaluation report for water harvesting, awarded in early 2022.** The tender documents, including the technical specifications, Bill of Quantities (BOQ), and drawings were prepared by the directorate of water harvesting in Ministry of Water and Irrigation and reviewed by the directorate of water harvesting in MoA. The bid evaluation criteria and bidder qualification requirements were not specified. The bid evaluation report shows that 11 bidders submitted bids ranging from JOD61K to JOD126K. Following the correction of computational errors, the three lowest bids were identified, and the contract was awarded to the bidder with the lowest bid price without examining the reasons for the abnormally low bid price or ensuring that the bidder possesses the required capabilities to implement the contract. Standard Procurement Documents, including contract conditions and bid evaluation templates for various types of procurement (supplies, works, technical, and consultants' services) consistent with international best practices are being finalized by GPD and GTD, with the Bank's support. Those will be used under the Program, once approved by the PPC, then digitized in JONEPS as part of the ongoing enhancements.

18. **The JONEPS platform is operational, however, it is currently only in use by GTD and GPD and few other line ministries for centralized procurements with full deployment to line ministries planned by 2023.** A grant was extended to GPD for Business Process Re-engineering and enhancements that would apply to all profile of institutions (Ministries, State-Owned-Enterprises, Municipalities, etc.).

19. **MoA currently uses JONEPS as a 'demanding entity' for procurements falling above the thresholds for centralized procurement.** As part of the PAP, it was agreed that starting January 1, 2023, all procurement transactions, including planning, tendering and award, contract management and acceptance of goods/works/deliverables, will be processed through JONEPS, following the provision of necessary training to MOA staff. MOA will request GPD to provide the required training and user profile

(as 'procuring entity').

20. **Contract management.** Given the small value and simple nature of awarded contracts, contract management appears to be generally satisfactory, however instances of cost and time overruns were reported. Those were mainly attributed to poorly drafted technical specifications and/or contractors lacking the financial and technical capability for contract implementation, and delays in payments. Records of contract management are not available in electronic form. Under the Program, contract management will be handled by MoA and NARC and will include contracts for works, supplies, consultants' services, and IT systems which will require enhanced contract management capacity. JONEPS developed an e-contract module which will support data collection on execution of contracts.

21. **Settlement of Contract Disputes:** As per Article 84 of the Procurement Bylaw, Jordanian courts will be referred to for settlement of disputes during the execution of contracts. However, the contract may provide other dispute resolution methods, starting with amicable settlement and escalating to arbitration. The contract parties may have recourse to a third party for the settlement of disputes using conciliation and mediation by appointing dispute experts or dispute review boards and the related appointment procedures for such conciliators.

**Internal Controls and Internal Audit**

22. **The overall control environment of MoA and ACC is acceptable for Program implementation.** Budget execution controls are implemented and applied by MoA following the applicable Financial Bylaw (1994) and its Amendment (2015) and the Financial Control Bylaw (2011) and its Amendment (2015). The budget execution system at MoA is implemented as per prescribed controls, which include: (a) technical approval by the beneficiary department; (b) finance staff checking and approval; (c) periodic, ad hoc reviews by resident internal auditors; and (d) exercise of an expenditure controlling function by MoF's financial controllers assigned to respective spending units. MoF-assigned financial controllers to oversee transaction-based compliance controls over MoA payments, recording of transactions, and producing periodic and final accounts by responsible entities. In practice, no payments can be authorized and processed before financial controllers verify and sign off on payment vouchers. In addition to resident financial controllers from MoF, implementing line ministries have internal auditors who mainly perform the job of internal/financial controllers. Internal audit activities are primarily confined to an ex ante review of receipts, expenditure vouchers, and disbursements. Ex ante controls performed by financial controllers and internal auditors are further performed by the internal audit activities, in this case, not designed to comply with practices and standards promulgated by international standards.

23. **The absence of an effective ex-post audit at MoA and ACC, following recognized international standards, weakens the effectiveness of the internal audit function and its suitability to support Program implementation effectively.** To mitigate the risks presented by this deficiency, the scope of work to be done by independent financial statements auditors will be extended to include a review and assessment of the effectiveness of the internal control environment in beneficiary entities. The annual budget laws prohibit overcommitments or reallocations between budget lines. Financial controllers play a key role in ensuring that payments are within approved budget allocations. Nonetheless, ministries can reallocate annual budget category amounts whenever considered and justify this to be necessary and consistent with their autonomous status.

24. **ACC follows bylaw 1/1963, administrative bylaw 50/2016, and a Governance manual based on nine thematic areas including the role of law, transparency, accountability, participation, integrity, fairness, efficiency, effectiveness, and sustainability.** The Internal Controller Unit, which is under the finance department, and performs ax-ante controls over ACC payments. No payments are authorized for processing before the unit verifies and signs off on payment vouchers. On the other hand, the Internal Audit Directorate, headed by an Internal Audit Manager, performs financial and administrative audits based on an annual internal audit plan that is approved by the Board of Directors. However, the Internal Audit Directorate reports to ACC's senior management instead of the Board of Directors, which hinders the independence of the Department.

**Payroll**

25. **The FSA confirms that an effective payroll management system is in place in MoA and ACC.** The payroll systems at MoA have a good degree of integration and reconciliation between the position controls, personnel records, and payroll registers. The payroll system in Jordan follows the Civil Service Bureau's instructions and is in line with the national financial law and internal controls regulation, in addition to instructions issued by MoF. MoA and ACC's Human Resources (HR) department is responsible for receiving the information for the appointed employee for entry into the automated HR database system. The HR department ensures the completeness of the information and the data entry of related salary entitlements through an automated system and records archiving both in the system and in paper files. HR input in the system is subject to both automated and human checks. A payroll schedule is prepared monthly and subject to several layers of approvals (payroll officer, head of the payroll unit, the department manager (budget holder), Internal Control Department, MoF financial controller, and the financial management manager. Salaries are transferred to employees' personal bank accounts. Monthly reconciliations are prepared in the system and shared with the internal control unit and MoF representative. Daily time attendance sheets based on an automated attendance register are maintained by the attendance supervisor, who reports absences to the HR and responsible departments. Supervisors confirmed that they strictly ensure all employees are in place and functional.

**Procurement Profile**

26. Exclusion of contracts will not be observed since all individual contracts under this Program are deemed to be estimated below the Operations Procurement Review Committee thresholds' following values: (i) for works, US$75 million equivalent; (ii) for goods, US$50 million equivalent; (iii) for non-consulting services, US$50 million equivalent; and (iv) for consulting services, US$20 million equivalent.

27. **Procurement activities** under the Program per Result Area are as per following:

i. **Sub-Results Area 1.1 – Scaling Up Sustainable Rainwater Harvesting (RWH) in Agriculture.** The Program will provide assistance to: (i) prepare a National Agricultural Rainwater Harvesting Plan and linked sets of operational guidelines to guide future investments in different types of RWH (consultants' services); (ii) pilot RWH Innovations (consultants' services, goods and IT); and (iii) scale up RWH and landscape restoration in the Badia (civil works).

ii. **Sub-Results Area 1.2: Building Institutional Adaptive Capacity for Innovation.** The Program will: (i) assist MoA to reorganize and expand the delivery of extension services to farmers and herders using digital technologies; (ii) provide assistance to MoA's livestock directorate to improve the quality and expand the coverage of veterinary services (VSs) through (a) critical vaccines that will be procured and administered using established implementation pathways (goods), and (b) two regional veterinary centers that will be upgraded to provide currently unavailable diagnostics and treatment options complementary to clinics operated by the private sector (works and goods); and (iii) support NARC to develop and scale up critical digital innovations through (a) the development and management of an Early Warning System (EWS) offering alerts to farmers in case of risks such as natural disasters (consultants' services, goods, and IT), (b) the scale up and sustained development of mobile applications designed to facilitate collaborations between research teams, extension agents and farmers (IT and consultants' services).

iii. **Sub-Results Area 2.1 Enabling Services for Value Chain Development and Export Promotion.** The Program will support: (i) enabling services for value chain development and export promotion (consultants' services); (ii) the establishment of a market intelligence unit (consultants' services, goods, and IT systems); (iii) increased access to and improved quality of traceability and sanitary and phytosanitary (SPS) certification services (goods and consultants' services).

iv. **Sub-Result Area 2.2 Matching skills supply with demand in the agri-food sector**. The Program will support: (i) conducting a needs assessment of skills in the agri-food sector (consultants' services); and (ii) delivering a job-matching program for unskilled/semi-skilled women, youth, and refugees (consultants' services).

28. **Procurement categories** of the Program activities include civil works, goods and IT systems, technical assistance, and consultants' services. Other expenditures are not of a procurement nature such as salary and per diem to government staff, grants to farmers, reimbursable grants by ACC, stipends for trainees, etc.

29. **Procurement Capacity:** The Program will involve an expansion of MoA's and NARC's procurement activities in terms of number, value, and complexity, compared to previous years. MoA's procurement capacity will need to be strengthened to cope with program implementation requirements. This includes (i) onboarding, through the IPF Component, a full-time qualified procurement specialist with knowledge in the new methods, techniques, and innovations introduced by the Procurement Bylaw and experience in good procurement practices to support MoA and NARC in planning, implementing and monitoring Program procurement; and (ii) MoA and NARC staff and members of the STC, will need to receive specialized training on procurement of works, goods and consultants' services in accordance with the new methods, techniques, and innovations introduced in the procurement bylaw and on the use of the national standard bidding documents and contract conditions and bid evaluation templates for various types of procurement, currently being finalized by the GoJ with the Bank's support (PAP). The procurement training strategy, approved by the PPC, envisages the deployment of procurement and contract management training to all government agencies and units. The Institute of Public Administration is leading the training effort with the support of the World Bank-administered Multi-Donor Trust Fund (P172421). Orientation training on the Procurement Bylaw was delivered to all line ministries, including MoA. Training of Trainers on procurement of works and contract management for works was also

delivered. Other specialized TOT courses are planned during 2022, following which training will be deployed to line Ministries.

30. **Procurement Performance:** there is currently no systematic monitoring of procurement performance and data on procurement transactions in MoA and NARC is incomplete and mostly kept in paper form. Procurement-related records (from advertisement to final invoices) are also maintained in hard copy. The execution of Program procurement transactions through JONEPS, will ensure systematic tracking, recording, and processing of procurement, and it will facilitate enhancement of procurement performance and retrieval of procurement records when needed.

**Accounting and Financial Reporting**

31. **The FSA concludes that the accounting and financial reporting systems are acceptable for the purpose of the Program.** MoA adopts a chart of accounts that is compatible with the Government Finance Statistics Manual 2001. Both the final accounts and the in-year reporting are timely but are still prepared through the Oracle legacy system until the GFMIS implementation is completed and relevant legislative amendments are made. On the aggregate level, General Government Finance Bulletins are published monthly and include budgetary government finance statistics aggregated according to the economic and functional classifications (budget versus actual). The monthly financial positions sent by line ministries and independent institutions to the General Budget Department/MoF present data in administrative, economic, program, funding, and geographical classifications.

32. **Finalization of the annual accounts of the Government (including MoA) is required by law by June of the following year, and this has been complied with in recent years**. MoF issues the government's annual financial statements in accordance with IPSAS cash accounting. Jordan Audit Bureau audits the government's annual consolidated financial reports and the most recent published consolidated financial statements are issued for the year ended December 31, 2019, with a clean audit opinion. For the purpose of this operation, yearly separate financial statements will be prepared for MoA and to be audited by the Jordan Audit Bureau.

33. **ACC follows its financial bylaw 5/1963, which does not meet the minimum requirements of International Accounting Standards.** For instance, there is a lack of clarity on how provisions for non-performing loans are calculated. ACC's annual financial statements are prepared in accordance with the modified cash basis of accounting and audited by a private sector audit firm. ACC's annual financial statements include a statement of financial position, income statement, a statement of changes in owner's equity, cash flow statement, and notes on fixed assets, cash and equivalent, liabilities, loans, investments, information regarding assets and liabilities, interest income, and administrative costs. ACC uses an Enterprise Resource Planning (ERP) system that uses outdated Oracle technology. This system is used for operations (loan management) and to capture financial transactions. This Enterprise Resource Planning (ERP) system needs to be replaced with a new one including a new accounting system. The Finance Department issues daily, monthly, quarterly, semiannual, and annual financial reports to management. The reports include information regarding revenues, expenses, loans granted, and collections.

**Program Audit**

34. **MoA's annual financial statements will be audited by Jordan Audit Bureau (AB), while ACC will continue to rely on a private sector audit firm**. AB is currently auditing several World Bank-funded operations[43] including PforRs and its performance is acceptable. The Jordan AB is a member of the International Organization of Supreme Auditing Institutions and the Arab Organization of Supreme Auditing Institutions. The AB is charged with performing the external audit function applied to the general government public institutions. In recent years, it has been moving toward the application of international auditing standards, moving from a strictly financial audit role into administrative, performance, and environmental auditing techniques. AB has fully withdrawn from conducting ex ante auditing in all line ministries starting 2019 in compliance with INTOSAI standards except the MoA. This has provided the Bureau with operational independence from the auditee as well as allowed the Bureau to focus on financial and performance audits. Additional progress is witnessed with the establishment of a special committee to review and solve the main audit issues raised in the audit reports during the past years including the most recent audit report of 2020. This shows the GoJ's commitment to following up and addressing the audit concerns reported by the Audit Bureau in the annual audit reports. The overall performance of the AB in auditing ongoing PforRs operations in Jordan was satisfactory.

35. **The AB will issue annual audited financial statements for MoA, while ACC's annual financial statements will continue to be audited by a private sector audit firm**. A copy of each audit report will be submitted to the World Bank within nine months from the end of each calendar year.

**Program Arrangements for Managing Fraud and Corruption Risks**

36. **The implementation agencies will execute the Program in accordance with the World Bank's Guidelines on Preventing and Combating Fraud and Corruption in Program for Results Financing.** The implementation agencies will: (i) share information with the World Bank regarding all allegations of fraud and corruption in connection with the Program, ensure that all credible allegations received are reported to and investigated by the Jordan Anti-Corruption Commission (JACC), report to the World Bank on actions taken, and cooperate in any inquiry that may be conducted by the World Bank into allegations or other indications of fraud and corruption in connection with the Program; and (ii) monitor and abide by the World Bank's list of debarred/suspended firms.

37. **The Program embeds several fraud and corruption prevention, deterrence, and detection mechanisms in existing arrangements, including:**

i. publication of Program information by participating ministries and entities, including provision for handling stakeholder complaints;
ii. comprehensive and clearly articulated procedures governing the use and accountability of funds, reflected in the PFM legislation, regulations, and operational guidelines;
iii. a strong internal control and compliance monitoring mechanism;
iv. a strong track record of timely responsiveness in addressing and resolving audit findings; and
v. effective arrangements for segregation of accountability and reporting functions.

[43] Economic Opportunities for Jordanians and Syrian Refugees PforR, Jordan Education Reform Support PforR, Jordan COVID-19 Emergency Response IPF, Exploring High Value Socially Inclusive, and Water Efficiency Agriculture in Jordan IPF

38. **JACC, established in 2005, has over the years established elaborate arrangements to prevent, deter, and investigate fraud and corruption. It is headed by a board comprising a chair and five members nominated for a limited two-year period.**

39. **Jordan ranks fifth among Arab states on the 2019 Corruption Perception Index (CPI**), coming in place after the United Arab Emirates, Qatar, the Kingdom of Saudi Arabia, and Oman. Jordan scored 48 points out of 100 on the 2019 index, down by one point compared with the 2018 score. This slight fallback is due to a mild drop in six out of eight sources used to measure the overall average, namely in relation to weak governance and bribery prevention.

40. **GoJ has launched several initiatives to strengthen the rule of law[1], protect public money[2], and combat corruption[3]** that are substantial steps in the right direction, yet there is need for a holistic approach to enhance integrity and transparency in anti-corruption measures: (a) publishing periodic and updated public reports on the government's fulfillment of its commitments to fight corruption; (b) enforcing control and oversight over political money and funding; (c) exercising preemptive and periodic disclosure of cases that are referred to the competent courts with respect to corruption and misuse of public office by the relevant authorities; (d) publicizing financial disclosures and beneficial ownership, as well as limiting conflict of interest; (e) disclosing the number of objections filed against tenders, as well as the measures taken to address those objections, and in the event the objections are justified, it is necessary to clarify the corrective measures that are taken; (f) advancing the implementation of digitalization of public services; (g) promoting a deep understanding on the concepts of integrity, transparency, and accountability in order to combat corruption among school and university students through a specialized scientific curriculum; and (h) simplifying investment procedures through downsizing bureaucratic red tape that foreign and local investors have to deal with.

41. **There are strong indicators of the integrity of NARC's management and the Jordanian Anti-Corruption Commission (JACC) is actively involved in combatting corruption.** To minimize the risk of repetition of this misconduct and others, NARC Senior Management introduced several measures to strengthen NARC's governance framework:

i. It has developed a new financial Bylaw approved by the Council of Ministers (published in the Gazette on May 1, 2022), which has strengthened financial management and internal controls on payments;
ii. Authority on financial incentives for employees has been moved from the Director General to a special committee to ensure efficiency and transparency of the process;
iii. An accounting system is under implementation to manage donors' financing while the public funds through the budget will continue to be processed by the GFMIS;
iv. Staff rotation is now mandated and applied; and
v. It has increased the capacity of the finance, internal audit, and monitoring departments with additional staff.

**Transparency**

42. **Key institutions involved in public financial accountability have established elaborate public information sharing arrangements on their websites.**

i. MoF publishes multiyear budget planning and execution reports, including key performance indicators covering all core ministries and departments;
ii. The Jordan AB publishes its annual report covering the outcome of audits of all ministries and departments subject to its audit;
iii. JACC has established a comprehensive mechanism for receiving, investigating, and reporting on all allegations received from the public;
iv. Procurement notices and contract awards are required to be published as the Procurement Bylaw using traditional and/or electronic means; and
v. Procurement plans are also required to be published on the e-procurement portal and on individual government agencies' websites.

43. **Procurement complaint mechanism**. The Procurement Complaint Committee (PCC) was established by Prime Minister's decision in November 2019, and it is housed at the Legislation Opinion Bureau. PCC initiated its operations by handling procurement complaints raised from different institutions and bidders. Complaint processing is carried out in accordance with Articles No. 50 to 53 of the Procurement Bylaw. PCC handles complaints at an average of one complaint every two weeks. Out of twenty-four (24) complaints submitted to the PCC in 2021, seven (7) were resolved to the advantage of the complainant, and the average period between receiving and closing a complaint is twenty-four days. Complaints' resolution is published and the respective JONEPS module is used. MoA and NARC do not currently maintain a log of procurement-related complaints and associated decisions. Once JONEPS is deployed to MoA, complaints records are to be uploaded and published through the platform, otherwise, a log of complaints and their resolution will be kept by MoA and NARC and published on their individual websites. Per the Procurement Bylaw, complaints including allegations of fraud and corruption will be forwarded to JACC for investigation. MoA confirmed that no such complaint was received.

44. **Public complaints handling (non-related to procurement).** A Central Government Complaints Management System is maintained in the Prime Minister Office[4] as a central entity for receiving and monitoring resolution of citizens' complaints directly with all concerned government agencies. The management and maintenance of the system are supervised by the Government Complaints Management Unit at the MOPSD's Government Services Improvement Directorate.

45. **Code of ethics for public servants.** All state bodies, including ministries, departments, and IPUs, follow the code of ethics for public servants. In general, the code of ethics sets rules of behavior for employees and aims to strengthen public confidence in the professionalism and conduct of employees. The code defines relationships with citizens, professional behavior, conflicts of interest, relations with colleagues, personal behavior, and so on.

46. **Asset disclosure.** The Financial Disclosure Department bylaw increased the number of individuals from the public and private sectors who are required to submit financial disclosures. Nevertheless, the law is not as effective as an investigation tool because assets disclosed by public officials in financial statements are not verified by the Financial Disclosure Department unless there is a complaint against the public official.

47. **Conflict of interest.** In addition, bidding documents for public procurement include clauses, which regulate interactions between the employer and the bidders regarding: the process of bid examination,

clarification, and evaluation; conflict of interests; unlawful agreement with competitors or influence on the evaluation committee; actions against fraud and corruption, and so on. Also, the requirement of this part of the bidding document is that the contractors, suppliers, and consultants will act professionally, impartially, and in accordance with the highest professional standards.

## ANNEX 5. SUMMARY ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

***Purpose and Scope of the ESSA***

1. This Environmental and Social Systems Assessment (ESSA) has been prepared by the World Bank according to the requirements of the World Bank's Policy for PforR financing for adequately managing the environmental and social effects of the Program. The ESSA assesses the potential Environmental and Social (E&S) effects of the PforR, including direct, indirect, induced, and cumulative effects as relevant. It also assesses the Borrower's capacity (legal framework, regulatory authority, organizational capacity, and performance) to manage those effects in line with the core principles of the World Bank policy for PforR and identifies measures to enhance both the environmental and social (E&S) management systems and the E&S outcomes during Program implementation. Program activities and the expenditure framework have been screened against exclusion criteria including large scale land use conversion, child and forced labor, significant expansions of industrial facilities, large dams, and any other high-risk activity. The findings and recommendations of the ESSA are subsequently factored into the operations overall Integrated Risk Assessment, Program Appraisal Document (PAD), and PAP. The findings, conclusions, and opinions expressed in the ESSA document are those of the World Bank.

2. **Methodology**. The ESSA was prepared using qualitative methods to collect relevant information including the collection and review of documents, conducting meetings and interviews, and conducting site visits to interact with local authorities, farmers' cooperatives, and private sector. The ESSA team also visited several sites including Hafir (RWH), and other farms East of Amman. The ESSA preparation was also informed by consultations with stakeholders jointly conducted by the World Bank and MoA on the draft findings of the ESSA in May 2022.

3. Findings of the assessment have informed the Program design and activities that may be supported under the Program, and the formulation of E&S related actions of the PAP with key measures to improve environmental and social management outcomes of the Program. The World Bank team has assessed to what degree the PforR Program Systems address the core environmental and social principles.

4. To support the preparation of the ESSA, the following stakeholder mapping was conducted to identify relevant stakeholders involved in the agri-food sector in Jordan, their interest in the Program, and their concerns related to environmental and social issues:

*Table A5.1: Stakeholder Mapping Agri-food sector*

| Group/Entity | Internal/ External | Role in Project | Interest in Project/Issues and E&S Concerns |
|---|---|---|---|
| **Ministry of Agriculture (MoA)** | | | |
| - Water Harvesting Directorate<br>- Projects Management Directorate | Internal | Implementation/regulatory | The listed directorates will be involved in implementing various activities under the program:<br>• Expansion of rainwater harvesting |

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| - Pastures Directorate<br>- Lands and Irrigation Directorate<br>- Directorate of Training and Awareness of Farmers<br>- Veterinary Directorate<br>- Plant Production Directorate<br>- Olives Unit<br>- Quality and Tracking Directorate<br>- Prevention and Plant Health Directorate | | | structures<br>• Improvement of veterinary system performance<br>• Improvement of nurseries' performance<br>• Development of traceability system<br>• Improvement of seed system performance<br>• Development of public services for value chain<br>• Development of capacity in the agri-food sector<br>• Development of public services for value chain development<br><br>**Issues or E&S concerns:**<br>• Existing capacities for E&S risks identification and management<br>• Health and Safety (H&S) management<br>• Stakeholder engagement and GRM systems<br>• Eligibility and selection criteria for approving RWH schemes and projects targeting rural women empowerment<br>• E&S and H&S within extension services to farmers |
| **Agricultural Credit Corporation (ACC)** | | | |
| - Loans Department<br>- Projects Management Directorate | Internal | Implementation | • Water savings investments<br>• Development of public services for value chain<br>**Issues or E&S concerns:**<br>- Existing E&S capacities of the ACC regarding E&S risks identification and management<br>- Reflecting E&S responsibilities are reflected in the agreements to be signed with beneficiaries |
| **National Agriculture Research Center (NARC)** | | | |
| - Environment and Climate Change Research Directorate<br>- Others | Internal/partner institution | Implementation/partner institution | - Extension System Performance<br>**Issues or E&S concerns:**<br>- Existing E&S capacities of NARC regarding E&S risks identification and management |
| **Ministry of Environment (MoEnv.)** | | | |

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|---|---|---|---|
| - National Committee for Environmental Impact Assessment (EIA)<br>- Environmental Impact Assessment (EIA) Directorate<br>- Environmental Monitoring and Assessment Directorate<br>- Waste and Hazardous Materials Directorate<br>- Inspection and Environmental Monitoring Directorate | External/ Partner institution | Regulatory | - Approving rainwater harvesting interventions (earthen dams and Hafirs)<br>- Disposal of hazardous waste (pesticides, veterinary hazardous waste<br>**Issues or E&S concerns:**<br>- EIA requirements for MoA projects related to earthen dams under the Badia Restoration Program<br>Reuse of treated wastewater in agriculture<br>- Pesticides handling and disposal |
| **Ministry of Water and Irrigation (MWI)/ Water Authority of Jordan (WAJ)/ Water Harvesting Directorate in Jordan Valley Authority (JVA)** | | | |
| - Operation and Maintenance Department of the JVA (North, Middle, and South)<br>- Reuse of Treated Wastewater in Agriculture (WAJ) | External/ partner institution | Regulatory | - Conducting studies related to selected sites for RWH structures (earthen dams and Hafirs)<br>- Approving site selection for earthen dams and Hafirs<br>**Issues or E&S concerns:**<br>- E&S requirements for RWH interventions |
| **Ministry of Labor (MoL)** | | | |
| - Inspection Directorate (central and in governorates)<br>- Foreign Labor Directorate | External | Regulatory Enforcement Inspection | - Labor conditions in the agricultural sector<br>- GRM- Agricultural workers complaints' managing system<br>**Issues or E&S concerns:**<br>- importance of enforcing the new agricultural workers bylaw<br>- Lack protection of women working in agriculture (including Health and Safety)<br>- Inequality of pay between men and women |
| **Direct Beneficiaries** | | | |
| - Households<br>- Farms<br>- Large Livestock owners<br>- Small livestock holders and semi-nomadic Bedouins<br>- Women, youth, and refugees<br>- Exporters (SMEs) | External | Beneficiaries (project affected People) | - Direct benefits from program interventions: RWH, extension services, veterinary services, training, and skills enhancement, etc.<br>**Issues or E&S concerns:**<br>- Effects of climate change on livelihoods<br>- importance of extension services (Farmers Field Schools)<br>- E&S requirements for export |

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| | | | (including child labor)<br>- Inclusion of vulnerable groups |
| **Indirect Beneficiaries** | | | |
| All those working along the agricultural value chain | External | Indirect beneficiaries | Indirectly benefiting while working or being related to Program implementation including private sector and SMEs in general |
| **Other Interested Parties** | | | |
| - Jordan Food and Drug Association (JFDA)<br>- Customs Department<br>- Ministry of Industry and Trade (MoITS) | External | Regulatory | - Traceability System Development<br>- E&S requirements for export |
| **Development Partners and UN Agencies** | | | |
| FAO, WFP, USAID, IFAD, OPIC, ESCWA, EU, ILO, Netherlands Cooperation | External | Consultation and Coordination | -Building on past experience and projects<br>**Issues or E&S concerns:**<br>- Need for financing sustainable projects that last beyond the financed Program duration<br>- Targeting and equitable distribution of benefits<br>- Enhancing E&S capacities of implementing agencies |
| **Vulnerable Groups** | | | |
| - Women<br>- Youth<br>- Refugees<br>- Migrant workers<br>- Small holder farmers<br>- Semi-nomadic groups | External | Beneficiaries | - Training and skills enhancement activities<br>- Job matching in agri-food sector<br>**Issues or E&S concerns:**<br>- Climate change hazards affecting their livelihoods<br>- Importance of enforcing the new agricultural workers bylaw<br>- Lack of protection for women working in agriculture<br>- Inequality of pay between men and women<br>- Access to agricultural jobs (refugees) |
| **Civil Society Organizations (CSOs)** | | | |
| - Women Agricultural Associations<br>- Jordan Farmers Union<br>- Exporters' Associations<br>- Association of Veterinarians | External | Implementation/ Consultation and Outreach | - Feedback channel with communities, vulnerable groups, and private sector<br>- CSO engagement<br>- Agricultural workers' rights<br>- Jobs creation |

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| - Agricultural Engineers Association<br>- Others | | | **Issues or E&S concerns:**<br>- Climate change hazards affecting their livelihoods<br>- Importance of enforcing the new agricultural workers bylaw<br>- Lack of protection for women working in agriculture<br>- Inequality of pay between men and women<br>- Access to agricultural jobs (refugees) |

***Results of Environmental and Social Screening***

5. Considering both benefits and opportunities, as well as potential adverse negative risks and impacts, the Program risk is rated Substantial for both environmental and social effects. The Program's activities and expenditures have been screened for environmental and social effects.

***Table A5.2: Screening of Environmental and Social Effects***

| | Activities Within PforR Boundaries | Environmental Effect | Social Effect | Relevance to ESSA Core Principles (CPs) |
|---|---|---|---|---|
| **RESULTS AREA 1: CLIMATE RESILIENCE AND SUSTAINABILITY** | | | | |
| **Sub-results Area 1.1 – Scaling Up Sustainable Rainwater Harvesting in Agriculture.** | | | | |
| **DL1: 1. Adoption of sustainable rainwater harvesting practices** | **Prepare a National Plan for Water Harvesting, including Badia rehabilitation** | Indirect positive environmental effects related to future implementation of the strategy and efficient use of natural resources.<br><br>Indirect negative effects on downstream users, if no strategic environmental and social impact assessment is conducted to align with other strategies, e.g., water, climate change, tourism, and alternatives analysis. | Indirect positive social effects related to future implementation of the strategy, particularly contributing to the livelihood of livestock owners and other water users, and addressing the effects of water scarcity.<br><br>Potential indirect negative social effects on:<br><br>(i) small-scale livestock owners or if excluded from program benefits.<br><br>(ii) semi-nomadic Bedouin groups and their traditional land use patterns and access to natural resources if RWH and Badia restoration is not properly sited or consulted.<br><br>iii) poor or other vulnerable households if excluded from roof top RWH. | CP1<br>CP2<br>CP3<br>CP4<br>CP5<br>CP6 |

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| | Scale up farm- and home garden-level RWH in areas with annual precipitation of 200 mml or more through construction of rooftop rainwater collection connected to underground water cisterns.<br><br>Scale up rainwater harvesting and landscape restoration in areas with less than 200 mml through construction of hydraulic structures, either earthen dams or hafirs (collection pits) to collect and retain flash floods waters. | -Positive effects related to harvesting and use of rainwater and reducing the use of the limited ground water resources.<br><br>- Positive effects related to recharging ground water basins.<br><br>-Localized, temporary negative effects during construction of RWH structures related to workers' health and safety, dust and noise emissions, and waste, if not managed properly. Potential negative effects on downstream water users during operation.<br><br>- Positive impacts by providing suitable habitats and roosting areas for migratory birds.<br><br>- Negative effects related to potential habitat fragmentation, disruption of ecological corridors and | - positive social effects livelihood of livestock owners and other water users and addressing the effects of water scarcity.<br><br>- Potential socioeconomic impacts on eco-tourism and hunting to be managed.<br><br>-Potential negative social effects on:<br><br>(i) small-scale livestock owners if excluded from program benefits.<br><br>(ii) semi-nomadic Bedouin groups and their traditional land use patterns and access to natural resources if RWH and Badia restoration is not properly sited or consulted.<br><br>iii) poor or other vulnerable households if excluded from roof top RWH.<br><br>(iv) Public health and safety risks associated with hafirs (earthen dams) once operational. | CP1<br>CP2<br>CP3<br>CP4<br>CP5<br>CP6 |

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| | | introduction of non-native species. | | |
| **Sub-Results Area 1.2 – Building Institutional Adaptive Capacity for Innovation** | | | | |
| **DL2: Innovation and improved performance of crop extension and animal health services** | **EXTENSION**<br>- Hiring and training of additional extension agents.<br>- Development and adoption of digital extension tools and systems.<br>- Increase MoA staff transport resources.<br>- Prepare and offer additional curricula based on local potential and needs.<br>- Deployment of national electronic farmer and herder registration system.<br>- Update and refurbish existing nursery facilities in two government agriculture stations. | - Positive effects on valued environmental components including soil, water, and living organisms by efficient use of pesticides, agricultural inputs, and efficient use of water and energy resources.<br><br>- Positive effects on farmers' and public health and safety. | -Potential positive effects on farmer livelihoods from knowledge transfer on good management practices and adoption of new technologies.<br><br>-Potential positive effects on animal welfare.<br><br>-Potential positive indirect effects for workers via improved labor management practices, including reducing harmful child labor, if farmers are adequately trained. | CP1<br>CP2<br>CP3<br>CP5 |
| | **ANIMAL HEALTH**<br>- Equipping and developing veterinary laboratory testing capacity at clinic in south and another clinic at middle Jordan<br>- Purchase additional stock of vaccines for FMDs<br>- increase the number of staff at veterinary services | - Temporary negative, localized effects related to workers health and safety, dust or noise emissions and waste, if not managed properly.<br><br>-Temporary negative effects related to occupational health and safety and medical waste management, if not managed properly. | Improved animal welfare in livestock operations<br><br>Improved livelihoods of farmers through increasing productivity and reducing animal losses. | CP1<br>CP3 |
| **SRA 1.2 Support NARC To Develop And Scale Up Critical Digital Innovations For Farmers And In Support Of Public Extension** | | | | |
| | - Development and management of an Early Warning System (EWS) against risks such as natural disasters as drought or earthquakes. | Indirect positive impacts on environment, | Positive livelihood impacts for farmers. | CP1<br>CP2<br>CP3 |

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| | - Scale up and sustained development of mobile applications to facilitate the work of extension agents and to enable farmers to access valuable information, such as price data and agronomic advice. | agricultural production as well as farmers and public health and safety. | | |
| **RESULTS AREA 2: COMPETITIVENESS AND EXPORTS** | | | | |
| **Sub-Results Area 2.1 – Enabling Services for Value Chain Development and Export Promotion** | | | | |
| **DLI3: Improved public service delivery for value chain development and export promotion** | - Establish a market intelligence unit as a public mechanism capable of observing agricultural production patterns and trends in local production, and take stock of existing export opportunities, as well as opportunities for import substitution on the domestic market, for the national production.<br><br>- Develop post-harvest value chain development and export marketing strategy that map the current operation and infrastructure, identify gaps, attract private sector investment at post-production energy efficiency, and develop investment attraction action plan for local and international investors.<br><br>- Improve access to finance for water productivity investments as a reimbursable matching grant product, that managed are by ACC to promote farmer-level use of water-efficiency or water-saving technologies that will impact the cost of the supply chain (this includes small irrigation systems, installation of treated wastewater reuse systems for livestock fodder).<br><br>- Traceability and certification: implementation of a traceability system for three product types and their associated SOPs and piloting state-of-the-art plant health and seed certification capacity between MoA and NARC. | - Positive effects through more efficient water use technologies, resulting in more water savings<br><br>- Potential negative effects due to the increase in water and energy use as well as waste generation, if not managed properly.<br><br>- Localized, temporary | - Potential negative effects for vulnerable groups if there are barriers to access Program benefits/matching grants. | CP2<br>CP3<br>CP5 |

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| | | negative effects related to the use and management of chemicals for lab testing and occupational health and safety. | -Positive indirect effects on good agricultural practices, including labor and working conditions, once traceability and certifications systems are in place. Foreign buyers increasingly demand that agricultural products meet internationally recognized labor standards (e.g. BRC) | |
| **Sub-Results Area 2.2 – Matching Skills Supply With Demand In Agri-Food Sector** | | | | |
| **DLI4: On- and off-farm employment skills improved including women and refugees** | **Conduct Capacity needs assessment in Agri-Food sector**<br><br>**Expand job-matching program in Agri-food sector**<br>- Unskilled, semi-skilled women, youth, and refugees. | Potential positive effect from inclusion of EHS aspect as part of capacity building assessment. | Positive livelihood effects from jobs for vulnerable groups.<br><br>Negative effects if decent working conditions, or SEA/SH are not adhered to. | CP1<br>CP3<br>CP5 |
| **DLI5: MoA Delivery Capacity Secured** | Timetable for the budget process, i.e., the MoA should ensure that requests to the MoF are in line with the incremental budget requirements needed for completion of the PforR, are sent to MoF by June 1 of the preceding year, and are reflected in the GoJ budget. | | - | |

***Exclusions***

6. Consistent with World Bank PforR Policy requirements, the Program will exclude any activities or expenditures that are likely to have significant, sensitive, diverse, or unprecedented impacts on the environment and/or affected people. Such activities include significant land acquisition, economic or physical displacement or changes in land use, and significant impacts to critical cultural heritage sites or natural habitats, or any activities resulting in child or forced labor. Screening of Program activities and expenditures required to meet the PDO and results areas against the exclusion criteria has been completed at the time of ESSA preparation. The ESSA includes a list of the interventions which are excluded from financing. This Program is not expected to finance large rainwater harvesting infrastructure, earthen dams or *hafirs* which have a dam wall of 10 meters or higher. The Program will exclude financing large dams as defined by OP 4.37, as well as small dams which might cause significant impacts on sensitive receptors such as ecological habitats.

***Proposed Actions***

7. The assessment of the ES management system and the capacity of the implementing agencies along with the evaluation of the exiting arrangements and performance has resulted in several recommendations that need to be addressed prior to and during the implementation of the Program.

8. The Program can be used strategically to strengthen MoA's environmental and social management system by reinforcing the human, financial, and logistic capacities to promote good environmental and social practices and to monitor them for compliance. Beyond limitations in human resources, the implementing agencies lack procedures for environmental and social screening, assessment, and management of investments. In this context, the Program recommends developing a site-level E&S screening methodology and an ESHS monitoring protocol for RWH structures. Similarly, the Program will support ACC to develop formalized procedures for E&S screening of loan applicants, enhance E&S specifications within grant agreements (including adherence to appropriate technologies when using treated wastewater for irrigation), and assign and train an environmental and social focal point to monitor ESHS performance. Furthermore, the Program will support the incorporation of strategic environmental and social assessment aspects in the RWH Operational Framework at a national/regional scale, including the preparation of a stakeholder engagement plan.

9. To improve implementation capacity, the Program will support training of MoA technical specialists and extension agents in several topics, including biological control, child labor, gender, Occupational Health and Safety (OHS), and other topics on labor and working conditions. Additionally, the DU will include one Environmental Specialist, one Social Inclusion Specialist, one Labor and Health and Safety Specialist. In implementing the intervention for 'Matching skills supply with demand in the agri-food sector' the ESSA recommends conducting a Training Needs Assessment and Outreach Plan for women, refugees, and youth, disclosing clear eligibility criteria, and including ESHS topics and accessibility to the GRM.

10. To enhance adequate management of pesticides of agriculture waste, the ESSA recommends a strategic dialogue between MoA and the Ministry of Environment on developing a mechanism for tracking, collection, and efficient disposal of empty pesticide containers. Moreover, MoA is recommended to develop a plan to manage agricultural waste such as manure and wastewater of slaughterhouses. Finally, the ESSA recommends that MoA should develop and implement regular monitoring programs to verify if farmers adhere to requirements of pesticide dosage and preharvest interval.

11. Technical Assistance will support an implementation unit (Delivery Unit) at MoA, as well as 'just-in-time' technical studies on as-needed basis that have not been identified at this time. An Environmental and Social Commitment Plan (ESCP), proportionate to the risks and consistent with World Bank Environmental and Social Framework (ESF), has been prepared that includes E&S staffing requirements, reporting, stakeholder engagement, and labor management procedures. The ESCP has been disclosed on May 21, 2022.

12. Communities and individuals who believe that they are adversely affected as a result of a World Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the WB's Grievance Redress Service (GRS). The Program will maintain a Grievance Mechanism (GM) with enhancements as per the Program Action Plan. In addition, the World Bank's GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit https://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit http://www.inspectionpanel.org.

*Table A5.3.: Detailed recommendations linked to SRAs and DLIs are provided in the table below*

| **Sub-Results Area (SRA)** | **Disbursement-Linked Indicator (DLI)** | **Verification Protocol** /DLI Definitions | **Program Action Plan** |
|---|---|---|---|
| *Sub-Results Area 1.1: Scaling Up Sustainable Rainwater Harvesting for Agriculture* | DLI1: 1. Adoption of sustainable rainwater harvesting practices. | DLI 1.1 The National Agricultural RWH Plan will comprise a cumulative and strategic environmental and social assessment (SESA) on the national agricultural RWH plan, that has been consulted and disclosed and a Stakeholder Engagement Plan (SEP).<br><br>DLI 1.1 Evidence that the National Agricultural Plan has a (i) a dedicated section explaining how the findings of the SESA have been incorporated in particular mapping of potential future sites, (ii) include a Stakeholder Engagement Plan, (iii) discloses targeting criteria and processes for eligibility.<br><br>DLI 1.3 Disbursement against aggregate storage capacity includes requisite E&S screening conducted, and evidence of approvals from MOE, as appropriate. | MoA to develop E&S screening procedures for site selection and design of individual RWH sites developed including avoiding and minimizing and mitigating land-related impacts and applying the exclusion criteria.<br><br>MoA to develop an ESHS Monitoring Protocol encompassing (i) construction, and (ii) operations phase and covering environmental aspects; sustainable use of collected water; public and worker health and safety, elite capture, and functioning of site-level GRM.<br><br>MoA to develop worker and community health and safety technical specifications to be incorporated into FIDIC standard |

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| | | | procurement document for RWH. |
| *Sub-Results Area 1.2: Performance of agriculture extension services* | DLI2: Innovation and improved performance of crop extension and animal health services. | DLI 2.2 Extension agent training plan includes modules on the following topics: environment; child labor; gender; OHS and biological control provided by technical experts.<br><br>Actual training of Master Trainers and farmers on above subjects, including a dedicated module on OHS delivered by qualified professional. | |
| *Sub-Results Area 2.1: Enabling Services for Value Chain Development and Export Promotion* | DLI3: Improved public service delivery for value chain development and export promotion. | | ACC to develop formalized procedures for E&S screening of loan applicants; enhance E&S specifications within grant agreements (including adherence to appropriate technologies for treated wastewater use) and for safe working conditions and prohibiting child labor; and to assign, trains E&S focal point to monitor ESHS performance. |
| *Sub-Results Area 2.2: Matching skills supply with demand in agri-food sector* | DLI4: On- and off-farm employment skills improved including women and refugees. | Conduct a Training Needs Assessment and Outreach Plan for women, refugees, and youth, disclose clear eligibility criteria and include ESHS topics and accessibility to GRM | MoA to improve GM. |
| | DLI5: MoA Delivery Capacity Secured | | |
| **Other: Labor and Working Conditions including Child Labor** | | | MoA to develop a Child Labor Action Plan with involvement of CSOs and the Ministry of Labor, supported with technical assistance from the World Bank, and to implement the plan thereafter. |
| **Other: Agricultural Waste and Pesticide Management** | | | Strategic dialogue between MoA and Ministry of Environment on developing a mechanism for tracking, collection, and efficient disposal of empty pesticide containers. |

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| | | MoA to develop a plan to manage agricultural waste such as manure and wastewater of slaughterhouses.<br><br>MoA to develop and implement regular monitoring programs to verify if farmers adhere to requirements of pesticide dosage and preharvest interval. |
| **Technical Assistance (DU unit)** | | Enhance MoA capacity with one full-time Environmental Health and Safety Specialist and one full-time Social Inclusion Specialist. Capacity and resourcing will be reviewed annually. |

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## ANNEX 6. PROGRAM ACTION PLAN

| Action Description | Source | DLI# | Responsibility | Timing | | Completion Measurement |
|---|---|---|---|---|---|---|
| National RWH committee meets at least quarterly, is chaired by MoA, deputy chairmanship MOWI, other members include JVA, MoEnv. | Technical | DLI 1 | MoA | Other | Recurrent Quarterly Due Date 3/2023 | Minutes of meetings; competent national and international institutions are included to provide inputs as needed, such as NARC, the Royal Scientific Society, FAO and ICARDA for meetings related to the national RHW plan and operational guidelines. |
| Two refurbished regional veterinary service centers operational | Technical | DLI 2 | MoA | Due Date | 31-Dec-2026 | Evidence documenting the completed refurbishment: (i) procurements contracts and delivery receipts, (ii) supervision reports documenting the completion of refurbishment as per procurement plan,(iii) pictures of refurbished centers with GPS location |
| Complete ToRs for conceptualization of traceability system | Technical | DLI 3 | MoA | Due Date | 31-Mar-2023 | Document setting out ToRs, contains a detailed description of all the technical and institutional elements that would operationally support the traceability system. |
| MOA and NARC staff to receive specialized procurement training (1/2) | Other | | MoA | Due Date | 31-Mar-2023 | MOA and NARC staff will receive specialized training on procurement of works, goods and consultants' services in accordance with the new methods, techniques and innovations introduced in the procurement bylaw and on the use of the ... |
| MOA and NARC staff to receive specialized procurement training (2/2) | Other | | MoA | Due Date | 31-Mar-2023 | ...national standard bidding documents and contract conditions for various types of procurement , currently being finalized by the GOJ with the Bank's support |
| A new banking ERP system is purchased and installed at ACC. | Other | DLI 3 | ACC | Due Date | 30-Jun-2024 | The ERP system is procured and functional including for cash accounting, payment processing, security of cash and |

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| | | | | | | cash management and preparation of financial reports and statements. |
| Veterinary Service Five Year development plan submitted | Technical | DLI 2 | MoA | Due Date | 30-Sep-2023 | Plan with detailed organizational structure, staffing, budget, planned activities and intended results indicators until 2027, including role and deliverables by the regional veterinary service centers, vac. procurement stand., role of private sector |
| ACC adopts up to date financial regulations that follow international accounting standards | Other | DLI 3 | ACC | Due Date | 30-Sep-2023 | The accounting regulations are updated to be consistent with IFRS |
| The Internal Audit Department should report to ACC BoD | Other | DLI 3 | ACC | Due Date | 30-Sep-2023 | ACC's organizational Structure should be revised to have the Internal Audit Department reporting to the BoD instead of management. |
| ToRs for training needs assessment completed | Technical | DLI 4 | MoA | Due Date | 31-Mar-2023 | ToRs with scope and implementation arrangements for training needs assessment along the targeted value chains from production to post-harvest, processing and access to markets and process for identification of needs through stakeholder consultations |
| MoA to develop a plan to manage agricultural waste such as manure and waste of slaughterhouses | Environmental and Social Systems | | MoA | Due Date | 30-Sep-2023 | Document summarizing approach to managing agricultural waste in a whole-of-government approach, including clear objectives, activities and implementation roadmap with clear roles and responsibilities of different government entities and stakeholders |
| A tracer study is conducted and provides an overview of the outcomes of the training activities conducted under Sub Result Area 2.2 | Technical | DLI 4 | MoA | Due Date | 30-Jun-2026 | A document containing tracer study presenting information on the occupations of graduates of the training programme, 12 months after graduation, and documenting the connections between trainees ' professional performance and the training. |
| MOA to develop site level E&S | Environmental and Social | DLI 1 | MoA | Due Date | 31-Mar- | E&S screening procedures for site selection and design of |

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| screening methodology and ESHS monitoring protocol for RWH structures in Badia. | Systems | | | | 2023 | individual RWH sites developed including avoiding, minimizing and mitigating land-related impacts and applying the exclusion criteria. ESHS Monitoring Protocol developed. |
| Yearly preparation and publishing of procurement plan for subsequent year and updated at least on quarterly basis | Technical | DLI 5 | MoA | Other | Recurrent yearly 1 month ahead of submission of the annual budget proposal by MoA | Preparation and publication of a procurement plan covering entire program in 2022 by November<br>Updating of procurement plan annually by May for subsequent year, i.e. 1 month before submission of annual budget proposal by MoA |
| Execution of all procurement transactions through JONEPS (electronic government procurement system). | Other | | MoA | Other | Recurrent and ongoing from January 1, 2023 onwards | All Program procurement transactions, covering planning, tendering and award, contract management and closure, will be processed through the electronic government procurement system (JONEPS), following the provision of necessary training to MOA staff |
| MOA to develop and incorporate worker and community health and safety technical specifications to be incorporated into FIDIC standard procurement document for RWH in Badia. | Environmental and Social Systems | DLI 1 | MoA | Due Date | 31-Mar-2023 | Before January 2023 worker and community Health & Safety technical specifications are incorporated into standard FIDIC tendering document used by MOA |
| ACC to develop formalized procedure for E&S screening of loan applicants; enhance E&S specifications within grant agreements (incl. adherence to appr. technologies for treated wastewater use) and safe working conditions and prohibiting child labor | Environmental and Social Systems | DLI 3 | ACC | Other | Due date before issuing grants under the program | Clear E&S requirements and specifications added to grant agreements (including adherence to appropriate technologies treated wastewater use) and safe working conditions and prohibiting child labor. ACC assigns, trains E&S focal point to monitor ESHS |

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| MOA engages with MOL to establish and advance shared objectives on decent work in agriculture and enforcement of regulations including establishing referral protocol to MOL GRM | Environmental and Social Systems | DLI 4 | MoA and MoL | Other | Ongoing 06/23 | The mechanism for strategic dialogue with MOL on decent work and enforcement of regulations must be established in writing and meeting minutes provided. |
| MOA to improve Program GRM as per ESSA findings, including outreach campaign on accessibility of GRM channels, uptake channels and dispute resolution mechanism at community level, SOPs for GRM | Environmental and Social Systems | | MoA | Due Date | 31-Mar-2023 | Report documenting improvements of GRM (incl. SOPs covering response timelines, escalation, mngt. (ii) procedures for complaints related to SEA/SH) summary of number, status of resolution, type of complaint under GRM. |
| Completion report on refurbishment of 3 MoA nurseries | Technical | DLI 2 | MoA | Due Date | 28-Feb-2025 | The report provides information on the work completed and the level of delivery (number of tree seedlings produced). |
| Strategic dialogue between MoA and MoEnv on developing mechanism for tracking, collection and efficient disposal of empty pesticide containers | Environmental and Social Systems | | MoA | Other | Ongoing throughout program implementation | Mechanism and procedures developed for tracking, collection, and disposal of empty pesticides containers |
| MoA develops and implements regular monitoring programs to verify if farmers adhere to requirements of pesticide dosage and preharvest interval. | Environmental and Social Systems | | MoA | Due Date | 31-Dec-2023 | Document summarizing monitoring program on pesticides usage, including clear objectives, activities and an implementation roadmap with clear roles and responsibilities of different government entities and stakeholders |
| MoA to develop site Child labor action plan detailing the monitoring | Environmental and Social Systems | | MoA | Due Date | 31-Dec-2023 | The Child labor action plan detailing the monitoring plan, response mechanisms, and actions is developed. The activity should be developed |

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| protocol and actions list for addressing detected cases. | | | | | | through a strategic dialogue with national and international relevant organizations such as ILO and the JRF |
| Training for ACC engineers on water use efficiency | Technical | DLI 3 | ACC | Other | Partially phased until 12/2023 | 100% of ACC field based engineers receive a training on promoting water use efficiency at farm level. |
| Report prepared analyzing the actual unit cost of delivering various Veterinary Services at established Clinics, proposing options for increased private sector participation and laying out options for cost-recovery | Technical | DLI 2 | MoA | Due Date | 30-Sep-2023 | Report describing the various services to be provided, including those considered as core services and those that should be provided by private veterinarians, and assign a cost to these services, as well as assess farmers' willingness to pay. |

## ANNEX 7. IMPLEMENTATION SUPPORT PLAN

1. **The Implementation Support Plan (ISP) is based on the implementation support guidelines for Program for Results operations and adapted to the design and risk profile of the Program**. While the Borrower is responsible for the Program's overall implementation, including its technical aspects, the basic mandate of Bank implementation support under the Program includes: (i) review implementation progress, including the PAP and the achievement of Program results and DLIs; (ii) provide support for resolving emerging Program implementation issues and bottlenecks; (iii) provide technical and institutional capacity building support to the Government for implementation of the PAP, the achievement of DLIs and other results; (iv) monitor the adequacy of systems' performance, for example, through monitoring reports, audit reports, and field visits, as well as compliance with legal agreements and, as needed, the Program Action Plan; and (v) support the government in monitoring and managing changes in the various types of risks.

2. **Key to the World Bank's effective implementation support will be its coordination and timing, aligned with critical points in the planning and verification of results for disbursement requests to the World Bank.** A multi-disciplinary set of technical specialists along with fiduciary, environmental, and social specialists will be needed to support MoA in the overall implementation of the PforR operation. While results and DLIs are planned to be assessed as completed annually, a six-month approach to implementation support will be employed where a specific implementation support mission of one to two weeks would be carried out. It is expected that a core group of the World Bank's technical experts would help provide regular guidance and implementation support, with outside experts mobilized on as-needed basis. It is expected that during the first two years of the Program implementation, more frequent visits (three times a year) may be required. It is estimated that two visits a year may be sufficient for the remaining Program implementation period. Many technical specialists are based in the region and country office, which will allow timely follow-up on specific issues and/or areas of concern if needed.

3. **The first implementation support mission will take place as soon as possible after effectiveness to provide direct and timely feedback on the quality of implementation plans**, annual budgets prepared by MoA and to ascertain than the DLI verification process is in place. It is expected that at that stage initial progress will have been made toward achievement of the first set of results and DLIs, and achievement of a significant number of the actions in the PAP. These will be reviewed during the first review mission. The first mission is therefore expected to include all team members, i.e., technical, institutional, environmental, social, and fiduciary specialists. Subsequent implementation support will have a stronger emphasis on verification/M&E skills and technical implementation expertise, varying according to the actual needs as specified in the PAD.

*Table A7.1.: Focus of implementation support*

| Time | Focus | Skills needed | Resource estimates |
|---|---|---|---|
| First 12 months | Implementing the PAP; establishing arrangements for credible verification of compliance with the DLIs; enhancing | Financial, procurement, operations, M&E; technical (all specialists). | Three support missions 3 x 12 people x 2 weeks = 42 weeks<br>Total 72 weeks over 12 months |

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| | budgetary processes; strengthening the M&E system. | | |
| 12–48 months | Reviewing implementation progress; cross-checking linkages between planning, budgeting, and results; providing support in case of disputes relating to DLI verification. | Legal, financial procurement, operations, M&E; technical (as required). | Two support missions 4 x 10 people x 2 weeks = 80 weeks<br>Total 80 weeks over 36 months |

*Table A7.2: Team Skills Mix Requirements for Implementation Support (entire Program period)*

| **Skills needed** | Number of Staff weeks | Number of trips |
|---|---|---|
| **Task team management** | 30 | 11 |
| **Agriculture Policy and public sector budgeting specialist** | 22 | 11 |
| **Digital Extension specialist** | 14 | 7 |
| **Traceability and food quality systems specialist** | 14 | 7 |
| **Rural finance specialist** | 14 | 7 |
| **Livestock and veterinary services specialist** | 14 | 7 |
| **Water specialist** | 14 | 7 |
| **Financial Management and Procurement** | 12 | 6 |
| **Environment Safeguards specialist** | 12 | 6 |
| **Social Safeguards specialist** | 12 | 6 |
| **M&E specialist** | 14 | 7 |

## ANNEX 8. INVESTMENT PROJECT FINANCING COMPONENT

**Overview**

1. **The implementation of the National Sustainable Agriculture Plan 2022–2025 (JAP) overall will require considerable, well-coordinated, timely, and focused technical support from the Ministry of Agriculture, particularly during the early stages of implementation.**

2. **The IPF component will provide technical assistance to MoA and other implementing agencies of JAP.** This would be achieved through the establishment of a Delivery Unit (DU). DU capacity would be strengthened with a view toward a longer-term role in supporting the delivery of strategic plans for the agriculture sector and of partner initiatives in their support, such as by other development partners.[44]

**IPF COMPONENT DESCRIPTION**

3. The IPF would have four components:

**Component 1: JAP Systems Building and Implementation Support (US$ 1.7 million, of which IBRD and GCFF US$ 0.7 million; PROSPECTS TF US$ 1 million)**

4. The DU would provide expertise and support to implementing agencies of the JAP in the development of appropriate systems underpinning JAP implementation in the following areas:

A. *Strategic activity planning:* Working with directorates and agencies on improved strategic planning processes and the design of implementation plans for activities under JAP;

B. *Financial management*: Strengthening the capacity of budget planning, and financial reporting;

C. *Environmental and social risk management and safeguards*: Strengthening the capacity for environmental and social risk assessment, management, and monitoring including design, preparation and implementation of environmental and social safeguards screening tools, studies, plans and reporting to ensure environmental and social considerations are mainstreamed including inclusivity of all activities toward vulnerable populations including refugees;

D. *Procurement:* Assisting with the preparation and updating of Program annual procurement plans, the execution of procurement transactions through JONEPS (electronic government procurement system) and STEP (for IPF), monitoring of procurement and contract implementation, and procurement reporting;

E. *Monitoring and evaluation***:** Assessing and, where necessary, improving the quality of monitoring and reporting systems deployed by MoA and other JAP implementing agencies;

F. *Decent work and Occupational health and safety (OHS):* Providing targeted expertise and support on topics such as child and forced labor; decent working conditions and OHS in agricultural operations across JAP implementation;

G. *Digitalization and Ag Tech Innovation:* Providing advisory and technical assistance to implementing agencies in the use of and collaboration with third parties related to leveraging the potential of digitalization and ag tech innovation across JAP implementation; and

[44] IFAD and the Islamic Bank of Development have already indicated their interest.

H. *Independent Verification:* Establishing and operationalizing the mechanism to review and verify the attainment of disbursement-linked indicators under the PforR. This would be accomplished in the first year through the services of specialist consultants and through the procurement of an external service provider in subsequent years.

**Component 2: Inter-Ministerial Coordination and Stakeholder Engagement (US$ 0.3 million; of which IBRD and GCFF US$ 0.3 million)**

5. This component will support MoA in establishing (i) mechanisms for inter-ministerial and agency coordination at technical level (including MoPIC, Ministry of Water and Irrigation, Ministry of Environment, JEDCO, MoL, etc.), and (ii) stakeholder engagement mechanisms (private sector, civil society, producer, and farmer organizations). Mechanisms will focus on selected strategic priority areas underpinning JAP, including *inter alia*: efficiency of water use in agriculture, opportunities for private sector engagement in extension, competitiveness of agriculture value chains and agricultural exports, the enabling environment for better jobs for Jordanians as well as vulnerable workers such as women, youth, and refugees.

**Component 3: Capacity Development for Implementing Agencies (US$ 3.5 million; of which PROSPECTS TF US$ 3.5 million)**

6. The DU will mobilize on an as needed basis targeted technical assistance in support of skills development of staff of the implementing agencies of JAP, as well as other relevant parties. International and regional experts will be mobilized in response to specific requests and needs identified on themes directly related to the priority areas included in the PforR. Short- and medium-term training programs will be offered for key implementing agency staff. Assistance will also be provided in a more transversal manner on policy analysis and development as well as in support of the annual and multiyear budgetary programming process at MoA in order to ensure an effective process of mobilization of the budgetary resources necessary for the implementation of the PforR. Areas identified for capacity building include strategic planning, project management, digitalization and ag-tech, procurement and contract management, safeguards, inclusion of vulnerable groups, private sector collaboration as well as a range of technical aspects related to agricultural development and value chains.

**Component 4: Contingent Emergency Response Component (Total: US$ 0)**

7. The IPF would provide support for the creation of a CERC. Following an eligible crisis or emergency, the Borrower may request the World Bank to reallocate funds to support emergency response and reconstruction. This component would draw from the uncommitted loan resources under the operation, including from either the PforR or IPF financing, to cover emergency response. Potential crisis events could include conflict and fragility in Jordan or the region as well as natural disasters such as droughts driven by climate change. These will be further elaborated in the operation manual.

8. **In the implementation of the above components, the Program will draw heavily on lessons generated by ILO, UNHCR, WFP, and FAO and other relevant agencies and civil society organizations on key aspects of refugee inclusion to encode these into the day-to-day operations of JAP implementing agencies.** There is much potential to develop approaches to inclusion, targeting, and sustainability, through the following specific activities: Under Component 1, specific gaps in implementing agencies' social safeguards capacities will be filled through the recruitment of specialized and adequately qualified

technical staff to strengthen capacity in refugee inclusion in the short and medium term. Under Component 2, the DU will support improved coordination with other GoJ entities as well as the organization of regular and adequately organized consultation meetings with representatives of civil society, development partners, and academia to advance existing programs already aimed at as well as further opportunities to improve livelihoods and working conditions of vulnerable workers including women, youth, and refugees across its programs and any particular issues arising as needed. Under Component 3, capacity building such as training courses and awareness raising activities will target the employees of MoA with a range of relevant topics including social dimensions in general as well as refugee relevant topics in particular.

**IPF IMPLEMENTATION ARRANGEMENTS**

9. **Implementation of the IPF would be entrusted to a Delivery Unit (DU) to be established at MoA and reporting to the Secretary General.** All DU staff would support implementation of the above components, including in all cases the provision of capacity building activities for implementing agency staff. The DU would have the following functions and attendant staffing

i. *Management:* The Director (full time) has overall responsibility for ensuring the DU adds strategic value to the implementation of the JAP overall and to specific programs supporting JAP implementation, including the ARDI PforR. The Director will have specific responsibilities for supporting the coordination and communication surrounding the PAP and the DLIs and working with the relevant units to find solutions to bottlenecks;

ii. *A Monitoring and Evaluation Specialist* (full time) will be working with all relevant delivery units to review and enhance systems for monitoring and evaluation as necessary. The primary focus for this staff will be systems associated with the delivery of the DLIs;

iii. *Financial Management and Procurement.* The DU will be staffed with a procurement specialist (full time) and a financial management (FM) specialist (part time) The FM officer will handle all FM responsibilities of the DU following the World Bank's financial management policies and procedures, including: i) providing FM support to the DU through reviewing and updating the Program budget plan; and ii) monitoring financial disbursements and all administrative procedures in line with MoPIC instructions. The Procurement Specialist will support MoA in handling Program procurement and will be responsible for the day-to day implementation of procurement for IPF activities, including for preparing and updating the procurement plan, procurement processing, record keeping, and reporting;

iv. *Environmental and social safeguards team:* An environment health and safety specialist (full time) and social inclusion and stakeholder engagement specialist (full time) will provide support to JAP implementing agencies and departments to ensure appropriate measures are in place to avoid negative environmental and social impacts, and promote inclusion particularly for women, youth, and refugees in JAP activities. An expert in labor and occupational health and safety (part time) will support improved awareness and good practices across activities; and

v. *Specialized technical experts*: Key technical agendas where implementing agencies have capacity gaps will be filled through the contracting of on-demand technical experts to provide implementation support and capacity building for GoJ staff. Required expertise would be

determined on an ongoing basis depending on needs. A capacity assessment identified two initial gaps: (i) digitalization and tech innovation as an area to be targeted, enabling MoA to identify and leverage opportunities to increase the impact of its program using technology; and (ii) child labor expertise, to assist in the preparation of the child labor action plan and build the capacity of implementing agencies' staff to execute it.

10. **The DU will produce an annual report** outlining recommendations for changes to activities, regulations, and budgets to better serve the needs of these critical groups.

**Environmental and Social Safeguards**

11. **The DU will ensure that the agreed actions to strengthen environmental and social management systems** as per the ESSA and PAP, are implemented and the deliverables are submitted to the World Bank for review and approval in a timely fashion. The World Bank's Environmental and Social Framework (ESF) applies to the IPF component of the PforR.

12. **The implementation of the IPF activities is expected to have positive environmental and social effects and will contribute to ensuring adequate environmental and social management of the Program**, including through enhanced stakeholder engagement and incorporation of environmental and social considerations in strategic planning. Potential negative effects might be associated with the planning of any technical studies, plans or strategies if not adequately informed by good international environmental and social practices. However, as such studies are not identified or earmarked at this time and are expected to be very focused and of a "just-in-time nature" the risks are not considered significant at this time. The Environmental and Social Risk Classification of the IPF component has been rated as "low" given the IPF activities are limited to staffing, coordinating inter-ministerial committees and engagement, and training for implementing agencies including environmental and social risk management, but also other aspects such as financial and procurement planning. The IPF does not entail any physical investments.

13. **The Environmental and Social Commitment Plan (ESCP**) was prepared and agreed with the MoA and has been disclosed on May 21, 2022. The ESCP specifies requirements for: (i) maintaining the required E&S organizational structure consistent with the recommendations in the ESSA PAP; (ii) screening of TA activities for environmental and social aspects and inclusion in terms of reference as appropriate; (iii) recruiting and managing hired workers (direct workers under ESS2) for the delivery unit in accordance with ESS2 and national law; and (iv) preparing and implementing a stakeholder engagement plan including a grievance mechanism for the Program as per the requirements of the PAP.

**Financial Management**

14. **Implementation Arrangements**: MoA will be responsible for the implementation of the IPF component, while MoPIC will manage the FM and disbursement functions. MOPIC has prior experience managing World Bank projects and will assign a Financial Officer from its Finance Department to follow up on the IPF's FM and disbursement aspects.

15. **Project FM risk**: The World Bank assessed MoPIC's FM systems. It concluded that with the implementation of agreed-upon actions, the proposed FM arrangements would satisfy the minimum requirements under the World Bank Policy/Directive for IPF on Financial Management. Based on the FM assessment, the overall FM risk is Moderate. With mitigation measures in place, the IPF component will

have acceptable FM arrangements and the residual FM risk rating will remain Moderate. The FM risk is assessed as Moderate mainly due to the following considerations:

i. The Accounting system of MoPIC is incapable of generating the IFRs following the World Bank guidelines;
ii. Delay in processing payments to suppliers and consultants attributed to project implementation, including procurement, remaining with MoA;
iii. Potential weak coordination between MoPIC and the MoA may cause delays in submitting the semiannual financial reports or any other ad hoc reports; ans
iv. The IPF component will not be included in the budget of MoPIC.

16. **The following measures are to be taken to mitigate FM-related risks:** The FM arrangements were designed to mitigate the identified FM risks, which would suit the available capacity during implementation, including:

i. MOA will submit payment requests to MoPIC promptly. During project implementation, the World Bank team will closely monitor the efficiency of the payment process and solve any bottlenecks;
ii. A US Dollar Designated Account (DA) will be opened and managed by MoPIC which will receive funds from the Partnership for Improving the Prospects MDTF;
iii. MoPIC will submit semiannual IFRs and annual budgets in excels that would allow the World Bank to follow up on disbursement progress and address any bottlenecks on a timely basis;
iv. An audit firm will be contracted to audit the project's annual financial statements following terms of reference (TORs) acceptable to the World Bank.

17. **Budgeting**: The IPF component will not be included in the annual budget of MoPIC since small grants are usually not included in the national budget. MoPIC will maintain a detailed disbursement plan per quarter. This plan will be developed based on the initial procurement plan, approved business plans for grant provisions, and/or based on the schedule of outputs as defined in the implementation schedule and estimated payments cycles—revised upon need. It will be used as a monitoring tool to analyze budget variances and manage cash and will feed into the semiannual IFRs.

18. **Accounting and Financial Reporting**: The IPF component will follow the cash basis of accounting. MoPIC uses GFMIS for budget preparation and execution. Considering that the IPF financing will not be included in the annual budget of MoPIC, GFMIS will not be used. Therefore, all daily transactions will be recorded using MoPIC's in-house accounting system. Considering that this accounting system is incapable of generating the IFRs following the World Bank guidelines, excel spreadsheets will be used to generate the semiannual IFRs.

19. **Internal controls**: Project's expenditure cycle will follow the controls specified in the National Financial System of the Hashemite Kingdom of Jordan, which includes: (i) technical approval of the department involved; (ii) checking and approval by finance staff; (iii) verification of the accuracy of the payments and its compliance with the applicable laws in Jordan and the World Bank procurement and FM procedures as well as the Grant terms and conditions. Although the IPF component will follow the Government-applied controls set in the local laws, there will be supplementary controls in place for monitoring component activities, including the verification and approval of the DU staff (financial and technical).

20. **On a monthly basis, MoPIC will reconcile the project account bank statement with the account book balance.** Reconciliations should be prepared by the Financial Officer and verified by the DU coordinator. All reconciling items (if any) should be listed, explained, and followed upon. Copies of the reconciliation together with the account bank statement should be kept in the project files and should be attached to the IFRs.

21. **Financial Audit:** A private sector audit firm will be procured to audit the project's financial statements annually. The audit will follow International Auditing Standards based on terms of reference (TORs) cleared by the World Bank. MoA will be responsible for preparing the TORs for the auditor and will submit them to the World Bank for clearance. The audit report will be sent to the World Bank no later than six months following the end of the project's fiscal year. The report shall include an opinion on the project's financial statement. The auditor will also be requested to provide an opinion on the project's effectiveness of the internal control system. Finally, a management letter shall accompany the audit report, identifying any deficiencies in the control system the auditor finds pertinent, including recommendations for improvement.

22. **Disbursements**: To ensure that funds are readily available for the implementation of the IPF component, a US Dollar Designated Account (DA) will be opened at the Central Bank of Jordan and will be managed by MoPIC. Authorized signatories, names, and corresponding specimens of their signatures would be submitted to the World Bank prior to the receipt of the first Withdrawal Application (WA). MoPIC will be responsible for submitting monthly replenishment applications with appropriate supporting documentation. The proceeds will be disbursed in accordance with the World Bank's disbursements terms that will be outlined in the Disbursement Letter and in accordance with the World Bank Disbursement Guidelines for projects. Transaction-based disbursement will be used under this component. Accordingly, requests for payments will be initiated through the use of Withdrawal Applications (WAs) either for advances, direct payments, reimbursements, or replenishments to the DA. All WAs will include appropriate supporting documentation, including detailed SOEs for reimbursements and replenishments to the DA. The category of Eligible Expenditures that may be financed out of the proceeds of the Grant and the percentage of expenditures to be financed for Eligible Expenditures will be spelled out in the Legal Agreement.

**Procurement**

23. **Project (IPF) procurement will be implemented in accordance with the World Bank's "Procurement Regulations for IPF Borrowers" dated November 2020**; and "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by International Bank for Reconstruction and Development (IBRD) Loans and International Development Association (IDA) Credits and Grants", dated October 15, 2006, revised in January 2011 and as of July 1, 2016. The Project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record, and track procurement transactions.

24. **Procurement Capacity Assessment:** The World Bank undertook an updated assessment of the procurement system and capacity of the MoA. The procurement risk is assessed as Moderate based on the following considerations: (i) the size and nature of the IPF activities are simple; (ii) the procurement staff in MoA are familiar with the World Bank Procurement Regulations, however, their experience with procurement of consultants' services is limited; and (iii) there may be potential delays in procurement processing due to bureaucratic procedures and multiple clearances. No prior review of contracts by the

WB is envisaged.

25. **Mitigation of Procurement Risk:** The procurement associated risk will be mitigated through the following measures: (i) a qualified procurement specialist will be hired to support MoA with procurement processing for the Program, including for the IPF component; (ii) the procurement plan will be used as a monitoring tool for processing procurement activities in a timely manner; (iii) a special tenders committee has been established for the project; (iv) close support and capacity building provided by the World Bank, at the initial stages of project implementation, particularly on the procurement of consultants' services; and (v) all terms of reference will be subject to the WB's prior technical review and clearance.

26. **Project Procurement Strategy for Development (PPSD):** MoA prepared a draft PPSD and a procurement plan for the first 18 months of the project. The PPSD and procurement plan will be finalized after board approval.

**Project Grievance Mechanism**

27. **The GM for the IPF will be the same as the GM for the Program.** The Program's GM consists of multi-level arrangements for registering and addressing grievances and complaints from Program-affected people, building on the existing function system of MoA which is receiving and addressing complaints via the nationwide *Behkedmetekom* system. The ESSA has assessed the Program's GM against good international practice and recommended improvements for accessibility and effectiveness that have been incorporated into the Program Action Plan namely: Standardized Operating procedures; expanded outreach; community-based dispute resolution mechanisms; referral protocols for complaints related to labor and working conditions and SEA/SH; and reporting on GM performance.

## ANNEX 9. Economic and Financial Analysis

1. **Rational for public sector financing**. There is a strong rational for public sector financing to correct market failures, generate positive environmental impacts, and mitigate negative environmental externalities. Investment in rainwater harvesting structures is justified given the importance for Jordan to build the resilience of its agricultural sector to water scarcity and climate change impact, while promoting continued growth. Also relevant is the importance of agriculture for the food security of the targeted beneficiaries. The grant activities for investment in climate-smart technologies will address some of the market failures that have led to low private investments in the sector. Also, support to the development of digital innovations to expand the delivery of specialized extension services to farmers will contribute to more efficient public institutions with a positive impact on the beneficiaries receiving targeted services. Similarly, addressing inefficiencies in food safety management facilities, issues with traceability, and lack of compliance with internationally recognized certification would increase the competitiveness of agriculture products on the international market and generate additional resources for the country. Finally, supporting vocational training is expected to correct the supply-demand mismatch on the labor market and increase job opportunities for vulnerable groups.

2. **Economic impact of the Program**. The Program aims at (i) building the resilience of the agricultural sector in Jordan, especially in response to increasing water scarcity; (ii) strengthening the capacity of the public sector; (iii) enhancing the competitiveness, efficiency, and sustainability of the agri-food value chain; and (iv) increasing employment opportunities and income generation for rural vulnerable groups.

3. **World Bank added value.** World Bank support will improve the efficiency and targeting under the Program, thereby increasing both its economic, social, and environmental benefits. The World Bank has global expertise in the design and support to the implementation of innovative projects and programs in the agri-food sector. The Bank is thus in a unique position to support the Government of Jordan in designing and implementing the Program to maximize economic, social, and environmental benefits.

4. **Project objectives and cost structure:** The ARDI Program aims to strengthen the climate resilience and enabling environment for agriculture development in selected value chains in Jordan . The Program would focus on improving water availability, supporting agriculture productivity and service delivery for exports, and increasing women and youth access to employment in the sector. These objectives would be attained by investing in:

i. Scaling-up Sustainable Rainwater Harvesting in Agriculture. (*JOD44.5 million*). This includes investment in rainwater harvesting systems at the household level (*JOD31.85 million*), investment in rainwater harvesting structure at the community level in the Badia region (*JOD12.35 million*) and supporting the MoA in the preparation of a national rainwater harvesting strategy (*JOD0.3 million*).
ii. Building Institutional Adaptive Capacity for Innovation (*JOD31.35 million*). This component includes improving public service delivery in extension for crop and livestock farmers (*JOD9.75 million*), expanded veterinary services for herders and increased vaccination coverage for foot-and-mouth disease (FMD) (*JOD12.3 million*). It will also include the improved performance of nurseries (*JOD5.85 million*), and scaling up the adoption of digital technologies among extension services (*JOD 3.45 million*).
iii. Enabling Services for Value Chain Development and Export Promotion (*JOD19.9 million*). This includes the provision of traceability and certification services (*JOD1.5 million*) and coordinated value chain development and export promotion (*JOD9 million*). This component will also include

investments in the expansion and modernization of public laboratory facilities for sanitary and phytosanitary standards (*JOD3.9 million*). An innovative reimbursable grant instrument for investments in water-efficiency technologies will be implemented (*JOD10 million*).

iv. Matching skills supply with demand in agri-food sector (*JOD 15 million*). This component includes an up-skilling and job matching program tailored to the agri-food sector, based on skills and capacity needs assessment and focused on inclusion of unskilled/ semi-skilled women, youth, and refugees and is estimated at *JOD15 million*.

5. **Economic and financial analysis**: This annex summarizes the ex-ante economic and financial analysis (EFA) of the Program, which assesses the incremental benefits and costs derived from a set of investments under the Program. Some Program investments are reasonably well identified in scope, costs, and potential benefits, while some of the investments would be demand-driven. Estimating and quantifying Program benefits based on the latter is difficult, so indicative sub-project models were developed to provide an estimate of the types of investments along the value chains that the Program will support and their likely impact. The analysis attempts to evaluate the Program´s expected performance and the feasibility of planned/potential investments from the perspective of its financial net benefits and costs, but also from the standpoint of the Program's overall economic benefits, costs, and externalities.

6. **Sources of information:** Data collection for the analysis was made from a wide range of primary and secondary sources. Information was also obtained from available literature and the design of other recently formulated projects in the country, including World Bank's project Badia Ecosystem and Livelihood Project formulation and the Green Climate Fund Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector (BRCCJ) project.

7. **The financial analysis assesses the returns and viability of investments from** the point of view of direct beneficiaries. For this purpose, a set of typical financial models have been developed to illustrate whether these producers and value chain actors would receive enough benefits (increased incomes) to make their participation in the Program and investments financially attractive. It concerns improving access to water through small rainwater harvesting facilities, adoption of advanced water-saving technologies and training. Additional models were considered for investment in community rainwater harvesting structures and vaccination against FMD.

*Table A9.2: Investment results for selected investment scenarios (financial prices – in JOD)*

| Without Program | With Program | NPV | IRR |
|---|---|---|---|
| 1. Tomato open field - BAU (2 cycles/year) | 2. Tomato open field with supplementary irrigation (2 cycles/year) | 3,301 | 21% |
| 3. Livestock production BAU | 4. Livestock production with additional water from community rainwater harvesting structure | 21,607,584 | 29% |
| | 5. Water-saving technologies: wicking beds | 4,088 | 23% |
| 1. Tomato open field - BAU (2 cycles/year) | 6. Greenhouse cherry tomato (3 cycles/year) | 33,987 | 54% |
| | 7. Investment in water-saving technologies (growbags for baby cucumbers) | 25,460 | 71% |
| | 8. Increase in the vaccination coverage for FMD for small ruminants | 12,350,286 | N/A |
| | 9. Training on agricultural professions | 18,366,106 | 59% |

8. **Result Area 1 – Climate Resilience and Sustainability.** Under RA1 the Program has the potential to

address the critical issue of climate resilience in the agricultural sector by scaling up access to rainwater harvesting structures in rainfed areas. It will also contribute to the sustainability of the livestock sector by expanding the coverage of veterinary services in the country, including vaccination coverage for foot-and-mouth disease (FMD). At the same time, the Program will support the development of digital innovations to expand the delivery of specialized extension services to farmers. This aims to improve the efficiency within public sector institutions and the efficiency of public sector institutions in their daily work with clients and therefore reduce related costs. At the micro level, the Program is expected to generate substantial positive economic benefits to farmers through increased crop productivity, reduced water and livestock production costs and better access to information and services. At the macro level, the Program will contribute to improve the productivity and the resilience of the food systems and ecosystems.

9. **Scaling up on-farm investment in rainwater harvesting aims to benefit 15,000 farmers with a grant for the construction or refurbishment of 15,000 cisterns.** The analysis uses model (2) to illustrate the impact of additional water for irrigation on crop productivity in home gardens. The model considers a 3.4 dunum garden dedicated in exclusivity to tomatoes production, the prevailing crop in Jordan, and assumes that the intervention would result in i) a decrease in water use for irrigation, and ii) an increase in tomatoes yields. The model considers a total investment of JOD1,500 for a cistern of 30m3. The results show a net income (profit) of JOD488 per dunum. The sensitivity analysis shows robust results; however, this investment is more sensitive to a variation in output, coming for example from yield variation or price of tomatoes rather than a change in input costs. Yield variation could be mitigated through the adoption of improved production practices. Further water savings could also be made by adopting specific agronomic techniques such as regulated deficit irrigation[2].

10. **The creation or refurbishment of 140 communal earthen rainwater harvesting structures is foreseen under RA1.** This activity will benefit 1,400 households (herders) in the Badia. To assess the profitability of this activity, the model (4) illustrates the impact of an increase in water availability on water on feeding and watering costs for small ruminants' production. The analysis assumes that for a herder with 350 heads, the additional water would reduce the costs for watering by 50 percent and feeding by 10 percent. The model also assumes that climate change will affect annual water availability. Net income resulting from the intervention is estimated at JOD25 per head or a total of JOD8,685 per household. The IRR is 29 percent. The indicators show that this investment is more sensitive to a reduction in benefits (change in animal selling price or milk price) than an increase in costs although the profitability of the investment will be affected by costs, respectively benefits, increase/decrease by at least 20 percent.

11. While a direct assessment of the improved extension services, including the use of digital extension tools, is currently not feasible, current research shows that extension services facilitate knowledge transfer and skills acquisition and have a positive impact on technology adoption, yields, and profits. A study conducted in Tanzania, Kenya. and Uganda shows that participation to Farmer Field Schools increased income by 61 percent when pooling the three countries (IFPRI, 2010). The implementation of a drought early warning system in Uganda reduced the threat of food insecurity by 24 percent and increased household nutrition by 30 percent in the agro-pastoralist Karamoja subregion (van Ginkel, Biradar, 2021).

12. **The Program also includes expanding the coverage of veterinary services, including with the acquisition of additional stock of vaccine for FMD.** While the impact in terms of animal health is worthwhile, a direct assessment of the impact of increasing the coverage of the FMD vaccination on farmer's net income has been estimated with the model (8). Given the available information at the time

of the ex-ante analysis, the model covers only small ruminants. The cost of the vaccination will be fully covered by MoA. The model assumes that a herd will experience an overall mortality rate of 10 percent from FMD (FAO), in a situation without vaccination, before the herd replenish and the livestock size comes back to its long-term average in year six. Following a three-year vaccination campaign, during which the mortality rate from FMD will decrease, it is assumed that the disease will be eradicated in year four. Following the intervention, only the natural mortality rate will prevail, and livestock size will also be back to its long-term average value. Under these assumptions, the model foresees an increase in the benefits per animal from JOD10 in the first year of the vaccination campaign to JOD11.8 in year four. Given that vaccination will be entirely subsidized, the investment is profitable for herders. Vaccination will also allow the beneficiaries to access a subsidy on feed. The results of the model are sensitive to a variation in the cost of the vaccine, at the same time, it is recommended to ensure the provision of good quality vaccine from international laboratories to guarantee the efficiency of the vaccination.

13. **Result Area 2 – Competitiveness and exports**. The Program has the potential to enhance the attractiveness of Jordan's agricultural products by adopting standards and techniques that will contribute to improve quality and competitiveness. Support to the public effort on traceability, enforcement of quality standards and product/market information will contribute to the development of an enabling business environment and spur private investment. Activities will also stimulate demand for climate adaptation practices and technologies and are expected to attract and crowd in private sector investments for climate adaptation. Finally, the Program is expected to increase job opportunities and income for vulnerable population, including women and refugees, which will generate positive economic benefits over the long term.

14. **The analysis of the selected models and investment scenarios show that there are several interesting opportunities for Jordan to invest in advanced production technologies.** Water-saving technologies and climate-smart new practices, such as those illustrated in models 5, 6, and 7, show good adoption potential and investing returns, especially if allied with the introduction of new varieties. Investment scenario (6) considers the conversion of open field tomato to greenhouse cherry tomato while scenario (7) considers the adoption of growbags technologies in greenhouse growing baby cucumber. Investment in improved techniques to grow baby cucumber is smaller and market outlet does not change significantly. In contrast, the conversion to cherry tomatoes is riskier as it requires selling to a processor that has access to markets capable of paying a premium on the cherry tomatoes. Investment in wicking bed containers (6) offer interesting opportunity from a water saving perspective as it allows a 50 percent reduction in water consumption compared to traditional irrigation. Returns for this investment are relatively smaller compared to the other two technologies considered, however this technology provides good perspectives from a food security point of view.

15. **While the direct assessment of measures to enhance the quality and export market access is currently not feasible**, addressing inefficiencies in food safety management facilities, issues with traceability and lack of compliance with internationally recognized certification would increase the competitiveness of agriculture products on the international market and generate additional resources for the country.

16. **The Program is also addressing supply and demand mismatch in the agricultural labor market**. The model (9) assumes that 34 percent of the trainees participating in vocational training will secure a job[3] that they will keep for as long as possible. They will receive the minimum wage, JOD265, and the scenario does not consider any eventual career evolution nor any benefits resulting from an increase in

the employability of the trainees. Under these assumptions, the model yields to an IRR of 59 percent. Vocational training generally show positive results in integration; a study conducted in Colombia[4] with young women show a 7 percent increase in employment and a 20 percent increase in earnings. To ensure the effectiveness of such activity, it is recommended to focus on the content of the curriculum (such as the inclusion of more practical training, development of soft skills and support to transition to job market) and ensure the cooperation between the schools and the job market (recognition of the certification of the training, public-private partnership to better evaluate the demand for specific skills).

17. **The Economic analysis** provides an evaluation of Program´s economic profitability from the perspective of the country as a whole by aggregating Program total costs and benefits derived from models considering economic values. In addition, the current analysis accounts for positive externalities from greenhouse gas (GHG) emissions reduction calculated using the EX-ACT tool and valuated following the World Bank guidelines on carbon accounting in projects.

18. **The Program is expected to generate several cost and benefit streams beyond those directly received by the beneficiaries of subcomponents assessed under the financial analysis.** Table A9.3 summarizes the benefits and key assumptions used for the economic analysis. A twenty year economic net benefits stream was used to derive the project Economic IRR and NPV.

*Table A9.3: Key assumptions for the total Program profitability analysis*

| **Result Area 1: Climate Resilience & Sustainability** | |
|---|---|
| *Scale up of Sustainable Agricultural Rainwater Harvesting (RWH)* | |
| 3.1.4 Farm- and home garden-level rainwater harvesting | Stream of net benefits as described for the financial analysis considering implementation targets from the Program results matrix |
| 6.2.1 National strategy for water harvesting and Badia rehabilitation | Cost stream directly proportional to results matrix implementation targets |
| 6.2.2 Rainwater harvesting and Badia restoration | Stream of net benefits as described for the financial analysis considering implementation targets from the Program results matrix |
| *Building Institutional Adaptive Capacity for Innovation* | |
| 1.4.2 Development of extension system | Cost stream directly proportional to results matrix implementation targets |
| 1.4.3 Veterinary services | Stream of net benefits as described for the financial analysis considering implementation targets from the Program results matrix |
| 1.5.4 Early Warning System for Ag Risks | Cost stream directly proportional to results matrix implementation targets |
| 1.6.2 Smart applications and solutions in agriculture | Cost stream directly proportional to results matrix implementation targets |
| 2.2.4 Mechanization of the agricultural sector (automation and mechanization of nurseries and stations of Al-Hussein and Al-Faisal affiliated to the Ministry of Agriculture) | Cost stream directly proportional to results matrix implementation targets |
| **Result Area 2: Competitiveness & Exports** | |
| *Enabling Services for Value Chain Development and Export Promotion* | |
| 5.1.7 Encouraging the establishment of centers for mobilization and grading | Cost stream directly proportional to results matrix implementation targets |

| | |
|---|---|
| 5.1.8 Encouraging investment in cold storage/chain capacity | Cost stream directly proportional to results matrix implementation targets |
| 5.1.9 Establishment of a traceability system | Cost stream directly proportional to results matrix implementation targets |
| 5.2.5 Develop "Agriculture Pattern" (Market information system, crop calendar, assessment of export competitiveness) | Cost stream directly proportional to results matrix implementation targets |
| 4.2.1a Development of the infrastructure for the services of the vegetable seed production sector and plant health laboratories (MoA) | Cost stream directly proportional to results matrix implementation targets |
| 4.2.1b Development of the infrastructure for the services of the vegetable seed production sector and plant health laboratories (NARC) | Cost stream directly proportional to results matrix implementation targets |
| 3.1.1 Encouraging farmer investments into advanced production technology | Stream of net benefits as described for the financial analysis considering implementation targets from the Program results matrix |
| *Matching skills supply with demand in agri-food sector* | |
| 2.3.1 Training Jordanian youth and girls on agricultural professions | Stream of net benefits as described for the financial analysis considering implementation targets from the Program results matrix |

19. **Under this set of assumptions, the Program would yield an ERR of 26.5 percent and an NPV of US$215.8 million.**

20. **Sensitivity analysis:** A sensitivity analysis of the economic results of the Program was carried out and changes in Program benefits and costs streams are presented in Table A9.4. Although the Program shows some sensitivity regarding the change in Program benefits, the Program is robust since even with large decrease of costs or increase of benefits, the economic indicators are still showing higher values then the economic thresholds: 6 percent for the IRR and 0 for the NPV. The Program is more sensitive to a reduction in benefits than an increase in costs and the EIRR would be affected by delays in the benefits.

*Table A9.4: Sensitivity analysis of Program results*

| Sensitivity | % change | EIRR |
|---|---|---|
| **Benefits** | -10% | 19% |
| | -15% | 17% |
| | -20% | 15% |
| **Costs** | 10% | 20% |
| | 15% | 18% |
| | 20% | 17% |

21. **Environmental externalities in the economic analysis.** The reduction of net GHG emissions due to Program interventions is integrated into the EFA by using an economic value for carbon pricing with a high and low case scenario following the guidelines of the World Bank: "Guidance note on the shadow price of the carbon in the economic analysis" (September 2017). Net reduction in GHGs was calculated by using the FAO's Ex-ACT Tool (version 9.3.2). The GHG analysis indicates that, over the implementation period of twenty years (implementation phase 5 years, capitalization 15 years), the Program could reduce carbon emissions by 69,781 tCO2e. This implies an average mitigation of 3,489 tCO2e tCO2e per year. Under the high price of carbon (HPC) scenario, the Economic Rate of Return (ERR) for the entire Program is 26.9 percent, and the NPV is approximately US$220.8 million. Under the lower carbon price (LCP)

scenario, the ERR was 26.7 percent and the NPV was approximately US$218.8 million.

**Sources:**

*Attanasio, Orazio, Adriana Kugler, Costas Meghir (2011) "Subsidizing Vocational Training for Disadvantaged Youth in Colombia: Evidence from a Randomized Trial", American Economic Journal: Applied Economics 3(3): 188-22*
*Davis and al., 2010. "Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa", IFPRI Discussion Paper*
*FAO, 2021. "FP155: Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector (BRCCJ)*
*van Ginkel, M.; Biradar, C. Drought Early Warning in Agri-Food Systems. Climate 2021, 9, 134.* https://doi.org/10.3390/ *cli9090134*
*Unesco, 2020. "Tracer Study on Agricultural Vocational Secondary Education in Jordan"*
*World Bank, 2012."Badia ecosystems and livelihood project"*

**Endnotes**

[1] DoS, 2020
[2] Effect of regulated deficit irrigation on quality parameters, carotenoids and phenolics of diverse tomato varieties (Solanum lycopersicum L.), Coyago-Cruz and al. ,2017
[3] Unesco, Tracer Study on Agricultural Vocational Secondary Education in Jordan, 2020
[4] Attanasio et al, 2011, "Subsidizing Vocational Training for Disadvantaged Youth in Colombia: Evidence from a Randomized Trial", American Economic Journal: Applied Economics 3(3): 188-220

## ANNEX 10. Climate Co-Benefits and GHG Accounting

### 1. Climate co-benefits

1. **Climate change compromises food security and agricultural production through projected yield declines due to temperature and the change of precipitation patterns.** IPCC projections for the future indicate that by 2030 temperatures are projected to increase by 1–2ºC and that there will be a significant increase in the number of crop heat stress days throughout Jordan. Climate models from the Coupled Model Intercomparison Project Phase 5 (CMIP5) ensemble project a decline in future precipitation rates of 6 percent, 11.5 percent, and 19 percent by 2030, 2050, and 2070, respectively (RCP 8.5). The whole country is expected to experience a decrease in precipitation. The northern region and King's Highway are projected to experience the largest precipitation declines by 2030: 12.5 percent and 10.4 percent, respectively. Rainfall decreases in the Eastern and Southern desert are projected to be 9.4 percent and 3.1 percent, respectively. Jordan's Eastern and Southern Desert regions, which are primarily rangelands, are likely to experience more warming than the Northern region and the King's Highway, which currently rely mostly on rainfed and irrigated agriculture. These changes are likely to have negative effects on crop production as they will decrease the availability of water for irrigation, diminishing the suitability of key crops and increase the vulnerability of smallholder farmers who are already extremely vulnerable to the impacts of climate change due to their low incomes, poor access to technical capacities, and lack of technology to increase productivity under extreme weather conditions.

2. **The agri-food sector is a source of GHG emissions.** According to FAOSTAT, agriculture comprises 4.8 percent of the country's GHG emissions (1228.0995 gigagrams of carbon dioxide equivalent), making it the fourth largest GHG emitting sector after the energy sector, industrial processes, and waste, as of 2017). Other sources of GHG emissions are caused by food waste and loss in the agri-food supply chain; poor harvesting techniques; a lack of cold storage and proper transport; poor handling practices; exposure to heat and sunlight; inefficient marketing systems; and weaknesses in policy and regulatory frameworks. Over 55 percent of Jordan's vegetables and fruits are wasted or lost. Basel et al. (2019) found that 34 percent of the total wheat supply in Jordan (both from local production and imports) is lost or wasted—costing the country about US$105 million per year.

3. **Actions geared toward building improved and climate-smart agri-food systems will contribute to increased food security, climate change adaptation and mitigation efforts.** The section below summarizes how the Program will contribute to climate change adaptation and mitigation.

**RESULTS AREA 1: CLIMATE RESILIENCE AND SUSTAINABILITY**

**Sub-results Area 1.1 – Scaling Up Sustainable Rainwater Harvesting for Agriculture**

4. **Results areas 1: This results area would build climate resilience and sustainability by financing on-farm water-saving investments and extension services.** Activities related to rainwater harvesting would build climate resilience given the extreme water scarcity in Jordan, households—especially in rural areas—are burdened with difficulties and costs associated with securing water for drinking and growing trees, vegetables, and other plants in backyard gardens. Households can collect rainwater from rooftops and paved areas around the house to cover 40–60 percent of their needs depending on the level of investment in storage facilities. Beyond the household-level, in low and medium rainfall areas, rainwater runoff from

small catchments can be collected and stored in small reservoirs and cisterns at the farm or along wadis (valleys) for supplemental irrigation and livestock watering. The restoration of the Badia would contribute to carbon sequestration through soils, shrubs, and grasses as well as build resilience of the livestock sector.

5. **Investments in dates, olives and horticulture would contribute to increased water use productivity and climate resilience.** Date palms are very resilient to climate variability and change, as well as being water-use efficient and tolerant to lower quality water. Date palms also make an essential contribution to people's diets, especially in terms of their nutrients. The yields and income of date palms are high, but more important in the context of Jordan is their high-water productivity in economic terms. Date palms use a moderate amount of energy for irrigation and processing fruits, and residues and date palm waste can be processed to produce environmentally friendly biofuel or biochar.

6. **Financing of horticulture production in greenhouses with drip irrigation would further promote increased water use productivity and energy efficiency.** Production in the warm winter of the Jordan Valley requires no heating and only a little energy for pumping water, and so will contribute to lower GHG emissions. Using renewable energy for cold storage could further minimize emissions.

7. **Sub-Results Area 1.2: Building Institutional Adaptive Capacity for Innovation** would provide training on climate vulnerabilities and improved CSA practices for selected value chains, e.g., promoting drought, heat, pest, and disease-resistant crop mixes, and reducing water use in land preparation and water loss during crop growth through improved extension services. It would also increase adaptation capacities for smallholders, particularly women, who are especially vulnerable to climate change impacts due to limited opportunities for business integration into the agri-food value chain. The digitalization of extension services would increase efficiency of the capacity building activities related to climate-smart agriculture. The capacity building activities on CSA and business skills would also increase adaptation capacities for smallholders, particularly women, who are especially vulnerable to climate change impacts due to limited opportunities for business integration into the agri-food value chain.

8. Improved livestock health through vaccination and upgraded veterinary services would mitigate the impacts of climate change as with more frequent extreme weather events, including increased temperatures, livestock health is affected by heat stress, oxidative stress, metabolic disorder, and immune suppression resulting in increased susceptibility to disease incidence.

**RESULTS AREA 2: COMPETITIVENESS AND EXPORTS**

9. **Sub-Results Area 2.1** – Enabling services for value chain development and export promotion would contribute to reduced food waste and loss. This would be achieved through (i) reduced time in transitional storage; (ii) appropriate humidity and temperature settings; (iii) a reduction in the spread of novel pests and diseases (exacerbated by climate change) through improved traceability and early warning systems; and (iv) the promotion of investments in energy-efficient cooling systems. Improved seeds certification capacity would also contribute to climate resilience by using good quality seeds with minimal weed seeds and other contaminants used for cultivation. As a result result, cultiuvars would be less susceptible to disease, heat, and drought incidence. The traceability systems in combination with the internationally certified food safety testing would create an enabling environment for organic farming which emits reduced greenhouse gas emissions due to no synthetic fertilizers or pesticides use. The traceability systems in combination with the internationally certified food safety testing would create an enabling

environment for organic farming which emits reduced greenhouse gas emissions due no synthetic fertilizers or pesticides use.

10. **Sub-Results Area 2.2** – Matching skills supply with demand in the agri-food sector would provide training on climate vulnerabilities and improved CSA practices for selected value chains and contribute to green jobs generation.

B) **Greenhouse Gas Accounting Analysis**

11. **Corporate Mandate.** The GHG analysis has been carried out as part of a corporate mandate to conduct GHG emissions accounting for investment lending in relevant sectors.

12. **Methodology.** To estimate the impact of the Program on GHG emissions and carbon sequestration, the Ex-Ante Carbon-Balance Tool (EX-ACT v9.3.2), developed by the Food and Agriculture Organization of the United Nations (FAO) was used. EX-ACT allows the assessment of a project's net carbon balance, defined as the net balance of carbon dioxide equivalent GHG emitted or sequestered as a result of project implementation compared to a Without project scenario. EX-ACT estimates the carbon stock changes (emissions or sinks), expressed in equivalent tons of carbon dioxide per hectare and year.

**Program characteristics and assumptions**

13. **The proposed intervention aims to implement comprehensive efforts for strengthening climate resilience**, and thereby enhancing the livelihoods and food security of farming and pastoralist communities in the agri-food sector.

14. **Basic assumptions.** Jordan has a warm temperate climate with a dry moisture regime. The dominant soil type is High Activity Clay (HAC) soils. The implementation phase is five years, and the capitalization phase is assumed to be 15 years. The "without project scenario" is assumed not to differ from the "initial scenario." The analysis further assumes the dynamics of change to be linear over the duration of the Program.

15. **Crop production**. The Program will promote different types of good and climate-smart agricultural technologies for horticulture production. The analysis assumes that these improved technologies will be introduced to 410 ha of annual crops: (1) 64 ha will be converted to greenhouses for cherry tomatoes cultivation; and (2) 346 ha greenhouse baby cucumber will be converted to growbags. The extension services on good and climate-smart agronomic practices would focus on soil and water conservation, improved seeds (certified, drought-tolerant), and post-harvest management.

16. **Grassland management.** The Program is expected to reduce the degradation levels for 5,000 ha of grasslands through improved land and grazing management in Badia. The restoration of Badia would also contribute to improved cultivation of barley over 1,000 ha.

17. **Livestock management.** The Program will implement vaccination campaigns which will results in a reduced mortality rate of livestock (around 31,000 heads of livestock, mainly sheep) from FMD. The improved extension services on animal husbandry would focus on improved feeding practices and animal health, pasture management, dairy hygiene and processing, and other areas of that would be identified by the beneficiaries.

**Results**

18. **Net carbon balance.** The net carbon balance quantifies GHGs emitted or sequestered as a result of the Program compared to the without-Program scenario. Over the duration of twenty years (implementation phase 5 years, capitalization 15 years), the Program could reduce carbon emissions by 69,781 tons of carbon dioxide equivalent. The net annual emission is -3,489 tons of carbon dioxide equivalent. Per hectare, the Program will sequester -10.9 tons of carbon dioxide equivalent, which is -0.5 tons of carbon dioxide equivalent per year (see Table A10.1).

*Table A10.1: Summary GHG Accounting Results*

*GROSS FLUXES*

*In $tCO_2$-e over the whole period analysis*

| *PROJECT COMPONENTS* | | **WITHOUT** | **WITH** | **BALANCE** |
|---|---|---|---|---|
| *Cropland* | Annual | 44,469 | 28,107 | -16,363 |
| *Grasslands and* | Grasslands | 3,469 | -169,400 | -172,869 |
| *Livestock* | Livestock | 16,890 | 136,340 | 119,450 |
| *Total emissions, $tCO_2$-e* | | **64,828** | **-4,953** | **-69,781** |
| *Total emissions, $tCO_2$-e/ha* | | **10.1** | **-0.8** | **-10.9** |
| *Total emissions, $tCO_2$-e/ha/yr* | | **0.5** | **0.0** | **-0.5** |

Carbon sources and sinks. The main carbon source of the Program is from livestock. Improved and climate-smart management of annual croplands and grasslands will lead to a carbon sink for the project.
$tCO_2$-e = tons of carbon dioxide equivalent

## ANNEX 11. Gender

### Background

1. **Despite women's active role in the agriculture sector, women farmers control smaller and fewer parcels of land than male farmers in Jordan.** Only approximately 6 percent of the total number of farms, and 2 percent of the area of land holdings, are controlled by women farmers. The agricultural sector in Jordan has the highest proportion of informal workers of any economic sector.

2. **Most women who engage primarily in paid agricultural labor do so informally.** Lack of formal employment exposes women to potentially harmful working conditions and inhibits their access to social security and health insurance. A survey found that women who engaged in agricultural activities in the past twelve months were: relatively younger (56 percent were aged 18–40 years), married with children (79 percent were married and 73 percent report that they have children), and had low levels of education (31 percent had completed only primary education, 35 percent were reportedly illiterate). Addressing these challenges and enhancing women's formal engagement in agricultural activities can help to improve their personal wellbeing and the wellbeing of their households. The benefits that accrue can also help to strengthen the local economy in rural agricultural communities.

### Addressing Gender Gaps

3. **To address the gender gap in the agricultural business development, and agribusiness sector, the ARDI Program will undertake activities and interventions with a gender lens.** The Program will support women by addressing constraints in access to finance, technology, and business skills training. ARDI embeds the promotion and delivery of inclusive financial services i.e., reimbursable matching grants, which can be obtained by rural women entrepreneurs to meet product specifications in terms of quality, quantity, agreed price, and the consistency of supply that buyers demand. To facilitate access to finance, targeted financial literacy, and product development training will be given through business skills development. The Program will invest in organizational development that enables women's farming groups to become economically viable and sustainable. It will facilitate leadership training, mentorship, and sensitization of private sector cooperatives to improve women's representation at the management and decision-making levels of these institutions. Furthermore, women will receive training in business plan development, enterprise management, networking/market linkages/negotiating skills, policy lobbying, governance, technology transfer, technical aspects, administration, and bookkeeping. To facilitate women's participation in the training provided under the Program a stipend provision would be considered. At the farm-level, the Program will build women's entrepreneurial and innovative business development skills and provide them with suitable equipment to ease the burden of farming (e.g., rainwater harvesting will support women's gardens production). ARDI will also provide training and council for 'women-only' groups as well as spouses and/or male decision-makers in the house to provide gender-informed sensitization, which is imperative for creating a stronger enabling environment for women farmers to operate. ARDI will provide hand-holding and sustainable training to continue the chain of learning throughout extension rather than 'ad hoc' training. Thus, women applicants engaged in the production of high-value crops would benefit from the formation and support of user groups that would improve their access to advice, inputs, and marketing.

4. **The design of the eligibility criteria for grants by ACC would ensure that women farmers can fulfill the preconditions.** For instance, the preconditions would exclude the criteria related to formal

agricultural education, proof of land ownership and minimum livestock numbers, all of which can constrain female eligibility.

5. **Communication campaign.** ARDI will roll out a targeted communications strategy to inform and attract potential women rural entrepreneurs. It will host promotional events, activities, and campaigns through electronic and print media, workshops, training events and mass information. As part of the communication campaign, print materials will be designed to specifically target rural entrepreneurs (including those with basic literacy skills).

*Table A11.1: Actions for addressing the gender gap.*

| **Gender gap** | **Actions to address the gap** |
|---|---|
| Limited access to financing and financial services<br><br>Limited participation in formal agriculture labor markets<br><br>Limited access to information, services, digital technologies, and improved production technologies for women involved in agricultural value chains (CSA or otherwise).<br><br>Limited access to inputs, equipment, services, other productive assets, training, and markets. Limited formal participation of women in the agri-food value chains. | The Program would aim to close gender gaps in agriculture and agri-food sectors. Specifically, the Program would aim to:<br>(i) increase women farmers' access to and control over productive resources;<br>(ii) increase women's access to financing and financial services, productive assets, information, technology, and entrepreneurship in the agri-food value chains;<br>(iii) contribute to creating formal jobs and economic opportunities for other vulnerable groups especially youth, refugees, and host communities;<br>(iv)roll out a targeted communications strategy to inform and attract potential women rural entrepreneurs, and will host promotional events, activities, campaigns through electronic and print media, workshops, training vents, mass information.<br><br>The Program' M&E system will include sex-disaggregated indicators. |

[1] *https://www.icarda.org/research/innovations/recovering-degraded-soils-badia-jordan*

[2] https://docslib.org/post-harvest-losses-in-jordan

[3]*https://www.ifad.org/documents/38711624/40089492/Project+Design+Report_1.pdf/1c74c219-c095-4240-981c-6653d5a0fc48?t=1611227275000*

## Annex 12 Child labor

1. **Child labor, including its worst forms, is prevalent in all the sectors of the Jordanian economy, especially the agriculture sector.** According to the National Child Labor Survey of 2016[45], around 1.9 percent of children ages 5 to 17 years, representing 70,0000 children, are working under child labor conditions. The majority of child laborers are boys (nearly 90 percent of child laborers), and they work an average of 34.5 hours per week. Child laborers work in the agriculture, manufacturing, construction, and wholesale and trade sectors. However, the largest share of working children occurs in the agriculture sector—42.7 percent of economically active children ages 7 to 14 years were engaged in agriculture, including weeding, planting, and harvesting tomatoes and olives in 2016.[46] This rate represents a 2.7 percentage point increase compared to 2007. Girls are more actively engaged in agriculture than boys (52.2 percent of all economically active females ages 7–14 were engaged in agriculture compared to 40.9 percent of boys). By contrast, the share of children engaged in manufacturing and services is 14.7 percent and 42.6 percent, respectively.[47] As many as 32 percent of child laborers are employed in work that negatively impacts their health and or development, including in the agriculture sector.

2. **Child labor is prevalent among both Jordanians and Syrians, while children of Syrian refugee families may face additional risks.** About 80 percent of working children are Jordanian, and about 15 percent are Syrian. Despite being granted access to Jordanian public schools, children of Syrian refugees are less likely to enroll in formal schools—in 2018/19, almost one-third of all Syrian refugee children were not enrolled in informal or formal schools.[48] Syrian refugee children face barriers to education, including the cost of transportation, uniforms, and school materials due to poverty and negative coping strategies.

3. **A legal and regulatory framework is in place to eliminate child labor in Jordan, but gaps remain.** Jordan ratified six international conventions on Child Labor, including the Minimum Age Convention in Age Convention, 1973 (No. 138), the Worst Forms of Child Labour Convention, 1999 (No. 182), and the UN Convention on the Rights of the Child. In addition, in 2011, the Government of Jordan adopted a National Framework to Combat Child Labor. Jordanian Labor Law No. 8 (1996) and the recently issued Agricultural Workers Regulation No. 19 (2021) prohibits any employment of children under 16 years of age for agricultural work non-hazardous work, and under 18 years in agricultural work that is dangerous, exhausting, or harmful to health, subject to determination by the Minister. Between 16 and 18, minors are limited to the hours and duration that they can work. However, gaps exist in Jordan's legal framework to protect children from the worst forms of Child Labor, particularly the Ministry of Labor's resourcing and capacity-constrained ability to enforce the different child labor laws. Despite an increase in inspectors from 135 to 171 in 2019, the high number of child labor cases per inspector may prevent inspectors from enforcing the law correctly. The Agricultural Workers Regulation (2021) is recently issued but implementation is still in early stages. While Jordan has a national Committee for the Prevention of Human Trafficking, the country lacks an active coordinating mechanism to address child labor in other contexts, including farm work.

[45] Center for Strategic Studies, University of Jordan. National Child Labour Survey 2016 of Jordan - Summary Report on Main Findings. August 2016. *https://www.ilo.org/beirut/publications/WCMS_510520/lang--en/index.htm.*

[46] Understanding Children's Work project based on data from ILO, UNICEF and the World Bank. Available at https://data.worldbank.org/indicator/SL.AGR.0714.ZS

[47] Center for Strategic Studies, University of Jordan. National Child Labour Survey 2016 of Jordan - Summary Report on Main Findings. August 2016. *https://www.ilo.org/beirut/publications/WCMS_510520/lang--en/index.htm.*

[48] https://www.dol.gov/agencies/ilab/resources/reports/child-labor/jordan

4. **The Government of Jordan has several ongoing measures to prevent and eliminate child labor.** The Child Labor Unit of the Ministry of Labor, which is one of the agencies responsible for Child Labor Law enforcement, established a digital monitoring system to coordinate the efforts of the Government and civil society to eliminate child labor and provide child laborers with services. The Government also supports a number of social programs with the goal of preventing child labor by supporting children engaged in child labor. For example, the Child Labor Unit within the Ministry of Social Development (MoSD) supports child laborers, returns them to school, and provides services to their families; provides vocational training for youth; organizes training on child labor for families; and maintains the website of the National Child Labor Database. In 2019, they expanded the benefits received through the National Aid Fund to more families and conditioned cash receipts on families re-enrolling their working children in school. However, the scope of these programs does not include all the sectors, such as the worst forms of child labor in agriculture.

**Addressing child labor risks in the ARDI Program**

5. **To mitigate the risk of child labor, the Program will incorporate lessons learned from international best practices by tackling the root causes of child labor.** Increasing farmers' shared prosperity and productivity would contribute to the eradication of child labor's root causes, as farmers' propensity to rely on child labor, particularly harmful child labor, as a coping mechanism, would decline. The Program would address child labor through the following actions:

i. MoA will develop and implement a Child Labor Action Plan in coordination and collaboration with the Ministry of Labor and relevant CSOs;
ii. Extension agents will be used as an entry point for knowledge transfer; the core curriculum will be enhanced with information about national laws and good international practice on decent work and OHS that will trickle down to farmers;
iii. Job training/certification (and employment) under DLI4 will shift workers away from unskilled, informal work to higher skilled areas. The minimum age of trainee will be 18, and training topics will include training on labor rights and accessibility to the Program's GRM. Employment will require a written contract with terms and conditions consistent with National labor law, specifically the agricultural bylaw;
iv. In relation to any physical works being undertaken under the Program including the construction of Hafirs; standard procurement documents will be enhanced to include provisions for minimum age of work and other decent work provisions consistent with National Law. MoA's capacity for ESHS monitoring will also be enhanced with dedicated specialists in the DU;
v. Putting in place safeguards mechanism for the reimbursable grants for ensuring safe working conditions and prohibitions on child labor; and
vi. Inclusion of decent work and/or child labor free certifications as part of traceability systems developed will be further explored.