



## **Achieving land degradation neutrality targets through restoration and sustainable management of degraded land in Northern Jordan**

### **Part I: Project Information**

#### **GEF ID**

10528

#### **Project Type**

FSP

#### **Type of Trust Fund**

GET

#### **CBIT/NGI**

CBIT **No**

NGI **No**

#### **Project Title**

Achieving land degradation neutrality targets through restoration and sustainable management of degraded land in Northern Jordan

#### **Countries**

Jordan

#### **Agency(ies)**

FAO

#### **Other Executing Partner(s)**

Royal Scientific Society (RSS)

#### **Executing Partner Type**

Others

#### **GEF Focal Area**

Land Degradation

#### **Taxonomy**

Land Degradation, Focal Areas, Land Degradation Neutrality, Land Cover and Land cover change, Carbon stocks above or below ground, Land Productivity, Sustainable Land Management, Income Generating Activities, Drought Mitigation, Sustainable Forest, Integrated and Cross-sectoral approach, Community-Based Natural Resource Management, Sustainable Pasture Management, Improved Soil and Water Management Techniques, Sustainable Agriculture, Restoration and Rehabilitation of Degraded Lands, Ecosystem Approach, Sustainable Livelihoods, Food Security, Climate Change Adaptation, Climate Change, Climate information, Community-based adaptation, Ecosystem-based Adaptation, Livelihoods, Mainstreaming adaptation, Climate resilience, Influencing models, Demonstrate innovative approach, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Stakeholders, Civil Society, Community Based Organization, Non-Governmental Organization, Academia, Private Sector, Financial intermediaries and market facilitators, SMEs, Individuals/Entrepreneurs, Type of Engagement, Information Dissemination, Consultation, Partnership, Participation, Communications, Awareness Raising, Education, Behavior change, Public Campaigns, Beneficiaries, Local Communities, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Gender-sensitive indicators, Women groups, Gender results areas, Knowledge Generation and Exchange, Participation and leadership, Capacity Development, Capacity, Knowledge and Research, Enabling Activities, Knowledge Generation, Training, Workshop, Innovation, Knowledge Exchange, Learning, Theory of change, Adaptive management, Indicators to measure change

**Sector**

Mixed & Others

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 1

**Submission Date**

12/1/2021

**Expected Implementation Start**

6/1/2022

**Expected Completion Date**

6/1/2026

**Duration**

48In Months

**Agency Fee(\$)**

380,000.00

**A. FOCAL/NON-FOCAL AREA ELEMENTS**

<b>Objectives/Programs</b>	<b>Focal Area Outcomes</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
LD-1-1	Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM)	GET	3,500,000.00	6,144,228.00
LD-2-5	Create enabling environments to support scaling up and mainstreaming of SLM and LDN	GET	500,000.00	22,901,214.00
<b>Total Project Cost(\$)</b>			<b>4,000,000.00</b>	<b>29,045,442.00</b>

## B. Project description summary

### Project Objective

Achieving land degradation neutrality targets through restoration and sustainable management of degraded land in Northern Jordan

<b>Project Component</b>	<b>Financing Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>GEF Project Financing(\$)</b>	<b>Confirmed Co-Financing(\$)</b>
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1. Enabling Environment for Land Degradation Neutrality (LDN) planning and monitoring	Technical Assistance	<p>1.1. Land use planning and monitoring <b>frameworks</b> strengthened at national and sub-national levels to support LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- LDN monitoring system operational</li> <li>- local LDN hot and bright spots confirmed</li> <li>-10,000 ha under SLM that LDN are under the 'avoided' category of the hierarchy of responses (of which: 2,000 ha forest; 8,000 ha grasslands)</li> <li>- 750 ha of land restored (of which: 250 ha forest; 500 ha grasslands)</li> <li>- 419,006 metric tons CO2eq (EX ACT)</li> </ul> <p>1.2. LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- LDN principles integrated into the national frameworks</li> <li>- Inter-sectoral coordination mechanisms on SLM, DLDD and LDN</li> <li>- 1 knowledge product and training/awareness raising materials (which are gender sensitive in content and form) on LDN principles[1] and their application to land planning procedures</li> </ul> <p>1.3. Enhanced capacity of</p>	<p>1.1.1. The baseline measured by a set of three global LDN indicators (Land cover, Land productivity, SOC) and land degradation status in various land use types (e.g. forest, grassland) in demonstration landscapes verified</p> <p>1.1.2. Effective approach for monitoring three global LDN indicators (and potentially other participatory field indicators) and land degradation status identified and integrated into the existing national and sub-national monitoring systems</p> <p>1.1.3. Decision support system (DSS) based on the three global LDN</p>	GE T	1,450,021.00	5,314,901.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2. Demonstrating the LDN approach and scaling out SLM practices and approaches in selected landscapes in the Ajloun, Irbid and Mafrqa Governorates	Investment	<p>2.1. Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Ajloun, Irbid and Mafrqa Governorates</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- 2,500 producers trained through FFS, 50% of which are women</li> <li>- 10,000 ha under SLM that meet LDN criteria (10,000 ha croplands)</li> <li>- 2,000 ha of land restored (2,000 ha croplands)</li> <li>- 2,120,040 Metric tons CO<sub>2</sub>eq (EX ACT) sequestered</li> <li>- 10,000 direct beneficiaries (of which 50% are women)</li> </ul> <p>2.2. Increased investments in sustainable land management to achieve LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- Vegetable, dairy (gender sensitive value chains), Olive and beekeeping value chains strengthened</li> <li>- 2,500 small-holders (50% women) with strengthened livelihoods and sources of income</li> </ul>	<p>2.1.1. Participatory integrated land-use plans developed and priorities identified by the DSS in the Ajloun, Irbid and Mafrqa Governorates</p> <p>2.1.2. Innovative and integrated Sustainable Land/Water Management practices and technologies adopted in farmer field schools (FFS) to enhance land productivity, restore degraded land and reduce pressure on NR (e.g. agro-forestry, afforestation integrated crop/livestock production systems, water harvesting, grazing of riparian zones, grazing crop residues to allow vegetation recovery, pasture and crop rotation, organic manure, soil moisture harvesting, drip</p>	GE T	2,089,094.00	18,672,261.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3. Project Monitoring, Evaluation and lesson learned	Technical Assistance	<p>3.1. Knowledge management, M&amp;E and lessons learned disseminated</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- Functioning M&amp;E system and GEBs and co-benefits established</li> <li>- Functioning LDN reporting to the UNCCD</li> <li>- Lessons learned on SLM and LDN mainstreamed in 5 Governorate plans;</li> <li>- Lessons learned on SLM and LDN mainstreamed in the national development plan;</li> <li>- Best practices and lessons learned summarized and organized in a framework for scaling-up in other regions.</li> </ul>	<p>3.1.1 Project mid-term and final evaluation conducted</p> <p>3.1.2 Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed.</p> <p>3.1.3. Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets</p>	GET	270,409.00	3,658,280.00
				<b>Sub Total (\$)</b>	<b>3,809,524.00</b>	<b>27,645,442.00</b>

#### Project Management Cost (PMC)

GET	190,476.00	1,400,000.00
<b>Sub Total(\$)</b>	<b>190,476.00</b>	<b>1,400,000.00</b>
<b>Total Project Cost(\$)</b>	<b>4,000,000.00</b>	<b>29,045,442.00</b>

Please provide justification

**C. Sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
Recipient Country Government	Ministry of Environment	Public Investment	Investment mobilized	4,539,429.00
Recipient Country Government	Ministry of Environment	In-kind	Recurrent expenditures	700,000.00
GEF Agency	GCF-FAO	Grant	Investment mobilized	23,106,013.00
GEF Agency	FAO	In-kind	Recurrent expenditures	700,000.00
<b>Total Co-Financing(\$)</b>				<b>29,045,442.00</b>

**Describe how any "Investment Mobilized" was identified**

The investment mobilized includes USD 4,739,429.00 mobilized through the Badia Restoration program, as well as USD 23,106,013 mobilized through the GCF Funded project "Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector (BRCCJ)" which targets the Governorates of Karak, Madaba, Talifah and Maa through mutually supportive and complementary interventions related to enhancing climate resilience in Jordan's water management systems and farming communities.

**D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds**

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
FAO	GET	Jordan	Land Degradation	LD STAR Allocation	4,000,000	380,000	4,380,000.00
<b>Total Grant Resources(\$)</b>					<b>4,000,000.00</b>	<b>380,000.00</b>	<b>4,380,000.00</b>

**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

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Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

**F. Project Preparation Grant (PPG)**

PPG Required **true**

**PPG Amount (\$)**

150,000

**PPG Agency Fee (\$)**

14,250

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
FAO	GET	Jordan	Land Degradation	LD STAR Allocation	150,000	14,250	<b>164,250.00</b>
<b>Total Project Costs(\$)</b>					<b>150,000.00</b>	<b>14,250.00</b>	<b>164,250.00</b>

## Core Indicators

### Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
2750.00	2750.00	0.00	0.00

### Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
2,000.00	2,000.00		

### Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250.00	250.00		

### Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
500.00	500.00		

### Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

### Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15000.00	25000.00	0.00	0.00

### Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15,000.00	25,000.00		

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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### Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted
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Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)	1347905	2539046	0	0
Expected metric tons of CO <sub>2</sub> e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)	1,347,905	2,539,046		
Expected metric tons of CO <sub>2</sub> e (indirect)	0			

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Anticipated start year of accounting	2022	2022		
Duration of accounting	20	20		

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)				
Expected metric tons of CO <sub>2</sub> e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	6,250	7,620		
Male	6,250	7,595		
Total	12500	15215	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

## Part II. Project Justification

### 1a. Project Description

#### 1.1. National Context

The Hashemite Kingdom of Jordan is a Southwest Asian country, located at the heart of the Middle East, with 80 Km far to the east of the Mediterranean Sea.[1]<sup>1</sup> It borders by Syria from the north, Iraq from the Northeast, Saudi Arabia from the East and South, and Israel and Palestine from the West. The country's area is 89,320 Km<sup>2</sup>[2]<sup>2</sup> and Amman is the country's political and economic capital. Jordan has a diverse topography including a range of mountains that runs from north to south with altitudes ranging from -408 meters (lowest point on earth surface) to over 1,700 meters, such topographical variations form the Highlands. The mountain ranges slopes lightly towards the east to form the eastern deserts or Badia, and slope strongly towards west to form the Jordan Rift Valley escarpment.

In 2021, the population of Jordan was estimated at 10,950,270 million[3]<sup>3</sup>, which makes it the 89th most populous nation, though this number has continued to increase.[4]<sup>4</sup> Even so, the population is relatively young, with approximately 34% of Jordanians under the age of 15 (male 1,835,094 and female 1,735,773), whereas, 62% are between 15-64 years of age (2019). Jordan also has an urbanised society, with nearly 90 percent of the population residing in cities or the surrounding metro areas. The majority (95-97%) of Jordanians are of Arab decent, but the county is home to a variety of cultures and provides a haven for refugees. Amost 2 million Palastinian refugees have settled and become Jordanian citizens and there are today approximately 500,000 Iraqis and over 500,000 Syrian refugees. Among the other most represented groups are the Assyrian Christians who compose approximately 0.8% of the population, 30,000 Kurds and 5,000 Armenians.

From climate perspective, Jordan is diverse, yet for the most part arid; with an annual precipitation of less than 200 mm a year occurring over 91 percent of the territory.[5]<sup>5</sup> The Western part of Jordan (mountainous ranges) characterize by the Mediterranean climate type; hot and dry summers and wet and cold winters. The annual precipitation varies from 300 mm in the South (Al Karak and Tafila mountains) to more than 500 mm in the most North (Ajloun and Irbid mountains).[6]<sup>6</sup> The peak

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temperatures occur in August, whereas the coolest month is usually in January. Precipitation as snowfall does occur in mountainous areas, and very rarely on the plateau and Jordan rift valley.

The climate and terrain have given rise to three distinct ecological systems: (i) Jordan Valley which forms a narrow strip located below the mean sea level, and has warm winters and hot summers and majority of irrigation plantations are practiced in this area; (ii) the western highlands where rainfall is relatively high and climate is typical of Mediterranean areas; and (iii) the arid and semiarid inland to the east (estimated to cover over 80% of the total area), known as the 'Badia'. Badia is an Arabic word describing the open rangeland where Bedouins (nomads) live and practice seasonal grazing and browsing. These lands are characterised by intense seasonal contrasts in temperature and high variations in rainfall.

Listed as an 'Upper-middle income country', GDP provided by WB figures in 2021 are 42.93 Billion USD and annual growth 19 percent.[7]<sup>7</sup> The economy is small for the region, yet highly diversified, with the strongest sectors being related to import and export of goods and materials and industry. An established tourism and reputable health sector also serve as important sources of income, driven by political stability and security. Over the past ten years, Jordan has had success pursuing structural reforms in education, health and privatization and liberalization. The Government of Jordan has introduced social protection systems and reformed subsidies, creating the conditions for public-private partnerships in infrastructure and making tax reforms.

The results of this progress has been seen in increased access to education, with nearly universal primary enrollment, gender parity in Jordanian schools, and a 98 percent adult literacy rate. Jordan's commitment to education has also allowed the country to have a higher proportion of educated professional and skilled workers when compared to regional partners, especially in the industry and information and communications technology sectors.[8]<sup>8</sup> This has not only attracted investment but allowed the country to expand its influence with neighbouring countries, and Jordanian citizens often find employment in a range of management positions in private sector multinationals. Remittances therefore comprise an important percentage of external income, reaching 4,472 Million USD in 2018.[9]<sup>9</sup>

Within this context, agriculture provides for approximately 5 percent of GDP, down from 7 percent annual contribution in 1990, but higher than those figures recorded for the periods 2000 (2%) and 2010

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(4%).<sup>[10]</sup><sup>10</sup> The National Strategy for Agricultural Development (NSAD 2020-2020) reported that the total arable lands nationwide are approximately 890,000 ha., where 212,000 ha. (around 23.6% of total arable lands) are cultivated by cereals, vegetables, crops and orchards. More specifically, Cereal crops (mainly barley and wheat) represent 47 percent of total cultivated lands, while Orchards and vegetables represent 34 and 19 percent, respectively.<sup>[11]</sup><sup>11</sup> Non-cultivated rangelands cover around 93.3 percent of the country's area. Livestock often represents the main source of income for communities living in these areas<sup>[12]</sup><sup>12</sup>, with the sheep being the most prevalent, followed by goat, especially in the south. This represents a major change from camel production, which was predominant until the 1940s.

Forests in Jordan cover approximately 88,000 ha (less than 1% of the country), where 45 percent classified as natural and 55 percent are artificial forests. The main natural species are *Quercus calliprinos*, *Quercus aegilops*, *Juniperus Phoenicia*, *Pinus halapensis* and *Acacia* spp. The forests are very limited, poorly productive, sparse and unmanaged. Despite that, forests provide important environmental services, including contribution to soil conservation, watershed management, aesthetic and recreational value, biodiversity conservation. Historically forests covered large proportion of the total's mass land. However, illegal cutting, over grazing, droughts and heat waves amongst other factors have negatively affected the vitality and natural distribution of these ecosystem types.

The outstanding Government's efforts has begun since 1980, when the Hashemite Kingdom of Jordan was among the first 30 countries worldwide to declare the support for the World Conservation Strategy. Consequently, Jordan was the first country in the Middle East to complete its first ever National Environment Strategy in 1992 (NES, 1992). The NES is considered as a reference book of information and guidelines for relevant actions. It included approximately more than 400 specific recommendations and action plans in the field of environmental protection and conservation. The NES was achieved by a unique team of 180 Jordanian specialists with support from the IUCN and USAID. Later, the Jordanian Environmental Law was passed in October 1995, to achieve the main goals, which addressed in the national strategy.

Jordan is one of the few Middle-Eastern countries to have a free-trade agreement with the United States of America (USA) and access to European Union (EU) markets. The Jordanian Dinar is which is fixed to the International Monetary Fund's 'Special Drawing Rights', which sets the exchange rate at 1 USD = 0.709 Dinar, or approximately 1 Dinar = 1.41044 USD<sup>[13]</sup><sup>13</sup>, which has important implications on agricultural trade. Indeed, stakeholders consulted during the Project Preparation Grant (PPG) stage confirmed that the strong Dinar creates problems for primary producers as cheaper food items can be imported from surrounding regional countries and that market access is an issue that reduces investment by these groups.

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Women's rights to land are enshrined within the Constitution, the legal framework, within Shari'a law, and even within customary law. Article 7 of the Constitution stipulates that "Personal freedom shall be guaranteed," while Article 6 asserts all "Jordanians shall be equal before the Law." Land and property is covered under Jordanian Civil Law and the law treats men and women equally with respect to the capacity to own and handle property and conduct financial dealings using property. An adult female, like an adult male, has full legal rights to own, mortgage, and transact land and property buying, selling, leasing, giving power of attorney to others, mortgaging, and donating, by herself or through others whether she is married or not. Women's participation in the agricultural sector remains a critical source of employment for the country's poorest citizens, and also serves as a major source of subsistence and food security in the country. While only 2% of the total working-population in Jordan, and 0.9% of its total female labor force, was employed in agriculture as of 2014 according to the Food and Agriculture Organization of the United Nations (FAO), about 25% of the total poor in Jordan who live in rural areas continue to depend on agriculture as a primary source of livelihood.

Jordan also has advanced climate action agendas, since Government of Jordan (GoJ) ratified the UNFCCC in 1994.[14]<sup>14</sup> Jordan submitted the Third National Communications (TNC) and an INDC to the UNFCCC, while also having done Climate Change Technical Needs Assessments (TNA). Jordan also has a national climate change policy (also for water). However, the institutional and individual capacities, especially at sub-national levels, Government of Jordan approved NDC action plan in April 2019 with support NDC partnership with focused five sectors water, Health, Energy, Transport and Agriculture. In meantime the ministry of Environment launched Green Growth Action plan which highlighted interventions in six sector Water, Agriculture, Waste, Transport, Tourism and Energy.

At the same time, Jordan is not a significant contributor to climate change. It contributed about 28,717 gigagrams (Gg) or 28.72 million tonnes of CO<sub>2</sub> equivalent (MtCO<sub>2</sub>eq) of GHGs to the atmosphere in 2006 according to the GHG emissions inventory, according to the Third National Communication report (2014).[15]<sup>15</sup> The inventory indicated that the energy, industrial processes and waste sectors contributed approximately 72.9, 8.9 and 10.6 percent, while agriculture and forestry sectors contributed 4.6 and 3 percent of the total national GHG emissions according to the same source.

### **National challenges and development issues**

Parallel to the successes and advancements made, Jordan has faced and continues to face significant challenges regarding natural resources, poverty and social vulnerability and regional conflicts.[16]<sup>16</sup> Macroeconomic vulnerabilities persist mainly due to energy import dependency. Regional tensions and their recent extension to Iraq and Syria are negatively impacting the Jordanian economy through a widening trade deficit and weakening investor confidence. The elevated level of debt equivalent to 94.23 percent of Jordan's GDP in 2018 is of concern. According to the Department of Statistics unemployment rates reached 19.2 percent in the second quarter of 2019, male unemployment is at 17.1 while female unemployment is at 27.2 percent, youth unemployment (ages 15-24) according to ILO[17]<sup>17</sup> database was estimated at 36.7 percent in 2019. Dependency on remittances from Gulf economies are additional threats to economic stability

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Despite its upper middle-income status and achievements in education, Jordan has relatively high rates of poverty, with transient poverty affecting significant portions of the population. The absolute poverty rate in Jordan for all the population stood at 14.4 percent in 2010, which increased to 15.7 percent in 2018, whereas this poverty rate is only for Jordanians, meaning that more than 1 million Jordanian live below the poverty line.[18]<sup>18</sup> According to Census 2015, there are 3.16 million children in Jordan, more than 0.6 million are multidimensionally poor (moderate poverty level), and 40,000 are acute poor.[19]<sup>19</sup> In 2018, 78 percent of the Syrian population was highly or severely vulnerable, living below the Jordanian poverty line.

Multidimensional child poverty significantly differs across age groups, the highest headcount multidimensional child poverty among the Syrian children is recorded for children aged 0-5 years; 94 percent, followed by children aged 15-17 years: 64 percent, and 60 percent for 6-14 old (UNICEF 2018). With the Syrian crisis in its eighth year in 2019, approximately 660,000 Syrian refugees are registered in Jordan as of August 2019, with an overwhelming majority (estimated 81 percent) living out of camps. In Jordan, the COVID-19 crisis is estimated to have increased poverty by around 38 percentage points (p.p.) among Jordanians, and by 18 p.p. among Syrian refugees, signaling that the majority of refugees were already living below the poverty line before the pandemic impacted global economies.[20]<sup>20</sup>

The incoming refugees have meant the national population has doubled ten times over the last 55 years. The largest increase took place during the last decade, especially because of the large influx of Displaced Peoples (DP) since the Syrian Crisis started in 2011. There has been an increased demand for access to public utilities (water and electricity), education, health services, infrastructure, and employment. The Northern governorates of Irbid, Mafraq and Zarqa saw the largest influx of refugees relative to the total population, leading to increased demand for public services. Each Syrian refugee is estimated to cost the water sector around 620 USD per year.

This is mostly due to water scarcity and cost, given Jordan is the second most water scarce country in the world.[21]<sup>21</sup> Water demand distinctly exceeds supply as the annual water availability per capita has declined significantly, from 3,600 m<sup>3</sup> per capita in 1946 to only 145 m<sup>3</sup> in 2008. If supply remains constant, per capita domestic consumption is projected to fall to 90m<sup>3</sup> per person per year by 2025, putting Jordan in the category of having an absolute water shortage that could constrain economic growth and potentially endanger public health. Jordan requires about 1,400 Million Cubic Meters (MCM) annually (2014) but has, on average, only 848 MCM of freshwater supply available for various uses. Non-revenue water accounts for approximately 50% of total water consumption. In 2014, 229.3 MCM were lost, out of the 428.1 MCM delivered for municipal needs. The MoWI strategy includes the reduction of non-revenue water from 52 percent to 25 percent by 2025. As for the water sector, increased financing needs of the Water Authority of Jordan (WAJ), which is government owned, continues to pressure the national debt situation as operation and maintenance cost recovery is not expected until 2021.

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The increased demand for water has caused over abstraction of water resources to reach 160 percent in 2014. According to the Ministry of Water, of Jordan's 12 groundwater basins, 10 are being pumped at a deficit. Overall, groundwater is being extracted at twice the rate that it is replenished. In 2017, 50.3 percent of the Jordanian population had 24 h/week of piped water supply or less and 49.7 percent of Jordanians were listed with higher than 24 supply/week. This trend will make some water in some areas of the country unavailable, reduce the extension and productivity of agriculture lands and put more pressure on limited water resources in more humid landscapes, potentially increasing displacement of peoples, social unrest and migration to urban settlements already struggling to provide basic services.

Jordan is ranked 138th out of 152 countries in the World Economic Forum 2020 Global Gender Gap Report, and is one of the five countries with the highest absolute decrease in its overall score. The reason behind this was a decrease in the economic participation. Challenges facing women's economic participation include low wages, high unemployment rates, competition from migrant labor; unregulated sectors and misalignment of academic and vocational education outputs and labor market needs. The agricultural sector in Jordan is also known to have the highest proportion of informal workers compared to other economic sectors. 16 percent of women who work in the agricultural sector are informally employed, which is higher than the proportion of men (5%). According to FAO, women in Jordan are also actively involved in home-based agricultural activities, typically managing small homestead gardens and looking after family plots.

Inequities remain in participation in economic and political spheres, as well as in legal rights related to marriage, inheritance, divorce and employment. Preference exists for male children within society and decision making within the home is largely in the hands of husbands and male family members. Structural and systemic gender inequality affects the level to which women have control over resources such as wealth, land, property, water, fertile soil and transportation, which in turn reduces their ability to enter public life ? establish a business, find employment, travel to markets, stand for office, speak out in public etc.

In spite that Jordan is a minor contributor to climate change, it is one of the countries most affected by the climate change. Climate models developed under the Jordan's Third National Communication (TNC) Report to UNFCCC show a consistent trend towards a drier climate and annual precipitation tends to decrease significantly with time.<sup>[22]</sup> The mean and maximum temperatures over the full country of Jordan will be 2-4 degrees higher, precipitation will be 15-20 percent lower and potential evapotranspiration about 150 mm higher by the end of the century. The decrease in precipitation would be more prevalent in the western part of the country. Simultaneously, the mean, maximum and minimum air temperature tends to increase significantly by 0.02, 0.01, and 0.03 °C/year, respectively. On the other hand, the relative humidity tends to increase significantly by an average of 0.08 percent/year. In addition, projection show that heat waves and drought events, dry days will be more frequent. Jordan's Third National Communication (TNC) Report to UNFCCC has developed a socioeconomic analysis to determine expected vulnerabilities and impacts of climate change on local communities and their adaptive capacities by employing socioeconomic and adaptation analysis tools Jordan's TNC (2014) have identified scarcity of water resources as one of the major barriers facing sustainable development in Jordan; a situation that will be magnified by climate change, leading to more water stress. Due to climate change-induced drought, the average agricultural production declined

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by 25?50 percent in 1999?2000 and agricultural production entirely failed in many areas of land. Furthermore, wheat production declined by 12?20 percent of the total average, and the productivity of rangelands declined by 50 percent. In that period, agricultural production losses as a result of drought were estimated at around US\$57 million. Water-related impacts also include reduced total water availability, less reliable seasonal patterns, increasing intensity of droughts during which reservoirs are not refilled, and groundwater does not recharge. Flood events will also be more likely, in 2018 flash floods claimed 35 lives and affected 150,000 people. High rainfall events also increase erosion which causes losses of soil water storage and siltation of reservoirs. Higher temperatures cause higher evaporative demand and hence higher irrigation water demand. Higher temperatures also affect the efficiency of wastewater treatment plants.

To add to CC risks, land degradation (LD) is reducing the landscapes ability to produce ecosystem services. An indepth national assessment of land status was undertaken in preparation of National Strategy and Action Plan to Combat Desertification (NAP) in 2006[23]<sup>23</sup>, although the actual extent and rate of land degradation is still largely unknown. Other surveys and studies indicate that the rate is high; ICARDA (2012) established that approximately 41 percent of Jordan?s total land area could be characterized as degraded, of which 22 percent of the total land mass is classified as moderately degraded and with evidence of associated agricultural productivity losses[24]<sup>24</sup>.Using newly developed computations of the Land Productivity Dynamics for the last 20years using 250m MODIS time series analysis, revealed that 1.5 million hectares present a decrease in primary production over that period. Recent data on the associated costs of LD in Jordan is not readily available, though the World Bank placed it at approximately 3.1 percent of GDP, or approximately 300 million USD in 2004.[25]<sup>25</sup>

The four principal LD types, the ecosystems most affected and their drivers are listed in the Table below (Table 1), though traditionally all have been described under a broader process of Desertification.

**Table 1.** Land Degradation type (source: UNCCD TSP & PRAIS, cited in ALRahahleh, L & Al-Zyadat, F 2021, PPG report on LD and SLM)

Land degradation type	Ecosystem/region	Driver
Water erosion	Highlands and Jordan valley escarpment	Deforestation, overgrazing, unsustainable agricultural practices
Wind erosion	Eastern plains, steppe area and Badia	Overgrazing, deforestation

Decline in soil fertility and soil compaction	Highlands and Jordan valley	Unsustainable agricultural practices, overgrazing and deforestation
Rangeland and vegetation degradation	Forests and Badia	Overgrazing, deforestation

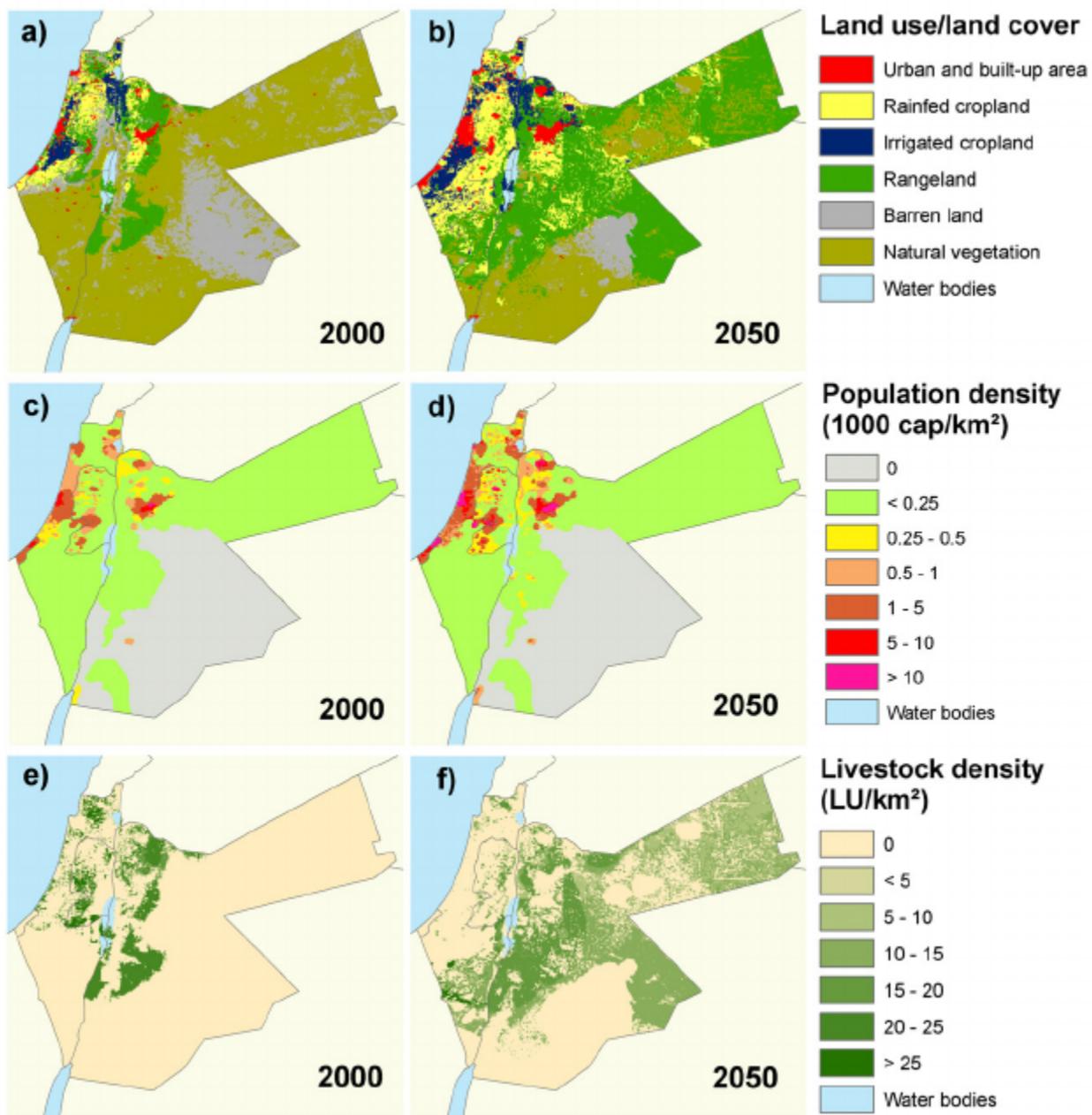
Land tenure system in Jordan is considered one of the most important drivers leading to land degradation. This was mainly the result of agricultural policies encouraging cultivation of wheat and barley on marginal lands in exchange for land tenure rights over these areas. The consequences were ploughing and increased water extraction on areas that had not been previously cultivated. Poor irrigation techniques resulted in salinization, alkalization and nutrient depletion, with secondary salinization due to irrigation estimated to be 3.5 percent nation-wide.[26]<sup>26</sup>

In addition, the traditional rangeland land tenure and land management systems, particularly in eastern part of Jordan, have collapsed due to changing demographics, cultural expectations and the large influx of Syrian and Iraqi refugees and their livestock.[27]<sup>27</sup> Historically, rangelands in Jordan were managed and owned by local tribes, under what is known as the Hima system. However, the conversion of the rangelands to a State-owned tenure system has led to conflict between the State and local tribes, and a break-down of seasonal livestock movements. It also led to an increase in erratic grazing movements, overgrazing of palatable plants, uprooting of shrubs and bushes for fuel wood and soil erosion and compaction from the arbitrary movement of vehicles, quarries and mining activities.[28]<sup>28</sup>

The grazing resources used to sustain the flocks of grazing animals most of the year, and supplemental feeding was practiced only in drastic situations such as severe-prolonged drought or very cold conditions. However, at the turn of the century, the contribution of natural pastures and rangelands is less than 20 percent and the dry matter production is estimated to be half of its pre-1990 levels.[29]<sup>29</sup> The reduction in camel numbers, which were the most numerous livestock before 1940, has led to invasive, thorny shrubs competing for rangeland resources and lowering the quality of pasture on offer.

Other drivers of land use change and increasing pressure on land resources are urban demand, high population growth, industry, tourism and intensive agriculture development. Unlike surrounded countries, Jordan has a relatively large land area in comparison to its population, where approximately 50% of the population lives in Amman. Such circumstance has created strong competition for urban land, thus land prices are amongst the highest in the region.[30]<sup>30</sup> Shifting land use is particularly evident in the Ajloun and Irbid Governorates. This process is expected to continue in coming decades for the wider region (Figure 1).

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**Figure 1.** Maps of land-use and land-cover distribution, population density, and livestock density for the years 2000 and 2050 simulated with LandSHIFT.JR for the *Modest Hopes* scenario (Koch et al., 2014).[31]<sup>31</sup>

**Land Tenure Rights in Jordan**

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Land tenure classifications and legal framework was heavily influenced by the Ottoman legal classifications and land laws, until the turn of the 20th century.[32]<sup>32</sup> However, some aspects of Sharia Law (Islamic Law), and customary law are included in national legal system on a range of issues.

During the Ottoman period, lands were classified based on the ownership into the following categories; 1) Mulk: absolute ownership of the land; 2) Meeri: legally owned by the state but is under perpetual lease to the occupier, who has inherited right of disposal; 3) Waqf: This land is inalienable religious endowment; 4) Mawaat unoccupied land, which has not been left for public use; usually it is too far from urban activities; 5) Matrouk: set aside land for public use; and 6) Masha'a: village land that is usually planted with field crops and owned collectively under tribal tenure (tribal fronts).[33]<sup>33</sup>

The current land ownership in Jordan falls under three categories 1) Privately owned (Miri and Mulk) land that is registered and documented; 2) Tribal land (Wajehat El-Ashayeria), which had been historically distributed by Sheiks; and 3) State land (Al mawat), which provides free access to all resources to land owned by the State.[34]<sup>34</sup>

Many of the laws regarding land and water rights, settlement ordinances, land registration were passed in 1952 and 1953. Important examples for land tenure are the Lands and Water Settlement Law and its Amendments (No. 40 1952); the Disposition of Immovable Property Law (No. 49 1953); the Management of State Property Law and its Amendments (No. 17 1974).[35]<sup>35</sup> The latter mentioned law established processes for State property delegation and leasing options for several purposes, including agricultural uses and housing. However, the Management of State Property Law and its Amendments (No. 17) of 1974 eliminated these tenure rights and declared of rangelands as State-owned property.

Agricultural law was reformed under The Agricultural Law (No. 20 1973), and later by The Agricultural Law (No. 44 2002). Previous reforms introduced in 1993 had given the Ministry of Agriculture a mandate of supervising and developing the sector and a number of research and development centres and institutions were created for this purpose. The reforms also marked a new direction regarding regulation of markets and pricing, and several strategic lines of subsidies were abolished. The new law also included measures to increase sustainability and reduce overexploitation of natural resources, such as installment of fees and meters to monitor use, as well as new restrictions on pumping, though the GoJ's capacity to enforce these measures has been limited.[36]<sup>36</sup> This objective of increased efficiency and sustainability was further legislated under the Agricultural Provisional Law (No. 13 2015) which seeks to provide enhanced protection for forest species by increasing penalties for illegal harvesting activities. The Law articulates that licenses are required for several agricultural-related activities, such investing private forests through pruning or replacement of forest trees with fruit trees; grazing in the governmental forests; cutting forest trees

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To understand land issues in Jordan is to understand the importance and dynamic nature of land markets in the country.[37]<sup>37</sup> Land is the most valuable asset in Jordan, even when it provides no potential economic returns in the near or far future.[38]<sup>38</sup> Land speculation has raised prices in some areas by over 10 times its original market value, with land pieces repeatedly changing hands in short time periods. The bubble burst in 2008, triggered by the global financial crisis. For many Jordanians and vulnerable populations, however, the escalating prices meant decent housing or purchase of land was out of reach.

Agricultural lands were especially affected by land speculation and the real estate bubble, with land prices becoming disconnected with agricultural financial yields or other economic activities. Demand for land has also driven the consistent reduction in both arable land surface area and national yields, with the MoA placing the reduction in arable land at 1.2 percent annually.[39]<sup>39</sup>

To some extent, the demand for land is not new and has been driven in part by the legal system. Those laws with the most significant impact on agricultural lands are described as Law No. 48, 1953 which allowed for the division of into smaller parcels (10 donum), which led to farm fragmentation, Law No. 79, 1966 'Organisation of Cities and Villages and Buildings' in that it allowed for the conversion of agricultural land to urban land uses and Bylaw No. 6, 1996 'Land Division between Partners' in that it further drove land fragmentation and Land Use Bylaw No. 6 2007 which changed zoning requirements and allowed for building on agricultural lands.[40]<sup>40</sup>

### **Land planning in Jordan**

The first land survey was carried out by the Ottoman governor in 1857, under the newly formed Tapu, or Land Registry Offices.[41]<sup>41</sup> This was more of a taxation system, and only outlined who owned the land, its general location, value of lands linked to yields, neighbours, access points and general information about its features. It was not linked to any maps.

1927 saw the ratification of the Law of Land Boundary Establishment and Valuation which outlined the boundaries of urban lands, State Forests and private properties.[42]<sup>42</sup> Shortly thereafter, the Dept. of Surveying, Treasury Land and Land Registration were combined to form the Dept. of Lands and Irrigation (DLA). Today, the DLA handles three main responsibilities, cadastral surveying, registry of lands and management of Treasury Lands. By law, all land transactions must be processed and registered with the DLS. Under the management of Treasury lands component, the DLS carries out several tasks including leasing, expropriation, and control of subdivision and boundary fixing transactions done by licensed surveyors from the private sector. In addition to the DLA headquarters,

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there are 34 Land Registration Directorates and 2 land registration offices distributed in all governates and sub-governates.

Digital cadastral maps are available at 1:2,500 for urban areas and 1:5,000 or 1:10,000 for agricultural and forestry lands and 1:25,000 for the inhabited areas in the East. As of 2010, approximately 95 percent of the country had been catastered and registered, though disputes on actual boundaries are common. Land plans can be obtained for free online through the [www.dls.gov.jo](http://www.dls.gov.jo) website. A new projection system has also been developed especially for the country, the Jordan Transverse Mercator, and cadastral maps have also been transformed into JTM instead of the old Cassini system.[43]<sup>43</sup>

The institutions responsible today for Land and Natural Resource Management and Conservation are listed in the table below (Table 2).

**Table 2.** An example of some key institutions regarding Land Management issues in Jordan. Source: FAO (2012)[44]<sup>44</sup>

INSTITUTION	INSTITUTIONAL MANDATE AS APPLIED TO LAND PLANNING
Ministry of Agriculture	Responsible for the development, and regulation of agriculture sector in Jordan
Agricultural Credit Corporation	Lead institution in conservation of land resources
Ministry of Water and Irrigation	Responsible for monitoring the water sector, water supply, wastewater systems and water-related projects, planning and management
Ministry of Municipal Affairs	Responsible for land-based resource allocation
Ministry of Environment	Responsible for environmental protection in Jordan, including conservation of natural resources, policy development, legislation and strategies. It also including the monitoring of project development and ensures environmental requirements are met.
Lands and Irrigation Department	Responsible for the implementation of land-related laws and bylaws
Jordan Standards and Metallurgy Organization and Standards	Responsible for development and implementation of standards as related to land, water and environment.

Ministry of Trade and Industry	Implements government policy related to provision of agricultural subsidies
Ministry of Social Development	Develops programs related to resource use and rural development
Department of Statistics	Responsible for generating statistical data and undertaking periodical censuses
National Agricultural Research Centre	It is considered the scientific arm of the MOA, where it provides scientific details that guide the management of the agricultural sector in Jordan

Another important institute that involved in land management and planning process is the Higher Planning Council. All land use changes related issues must be issued by the council. The council has 9 members such as; the minister of local administration (chairman), great Amman municipality GAM's Mayor, director of public housing corporation, Head of public prosecutions, General Secretary of Health, General secretary of public works and housing, and Jordanian Engineers association.

The council established according to Article 5 of the Town and Village Planning Law (No. 79) of 1966, and its various amendments. The council has several duties, most importantly; declaring, expanding and amending urban planning areas, approval of regional planning plans and structural planning plans, approval of draft regulations and laws established by the Regulatory Department related to regulatory affairs. This mandate, in addition to other institutions involved in land planning and management are provided in the table below (see Table 3).

**Table 3.** Land planning and land use management process in Jordan [45]<sup>45</sup>

<b>Committee</b>	<b>General description</b>	<b>Mandates</b>

<p><b>The Higher Planning Council (HPC)</b></p>	<p>The council established based on Article 5 of the Town and Village Planning Law (No. 79) of 1966, and its various amendments.</p> <p>The committee consists of different members headed by the Minister of Local Planning.</p>	<p>Several duties, most importantly; declaring, expanding and amending urban planning areas, approval of regional planning plans and structural planning plans, approval of draft regulations and laws established by the Planning Department related to regulatory affairs.</p>
<p><b>The Committee for regulating Cities, Villages and District Buildings</b></p>	<p>The council established based on Article 8 of the Town and Village Planning Law (No. 79) of 1966, and its various amendments.</p>	<p>Approval of the detailed organization plans; examining the objections submitted to the regional, structural and detailed planning plans in its region and submitting its recommendations to that to the Higher Planning Council</p>

<p><b>Local based Committee for regulating Cities, Villages and buildings</b></p>	<p>The council established based on Article 8 of the Town and Village Planning Law (No. 79) of 1966, and its various amendments. The committee consists of several members such as Governor, Mayor, Municipality's council member representative, District's committee representative, Expert from Regulatory department etc.</p>	<p>Preparing the structural and detailed planning plans, Approving the division plans according to the established planning plans; Issuing construction and building licenses in accordance with the law; Monitor construction and construction works within its area and ensure its compliance with the licensed conditions and provisions of this law; Issuing execution notifications and securing their implementation; Regulating the construction and demolition of buildings, expanding or coordinating roads, and all other matters stipulated in the provisions of this law.</p>
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**Land Degradation Neutrality and application of the LDN conceptual framework under the described national context**

Land Degradation Neutrality (LDN) represents a paradigm shift in land management policies and practices. It is a unique approach that counterbalances the expected loss of productive land with measures to avoid or reduce that degradation and the recovery of degraded areas. It places the measures to conserve, sustainably manage, and restore land in the context of land use planning. It has strategic implications to how the country plans and manages its land resources. To date, 120 countries have committed to achieve LDN by 2030. LDN foundational principles are the necessary minimum requirements for successful implementation and attainment of the LDN. UNCCD COP calls upon the Parties to observe these principles.

In addition, the Government of Jordan (GoJ) recognizes<sup>[46]</sup> that land is a dynamic, multi-functional resource for producing food and providing other ecosystem goods and services including conserving biodiversity, regulating hydrological regimes, recycling soil nutrients, storing carbon and others. For land-dependent communities, land is the main asset, especially for the rural poor. In these communities, human well-being and sustainable livelihoods are completely dependent upon and integrally linked to the productivity of the land. The GoJ further notes that population growth, climate change, unsustainable land use, land degradation and growing urban areas are increasing the pressure on

productive land and water resources. At the same time, competition for productive land is increasing due to growing demand for food and fodder. As a result, ecosystems continue to be vulnerable and threatened by desertification, land degradation and drought.

To tackle land degradation issues, Jordan participated in the UNCCD and the Global Mechanism LDN Target Setting Program (TSP). The TSP mobilized consultations with a wide group of national stakeholders and manifested with the release of the following targets:

*Target 1:* By 2030, promote the implementation of community based forest management, forest landscape restoration with indigenous species, avoiding overgrazing, area closure, alternative livelihood systems, and ensure the restoration of 3.0% of its forest and woodland habitat lost between 1990 and 2005.

*Target 2:* By 2030, ensure the rehabilitation and improvement of the productivity of 5,000 ha of forest land by stopping uncompensated conversion of forest area, especially in slopes, into cropping or urban areas, and promoting agroforestry, and, alternative livelihood systems, in order to avoid reduction of carbon stock and limit the risk of erosion.

*Target 3:* Improve the productivity by at least 10% of 100,000 ha of the rangeland reserve areas by the year 2030 through avoiding overgrazing, promoting controlled grazing, and rangeland management/improvement.

*Target 4:* Take urgent and significant actions such as stopping artificialisation /urbanization of arable lands, through land use law.

*Target 5:* Through sustainable land management practices particularly implementing biophysical soil and water conservation practices improve the productivity of 10 000 ha of bare land and other areas by the year 2030.

Associated with the challenges described above are a number of national level barriers that will need to be overcome to achieve these LDN targets by 2030.

### **Identified National Barriers to Achieving Land Degradation Neutrality**

***Barrier 1: Lack of adequate institutional and governance frameworks***

That is, a lack of operational experience to integrate the sustainable management of resources and poverty alleviation efforts, or overburden of current social service frameworks under increasing population pressure. Greater effort is required to fine-tune and add effectiveness to the inter/intra-institutional coordination framework, within a fully integrated land use planning and monitoring approach. Government agencies often have academic or theoretical knowledge, but they lack hands-on experience working with farmers and rolling out knowledge in practical situations. Concerned institutions are not well coordinated and capacitated to effectively implement programs and projects that enable to minimize deforestation, overgrazing and soil erosion problems. Also the involvement of the local community to own the measures being implemented, or consideration of the biophysical landscapes is not to the required level.

There is an incomplete regulatory framework for the implementation and monitoring of SLM systems to comply with the national strategy to restore degraded lands and vegetation and ensure the sustainable delivery of related goods and services. Territorial governance is also limited by the lack of coordination and efficient mechanisms for cooperation between national and regional level (governorates), as well as between the governorates and the local and private sector stakeholders. These institutional constraints limit integrated land use planning in consideration of environmental benefits, including soil & water conservation and reduced deforestation, as well as opportunities for sustainable production of commercial commodities. In the case of northern Jordan, there is a lack of region-specific land-use and restoration plans that could implement, monitor and supervise sustainable restoration practices defined on national level.

There is legal uncertainty over land tenure. More than 800,000 private land titles are registered, but State land accounts for 80% of the country's total lands, and management access and rights in these areas are poorly defined or documented. Customary rights are unclear, leading to large-scale tenure insecurity, particularly in the rangelands, limiting the implementation of long-term strategies for operationalizing conservation-production strategies. Cadaster, property registry and land use monitoring must be strengthened to be able to assure compliance with national laws and regulations, especially in remote areas where field inspections are not existent.

### ***Barrier 2: Limited data and information for decision-making***

There is a lack of effective information and knowledge management from collection to dissemination- resulting in interventions that do not address land use planning in an integrated manner. Although research organizations, universities and even government agencies are familiar with sustainable

techniques and approaches, there are no effective mechanisms to practically extend these techniques/approaches to farmers and to the actual people responsible for land use management decisions. There is no updated scientific information on the current status of forests and other vegetation resources, overgrazing damage and soil erosion of the country. A national database and system to monitor desertification is absent.

Despite national commitment for LDN and goals to restore degraded lands and forests, there has been limited progress in achieving these goals. Proper landscape management tools are lacking, which could have been used to help restore degraded soils using sustainable management techniques for production and conservation of soil, water and vegetation cover. Producers, local communities, and vulnerable groups lack the training to implement SLM for restoration, including implementation of agroforestry systems that promote production alternatives to traditional agriculture and livestock production practices, and diversification of farms. There is also limited knowledge among decision-makers and environmental authorities (including the governorates) regarding available technical tools for measuring the benefits of biodiversity conservation and reduced land degradation resulting from the restoration of degraded lands using SLM and sustainable forestry and agroforestry systems, and to monitor and verify deforestation-free production at the proper spatial scales.

### ***Barrier 3: Inadequate incentives and financial risk***

The allocation of financial resources is insufficient and inadequate. Compensation mechanisms to cover costs in switching to the SLM practices and incentives that allow for alternative livelihoods and exit strategies are missing. To the extent that government funds are available, for example through the Badia Restoration Program (BRP), they are not allocated to the most sustainable land use systems. This is further restricted by the lack of financial and market incentives to encourage producers to make use of sustainable production systems and for the restoration of degraded areas that result from poor farming practices in crops (wheat and other), and beef/dairy production.

The difficult and fluctuating market situation for agricultural crops, combined with long distances, bad roads and costly transport to the market, give little incentives for small-holder agricultural production. It is a vicious cycle where the poorest producers do not have enough income to invest in sustainable production and soil conservation, making the land gradually more degraded. For husbandry production it is a similar situation, often with low-yielding cattle grazing without herding, degrading the pastures and compacting the soils. The lack of financial instruments and incentives to local communities and vulnerable groups is a factor that re-produce poverty and thereby land degradation.

## 1.2. Project Baseline for implementation

This section describes the baseline to date for co-financing opportunities, as well as relevant policies, laws, regulations, and strategies addressing sustainable agriculture and pasture and forest management. This information is followed by the location and description of the project Governates of Aljoun, Irbid and Mafraq, and the LD baselines that were established during the PPG phase by applying the UNCCD Good Practice Guidelines for remote sensing.

### **Institutional basis for project implementation and sustainability**

Jordan, as a signatory to the UNCCD, has committed to the voluntary LDN target *‘By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world’* and established a set of five specific national LDN targets (details above). In order to effectively combat the process of land degradation at the country level, a national LDN working group has been formed that include the following key ministries: **Ministry of Environment, Ministry of Agriculture, Ministry of Water and Irrigation, Ministry of Tourism and Antiquities, National Center for Agricultural Research (NCARE), Ministry of Planning and International Cooperation, Ministry of Interior, Royal Geographic center, The Hashemite Fund for Badia development, Ministry of Municipalities, Badia Research program**. In addition, UNCCD, CBD, UNFCCC country focal points *‘also members of the LDN working group’* are hosted in the Ministry of Environment. The target-setting process resulted in improved collaboration and coordination mechanisms among governmental and non-governmental institutions. This inter-sectoral engagement will serve as foundation to ensure institutionalization, implementation, inter-sectoral integration, and sustainability of the project activities.

In the past, most efforts to address land degradation in Jordan have focussed on the Badia lands, and in particular on the Southern and Middle Badia Lands. Far fewer efforts have focussed on northern Badia lands, and fewer still on the areas of Jordan outside of the Badia lands.

**The Ministry of Environment** institutionally hosts **the Badia[47]<sup>47</sup> Restoration Program (BRP)**. The program originated out of efforts to compensate Jordan for damages it incurred as a result of the Gulf Wars. The United Nations Compensation Commission awarded Jordan \$140 million to address land restoration in Badia lands and this is managed through BRP. This is a large and comprehensive initiative. The BRP provides funds for activities and programmes that focus on the rehabilitation of the ecosystem. The approach is to ensure community participation at all stages of implementation, and especially the participation of livestock owners. Indeed, the Jordan Cooperative Corporation through the programme established and supported a total of 32 rangeland-based cooperatives that organised

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herders to enhance market opportunities and ensure sustainable management of the natural resource base. [48]<sup>48</sup>

A joint aim of the programme is to build capacity at all levels of interaction. The BRP objectives are being achieved through the community protection of the natural resources (land, water and vegetation) based on a scientific approach and the community needs. The BRP supports the targeted communities with incentives for their livestock and improving their skills through training programs. The BRP also includes several physical infrastructure projects focusing on water harvesting, water storage and water supply to rural communities. The BRP includes components on (i) integrated watershed management; (ii) sustainable livestock management; (iii) sustainable fodder and crop production and (iv) rangelands management. In Northern Jordan, typical activities include stone clearing, fence building, contour building, dam and small dam building, veterinary support, etc.

**The Badia programme will act as a guiding example and resource** when considering beneficiary engagement, SLM options and costs, value chain opportunities, as well for technical guidance and consultation. The vast experience and lessons learnt are of vital importance to this project and its attempts to unify land management under a common, shared framework.

In addition, the Ministry is considered the focal point of the UNCCD, where three main reports are developed including the communication report to the convention, desertification strategy and action plan and the land degradation neutrality report.

**Integrated watershed management is considered the cornerstone in developing Badia's rangelands.** While BRP targets only five watersheds, the program feasibility study has showed that there are other nine watersheds and sites with high potential, 5 of which are located in the GEF target regions. The BRP will invest approximately about **USD 14 million** in the Northern governorates implemented in cooperation mostly with local CBOs. BRP is the main baseline initiative to implement LDN target Target 3: *Improve the productivity by at least 10% of 100,000 ha of the rangeland reserve areas by the year 2030 through avoiding overgrazing, promoting controlled grazing, and rangeland management/improvement?*, which links to Components 1 and 2 of this GEF project proposal. **USD 5.2 million of this programme is mobilized as co-financing in support of components 1, 2 and 3 of the LDN project.**

The **Ministry of Agriculture (MoA)** is supporting several other relevant baseline projects, including the **National Land Rehabilitation Program**. These projects have notably provided support to rural communities and farmers to undertake the following interventions: stone clearing to prepare arable land; small scale water harvesting through cisterns and tanks; small scale wells; renewable energies

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(e.g. from biogas), grey water recycling, well-water desalination; fencing to support livestock management and crop production; and capacity development related to agricultural technical skills, business development skills, alternative livelihoods (e.g. new crops, bee-keeping). The GEF project will make use of these investments, particularly those made in the target Governorates of the project, to achieve the results under component 2 of the project, and add value by addressing gaps, including tools/approaches to integrate various elements of the landscape to optimize the use of resources, enhance productivity and minimize risks and vulnerability, taking into considerations socio-economic and demographic dynamics.

FAO has been providing technical support and implementing projects in Jordan for over 15 years. The *Enhancing resilient livelihoods and food security of host communities and Syrian refugees in Jordan and Lebanon through the promotion of sustainable agricultural development* (USD 10 million, 2020-2022) project is expected to contribute to the social and economic inclusion and cohesion of the populations affected by the Syrian crisis in Jordan and Lebanon. It hopes to do this through local agriculture development. To this end, it has 4 complementary components: (i) adequate agriculture production support systems for vulnerable farm communities are rolled out and good agriculture practices are supported and developed; (ii) ability of national institutions, farmer groups, agricultural technical centres and schools/facilities to develop capacity of host and refugee's communities is enhanced; (iii) Productive capacities of vulnerable host farmers and/or home-based micro and group-based small-scale agri-food enterprises are increased and job opportunities in the form of agricultural labor are created; and (iv) livelihoods and employment opportunities for the most food insecure created through sustainable management of natural resources. The GEF funded project can use the agriculture and extension centres created by this investment to support training activities. The investment foresees to rehabilitate and provide equipment and tools needed in order to be able to host training programmes in Amman, Irbid, Mafraq, Zarqa, Ajloun and Jarash (i.e. six Governorate Directorates of Agriculture and four NCARE facilities in the governorates). Furthermore, the GEF funded project will benefit from the lessons learnt particularly from the implementation of the 3rd output of the project (Productive capacities of vulnerable host farmers and/or home-based micro and group-based small-scale agri-food enterprises are increased and job opportunities in the form of agricultural labor are created). USD 2 million of this project is mobilized as co-financing in support of the component 2 and 3 of the GEF project.

FAO is the executing entity for the GCF Funded project "Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector (BRCCJ)" which targets the Governorates of Karak, Madaba, Talifah and Maa through mutually supportive and complementary interventions related to enhancing climate resilience in Jordan's water management systems and farming communities. USD 23.1 million of this project is mobilized as co-financing in support of components 1, 2 and 3 of the LDN project.

**The Small Ruminants Investment and Graduating Households in Transition Project** financed by IFAD (USD 24 million, 2017-2024) operates in the Mafraq, Irbid, and Ajloun Governorates, as well as in a number of neighbouring Governorates. The project aims at reducing poverty and enhancing national food security by improving the productivity of the small ruminant sector that faces challenges

such as water scarcity, feed shortage and degraded rangelands. It is also intended to assist Syrian refugees and host communities in graduating out of poverty. Project components include: (i) investment in farmer services, to strengthen the public and private complementary services offered to small-ruminants producer, through the establishment of a National Agriculture Advisory Group for policy dialogue; (ii) livelihood investments and access to financial services, through grant-based income-generating packages for on- and off-farm enterprises as well as through lending facilities for rural businesses. Contributing significantly to component 2, and partially to component 1 of the GEF project, **USD 7 million** is mobilized as co-financing.

## Stakeholder Mandates and roles/responsibilities in project implementation

Against this institutional backdrop, stakeholder roles in project implementation are described below in Table 4.

**Table 4.** Recommended stakeholder roles and responsibilities.

Stakeholder (group)	Mandate or role	Responsibility
Royal Scientific Society	? Provides management and rational use of natural resources, introduces advanced scientific and technical achievements in the industry.	? Responsible for project execution ? Consulting on the broader environmental and landscape issues, and technical assistance on LDN target setting, SLM/SFM practices and decision support for scaling out.
Ministry of Agriculture	? Prepare agricultural management plans, work plan, budgets and policy for agricultural sector; ? Nationwide dissemination of practices and technologies.	? Decision-maker (chair of PSC); ? Co-financier, and responsible for upscaling; ? Beneficiary of capacity development.
Dept. Lands & Irrigation	? Responsible for the implementation of land-related laws and bylaws	? Key recipient of LDN DSS and other spatial or land management related tools and resources ? Supervision of ecosystem restoration works
Dept. of Forestry + Rangeland	? Contribute to the correct management of Forestry and Rangelands in accordance with Jordanian legislation.	? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials ? Advisory services to project development, especially regarding Outputs 1.1.4 and Output 2.1.1
Extension Directorate-MOA	? Operates as the scientific and research branch of the MoA, where it provides scientific details that guide the management of the agricultural sector in Jordan	? Support for development and operation of 20 project FFS ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials

Ministry of Water and Irrigation	? Manage water and irrigation through policies, plans and legislation.	? Member PSC at national level ? Policy advise and coordination, including to comply to national water strategies, plans and policies ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials
MOPIC	? Responsible for improving development policies and promoting active participation in the process, including coordinating and managing the necessary funding for development projects  ? GEF focal point	? Supervision of project implementation from key performance indicator perspective  ? Policy advise and coordination of integration of LDN principles and tools into national and sub-national planning processes  ? Member of PSC  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials
Ministry of Environment	? Manage the environment through policies, plans and legislation, including conserving water resources	? Member PSC at regional level  ? Policy advice and coordination and focal point on national Environmental and Social Policies and standards compliance  ? Scaling up adaptive measures to mitigate pollution to water bodies through the environmentally friendly and sound interventions.  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials

<p>Ministry of Municipal Affairs</p>	<p>? Responsible for land-based resource allocation</p>	<p>? Key recipient of LDN DSS and other spatial or land management related tools and resources</p> <p>? Supervision of project implementation from regional/district perspective</p> <p>? Policy advise and coordination</p> <p>? Member of PSC</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>
<p>Agricultural Credit Corporation</p>	<p>? Lead institution in conservation of land resources</p>	<p>? Key recipient of LDN DSS and other spatial or land management related tools and resources</p> <p>? Supervision of project implementation from key indicator perspective</p> <p>? Policy advise and coordination</p> <p>? Member of PSC</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>
<p>Regional Agricultural Dep. at Governorate</p>	<p>? Implement agricultural plans and policy in the governorate;</p> <p>? Liaison between farmers and experts/national government;</p> <p>? Extension of practices/technologies across the Governorate;</p> <p>? Regulation of agricultural and natural resource use activities.</p>	<p>? Support project activities at Governorate level;</p> <p>? Contribute to problem solving at household level;</p> <p>? Beneficiary of capacity development;</p> <p>? Replication across the governorate</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>

Badia Restoration Programme Coordination Unit	<ul style="list-style-type: none"> <li>? Coordinate implementation of BRP;</li> <li>? Channel BRP funds to appropriate projects and activities;</li> <li>? Monitor BRP activities and learn lessons.</li> </ul>	<ul style="list-style-type: none"> <li>? Co-financier, and responsible for upscaling.</li> <li>? Lesson learned</li> <li>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</li> </ul>
Beneficiary groups (small scale farmers)	<ul style="list-style-type: none"> <li>? Small scale agricultural production;</li> <li>? As land owner ? responsible for sustainable management of land.</li> </ul>	<ul style="list-style-type: none"> <li>? Contribute to problem solving at household level;</li> <li>? Beneficiary of all project support, including capacity development.</li> <li>? Recipient of SLM approaches, tools and materials</li> <li>? Support in Value Chain strengthening</li> </ul>
Private Sector	<ul style="list-style-type: none"> <li>? Conduct business according to Jordanian legislation</li> <li>? Respect environmental and social safeguards</li> </ul>	<ul style="list-style-type: none"> <li>? Awareness raising campaigns</li> <li>? Support in Value Chain strengthening</li> <li>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</li> </ul>
NGOs / CSOs	<ul style="list-style-type: none"> <li>? Awareness and capacity / skill building + operation, maintenance and replication and upscaling plans for concrete adaptation</li> </ul>	<ul style="list-style-type: none"> <li>? Awareness raising campaigns</li> <li>? Support in Value Chain strengthening</li> <li>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</li> </ul>

Municipalities	<p>? Municipalities are mandated to manage water within municipal boundaries, which includes rainwater harvesting options and Land use management.</p>	<p>? Support and increase adaptive measures through develop urban planning with considering Sustainable Land Practice</p> <p>? Awareness raising campaigns</p> <p>? Support in Value Chain strengthening</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p> <p>? Recipient of ecosystem restoration works</p>
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## GEF Funded projects and initiatives for baseline and collaboration

The most relevant GEF funded project and collaborational partner is the GEF project **Healthy ecosystems for rangeland development (HERD): Sustainable rangeland management strategies and practices** (GEF ID 9407) is a bilateral project Egypt-Jordan that was approved in November 2017, implemented by UNEP with USD 3.5 million from the GEFTF and USD 12.2 million in co-financing. Main components include: (i) Component 1 or Technical assistance for adaptive management and learning (evidence- based decision- making), (ii) Component 2 or Stronger institutions for rangeland governance and (iii) Identifying and up- scaling good practices in Sustainable rangeland Management, based on PRMPs.

The HERD Project has also been instrumental in developing the **Participatory Assessment of Land Degradation and Sustainable Land management in Grassland and Pastoral Systems (PRAGA)**. This methodology developed by IUCN In collaboration with FAO, through the GEF-6 funding cycle, is designed to assess ecosystem health in the specific context of rangelands and grasslands supported by a limited number of core representative indicators. The framework adopts the good practice of 'collect once, use many times?', and thus it fosters the use of environmental and socio economic indicators adopted by the three Rio Conventions for reporting. The methodology is designed to assess rangeland health at scale but with enough flexibility to adapt to specific context and country. The methodology is guided by two competing principles: adequate detail for decision making and low cost. This tool, in combination with the LDN framework and conflict sensitive programming, is an important resource for project development.

**Badia ecosystems and livelihoods project** (GEF ID 5026, 2012-2017) established rangeland reserves and reservoirs of rainwater for animal drinking, developed community grazing and rangeland agreements covering 3,000 ha. in Ma'an. Main components include: (i) Community centered Eco-Tourism in the Northern Badia through the Establishment of an Al Azraq/Shaumari-Burqu' Eco-Tourism Corridor and community engagement. and, (ii) Sustainable rangeland management and livelihoods support in the southern Badia. These approaches can eventually be scaled-up across the Badia. Main national partners are the Badia Research and Development Centre, the National Centre for Agricultural Research (NARC) and the Ministry of Environment.

GEF funded projects include those listed in the table below, including collaboration agreements (Table 5).

**Table 5.** GEF funded projects for Jordan and collaboration or lessons learnt.

PROJECT TITLE	COLLABORATION AGREEMENTS
<b>Healthy ecosystems for rangeland development (HERD): Sustainable rangeland management strategies and practices</b> (GEF ID 9407)	Collaborations in data sharing, co-financing of activities, application of PRAGA methodology, integration of LDN principles and monitoring systems.

<b>Fourth National Communication and Second Biennial Update Report under the UNFCCC</b> (closed 2016)	Lesson learnt include the need to develop a detailed vulnerability assessment for the water and agricultural sectors in Jordan.
<b>Badia ecosystems and livelihoods project</b> (GEF ID 5026, 2012-2017)	Lessons learnt on dryland management options, innovations, cost-savings, efficiency and SLM deployment.
<b>Irrigated Technology Pilot Project to face climate change</b> (closed 2018)	Lessons learnt on water technologies innovations, cost-savings, efficiency and deployment.

### Institutional environment and context for project baseline

The following projects provide an important baseline and opportunities for lessons learnt for this project. These are not considered as co-financing, though opportunities exist for collaboration for those still operational:

The **Jordanian National Centre for Agricultural Research (NARC)** with the continuous support of **FAO** have been instrumental in introducing the concept and practice of **Farmer Field Schools (FFS)** in Jordan, with the first FFS being implemented in 2004, through the Regional Integrated Pest Management Programme in the Near East.<sup>[49]</sup><sup>49</sup> FFS is a participatory methodology, based on non-formal adult education approaches and encourage hand-on active learning, testing and validating scientific concepts as well as local knowledge in local conditions reaching to the concept of farmer to farmer extension approaches. From 2004 to 2016, at total 153 FFS were established in different regions, resulting in the training and capacity building of over 2,000 farmers (20% female farmers).<sup>[50]</sup><sup>50</sup> In addition, in 2016 FAO together with NARC launched the new Farmer Field School (FFS) Guidelines in Jordan, under the title "FFS Guidance document: Planning for Quality Programme".

The UN Habitat project Increasing the resilience of displaced persons (DPs) to climate change-related water challenges in urban host settlements in Jordan is expected to start implementation in June 2020 and will focus on adaptation to climate change through sustainable water management. The project aims to reduce the demand of unsustainable water sources such as over-extracted groundwater, while increasing water supply from non-conventional sources such as rainwater harvesting from buildings and houses, grey water systems treatment, re-use of the treated water, and application of sustainable agricultural practices through permaculture at the Faculty of Agriculture's premises. This project is complementary to the planned GEF project because it will promote the replication and scaling-up of the demonstrated techniques and approaches, and to demonstrate how water can be assessed, planned and managed more efficiently at the municipal level (i.e. establish urban-rural linkages) and sustainably, by mainstreaming climate change and gender in municipal master plans. There is no duplication with proposed GEF financing in the northern governorates. Mafraq Governorate: It will (i) enhance quality of wastewater from Al Mafraq wastewater treatment plant; (ii) promote shared water

ponds between farmers to store and mix water of different qualities; (iii) greywater reuse system; and (iv) rooftop rainwater harvesting system. Irbid Governorate: (i) rooftop rainwater harvesting; (ii) permaculture; (iii) rainwater harvesting at schools; (iv) greywater reuse in public buildings schools and mosques. JARASH: (i) Enhance the quality of treated wastewater from Al Maerad Wastewater Treatment Plant; (ii) Introduce modern water conserving irrigation methods to nearby farms (drip irrigation).

**Wadi Arab II:** Water treatment and conveyance to Irbid is an ongoing AfDB project with a budget of USD 130 million. It will increase production of drinking water supply to the northern governorates by more than 40%. The project is located in the northwest of Jordan and involves the abstraction and treatment of 30 million cubic metres per year of water from the King Abdullah Canal to supply the Zabda Reservoir in the City of Irbid (80km north of Amman). Its main components include the construction of an intake facility from the canal, a treatment plant, pumping facilities and a transmission pipeline to convey the treated water from the treatment plant to the Zabda Reservoir on the western side of the City of Irbid (BEI, 2015).[51]<sup>51</sup>

**Food Security and Livelihoods Analysis for Jordanian Host Communities** project outcomes are: (i) Outcome 1: Enhanced knowledge and understanding of the implication of the Syria crisis on the food and livelihood security, as well as of the needs of vulnerable Jordanian families by national and international stakeholders are enhanced and, (ii) Outcome 2: A detailed baseline analysis of the livelihood and food security among poor Jordanian communities hosting Syrian refugees is provided to the FS&RDU in order to support formulation and implementation of a monitoring system.

Other initiatives and projects worthy of mention for the baseline are described in the table below (Table 6).

**Table 6.** Other related projects and initiatives for project baseline.[52]<sup>52</sup>

Project	Implementing Partners	Main objectives	Learned-lessons
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<p><b>Yarmouk Agricultural Resources Development project</b></p>	<p>Funded by: MoA (state budget) IFAD OPEC &amp; Abu Dhabi Fund Status: Closed 2000-2008</p>	<p>Aims to help farmers in northern governorates (Irbid, Ajloun, Mafraq, and Jerash) to combat land degradation and restore soil fertility by providing technical and financial support to promote soil and water conservation measures and improve agricultural production; providing and funding credit for on-farm and off-farm enterprises; strengthening the capacity of agricultural institutions to provide the required technical support and extension services</p>	<p>Provide technical and financial supports directly to farmers clearly encouraged farmers to rehabilitate their lands. The project has created several socio-economic as well as environmental benefits to farmers and societies</p>
<p><b>Smart Development of Eco-Friendly Solutions and Economic Regional Agricultural Techniques (Smart Desert)</b></p>	<p>Funded by: The French development Agency (AFD), IUCN and consortium of organization Implemented by: IUCN, INWARD, Genentech, HGD 2020- ongoing project</p>	<p>To support the development of ecologically responsible and economically accessible agricultural solutions and techniques in the highlands of Jordan in Mafraq governorate and North East Badia The project plans to improve the functioning of existing farms through the use of modern techniques and water-use efficient, to improve the working conditions of farmers and workers, to contribute to the socio-economic empowerment of Syrian refugees and vulnerable Jordanians in the agricultural sector, thus strengthen community resilience by stimulating local economic growth</p>	
<p><b>Irrigated Technology Pilot Project to face climate change</b></p>	<p>Funded by: GEF Executed by: NARC Status: Closed (2014-2018)</p>	<p>To reduce the vulnerability to climate change of the agricultural system in Jordan, by testing innovative and efficient water-use technologies.</p>	<p>Deploying innovative technologies is a crucial to enhance water use efficiency</p>

<p><b>Reduce vulnerability in Jordan in the context of water scarcity and increasing food/Energy demand</b></p>	<p>Funded by: Swiss Development Cooperation Status: Closed 2015-2020</p>	<p>Reduce the vulnerability of rural Jordanians and other disadvantaged communities in the context of water scarcity for agriculture, increased demand for food and livelihood</p>	
<p><b>Securing Rights and Restoring Lands for Improved Livelihoods (Hima Bani Hashem)</b></p>	<p>EU Implemented partners: IUCN and MoA</p>	<p>The project aimed at conservation, restoration and the sustainable management of ecosystem services. Improved livelihoods are achieved through securing rights, better management and enhanced income generation opportunities.</p>	<p>Hima approach has proven to be acceptable to both communities and government and has proven to be a technically feasible option; Hima is viable and cost-effective in the long term if communities are able to develop and enforce rules over rangeland use. For this, they require both the consent and the support of the government through land reform; and community dialogue sensitively should be considered when it comes to working with local communities</p>
<p><b>Job creation for Syrian Refugees and Jordanian Host communities through Green Works in Agriculture and Forestry (Phase I and II)</b></p>	<p>Funded by: Norway Implemented partner ILO Implemented MoA Status: Closed 2016-2018</p>	<p>Improve agriculture productivity and contribute in environment protection and improvement by establishing water harvesting cisterns, terraces and other forestry activities).</p>	<p>Creating jobs for host communities has improved the socio-economic as well as environmental factors in the targeted areas</p>

<p><b>Reduce vulnerability in Jordan in the context of water scarcity and increasing food/energy demand (supported by the Swiss Government).</b></p>	<p>Funded by Swiss</p> <p>Implemented by FAO</p> <p>Status: Closed</p> <p>2015-2018</p>	<p>Reduce the vulnerability of the rural Jordanian and the disadvantaged communities in the context of water scarcity for agriculture, increased demand for food and livelihood provision from growing populations and rising energy demand. The project pilots a three-pronged community based approach, combining water harvesting, conjunctive use of ground water, and solar power for lifting irrigation water.</p>	
<p><b>Improving rural livelihoods and the environment through the integral utilization of organic solid waste to produce renewable energy and compost in Mafraq Governorate of Jordan (supported by the EU).</b></p>	<p>Funded by: FAI/EU</p> <p>Status: Closed</p> <p>2016-2019</p>	<p>The outcomes are improved livelihoods with increased green job opportunities for the most vulnerable within the host communities and enhanced environmental conditions in Mafraq Governorate. The direct results of the project, include: i) renewable energy generated; ii) green jobs created; iii) compost is produced; and iv) unskilled workers from Zaatari municipality and refugee camp are trained and employed.</p>	

Internationally, the project will establish linkages with the **Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes (DSL-IP)**<sup>[53]</sup> which will allow for further integration and information sharing opportunities for dryland areas across the globe. The 104 M USD funding under the GEF-7 funding cycle, along with over 800 M in co-financing, will assist 11 countries located across Africa and Asia in fostering resilience of production systems in drylands, promoting restoration and rehabilitation, and improving livelihoods through a comprehensive landscape approach. Moreover, the Program is designed to deliver scalability beyond the boundaries of the 11 targeted countries, highlighting the importance of transboundary commitment towards dryland restoration, landscape management at scale, and biodiversity conservation. Its potential ties to this project are diverse and collaborative activities clearly would be beneficial for all parties involved.

The project will also create links to the **Dryland Restoration Initiative Platform (DRIP)**<sup>[54]</sup><sup>54</sup>. Responding to the **Rome Promise** on Monitoring and Assessment of Drylands for Sustainable Management and Restoration, DRIP was initiated in 2016 as a monitoring and reporting tool in the form of an interactive web portal for the Forest and Land Restoration. On the 1st of March 2019, under Resolution 73/284, the United Nations General Assembly proclaimed 2021-2030 to be the United Nations Decade on Ecosystem Restoration, with the primary aim being to prevent, halt and reverse the degradation of ecosystems worldwide. The Committee on Forestry's Working Group on Dryland Forests and Agrosilvopastoral Systems<sup>[1]</sup> in its inaugural meeting considered the development of the DRIP platform for documenting and monitoring the different transformation projects and programmes (TPPs) and initiatives implemented in contributing to LDN achievement in drylands. Accordingly, the DRIP will be intended to fulfill the needs to monitor the dryland ecosystem specifically, and that can enable country convention reporting using the Framework for Ecosystem Restoration Monitoring (FERM) as a part of the UN DECADE commitment.

These collaborations will also extend to the **Jordanian Working Group on Dryland Forests and Agrosilvopastoral Systems**. This working group is an inter-governmental body of the Committee on Forestry, which reviews and reports to the Committee on Forestry on the status, trends, issues and developments in dryland forests and agrosilvopastoral systems, and make recommendations to the Committee on these matters. It contributes to developing a comprehensive understanding of dryland forests and agrosilvopastoral systems and the people who depend on them. In addition, it promotes scaling-up of the adoption of good practices for the protection, sustainable management and restoration of drylands forests and agrosilvopastoral systems, enhancing also environmental and socio-economic resilience and sustainable livelihoods. In its meeting July 2019, the Working Group agreed to provide technical advice on the implementation of the Impact Program to help enhance its overall coherence, ensure South-South cooperation, strengthen dialogue with relevant regional actors and facilitate the development of knowledge products, outreach and engagement at national and regional levels, and share knowledge of the results and lessons learned from the implementation of the Impact Program. Moreover, the Working Group member in each IP country will be working closely with the country LDN working group to support the using and testing the Dryland Initiatives platform (DRIP) as a decision tool to strengthen the national and regional information systems to achieve land degradation neutrality in drylands;

#### **National Plans and Strategies relevant to project objectives and outcomes:**<sup>[55]</sup><sup>55</sup>

**Agriculture Strategy 2020-2025:** The Ministry of Agriculture announced the 2020-2025 National Agricultural Development Strategy at an estimated cost of JD591-million, including total of 174 interventions and projects, focusing on the digitisation and restructuring of the sector and boosting its productivity.

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The strategy will be financed via a host of channels, including JD179 from the Treasury; JD310 million in lending from the Agricultural Credit Corporation and JD80 million from foreign aid and grants, noting that the funding gap is estimated at JD22 million.

Citing the strategy's performance indicators, it include increasing the agricultural GDP as share of total GDP from JD2.6 billion now to JD3.66 billion by 2025 and boosting the added-value of agriculture to JD2.48 billion from JD1.6 billion. Another key theme of the strategy is creating 65,000 jobs in the five-year period and replacing 21,000 foreign workers with Jordanians, the strategy is also intended to increase the number of farmers using digital government-run agricultural services by 30 per cent. Another focus area of the strategy is export costs reduction to pave the way for a 15 per cent increase in agricultural exports. Accordingly, the strategy is designed to help cut air and land freight costs by 12 per cent and increase the productivity of food and agricultural manufacturers by 18 per cent by 2025. Furthermore, the strategy is pursuing a 10 per cent increase in the forest area by 2025.

The strategy addresses the coronavirus pandemic crisis impact on agriculture sector and brought to the fore a number of challenges facing the agricultural sector that were not addressed in previous agricultural policies. The lack of comprehensive agricultural databases comes at the forefront of these challenges and poor digitization or utilization of modern technologies in agriculture. These challenges limited the agro produce's access to retailers and consumers when the Kingdom enforced total lockdowns a few months ago.

Therefore, the government revisited agricultural policies and endorsed the 2020-2025 National Agricultural Development Strategy focusing on the following priorities: The restructuring, digitization of the agricultural sector, the utilization of modern technology, enhancing production and productivity, focusing on strategic crops, developing the logistics chain of operations, uplifting the agro-processing chain, developing the export chain, and expanding forest and pasture areas.

The ministry reviewed the strategy with local and international partners, including the Food and Agriculture Organization of the United Nations, the World Food Program, the World Bank and the United Nations Economic and Social Commission for Western Asia, to ensure it is comprehensive and consistent with best global practices. All other sub-strategies were incorporated in the new strategy with the aim of having a uniform post-COVID-19 agricultural policy, "The strategies that were integrated included, the fish and marine products strategy, the date palm strategy, the rangelands strategy and forest policies."

Given the importance of agriculture in the food supply chain, the government has introduced several finance and credit incentives to boost producers' resilience in crisis time and also expanded the Agricultural Risk Fund's umbrella to cover all risks. The government has also provided a set of fee exemptions to help organize the agricultural sector, support the agricultural exports chain, and encourage agricultural cooperatives to assume their role in employment and job creation. The Government will establish centers for agricultural services and training on modern agricultural technology, especially aquaponics and hydroponics, to enable unemployed Jordanians to gain skills much-needed in the agricultural labor market. Detailing the strategy's themes and focus areas, the restructuring of the sector entails the following: Amending the Jordan Farmers Union's law, revisiting the agricultural cooperatives' bylaw, establishing a comprehensive agricultural database, relieving

farmers from registration fees when licensing an individual enterprise, exempting cooperatives from registration fees as well as relieving new cooperatives from service and auditing fees.

Detailing another theme of the strategy, the utilization of modern technology, 17 training centers will be established, and a funding tranche will be available to hydroponics, aquaponics, and fish farming projects.

**Jordan 2025: A National Vision and Strategy (2015):** Outlines links between other sectoral policies and strategies. It defines the roadmap and integrated general framework for social and economic policymaking. It contains 400 action plans and policies to be inclusively implemented in all vital sectors.

**Jordan's Way to Sustainable Development: First National Voluntary review of Agenda 2030 (2015):** Developed by the Minister of Planning and International Cooperation (MoPIC), A roadmap for SDG realization. National priorities for SDG implementation include People, Planet, Prosperity, Peace and Security. The document refers to the National Strategy for Agricultural Development, National Water Strategy, and Jordan Vision as means to improve food security through agriculture growth

**Jordan National Disaster Risk Reduction Strategy 2019-2022:** Overseen by the National Center for Security and Crisis Management, this strategy is guided by and aligned with the development objectives and priorities of the country. It aims to improve and enhance the current Disaster Risk Reduction system and its capacities through designated high-level Authority supported by national multi-stakeholders' consultations.

**In the Poverty Reduction Strategy 2013 ? 2020,** Jordan emphasizes the strong linkage between agriculture, rural development and environment. The key policy and technical issues related to the design of the pro-poor agriculture, environment and rural development component of this strategy include creating productive employment and income generation opportunities for the rural poor, especially small holders who need support in farming their land by microfinance and extension services, development of agro-processing value chain that will create new jobs and increase local food production for consumption by rural residents and for food supplies to Jordan's urban population and for its tourism industry

**The Jordan Refugee Response Plan** identifies the Northern region as highly vulnerable (including Irbid) while the East (Mafrq) is the second highest region in the percentage of DPs rated highly vulnerable or above. Syrian DPs in Jordan is specifically vulnerable to climate-induced water challenges. The Vulnerability Assessment Framework 2019 shows 11 percent of the Syrian DP population as having high or severe VAF WASH indicator vulnerability, while this indicator might appear very low, sub-indicators reveal much higher levels of vulnerability, namely expenditure on WASH items, 58 percent reported spending more than five per cent of expenditures on water.

In addition, there is several specific challenges across the region, including limited job access and livelihoods opportunities, exhaustion of savings, and the adoption of negative coping mechanisms, which further exacerbate the residual protection risks they face. Broader political and social pressures can also affect stability between displaced populations and host communities in Jordan. There are over 10,000 Syrian displaced children recorded in the Arab region as either separated, unaccompanied or in institutional care. The loss of social networks further decreases the adaptive capacities and make DPs more vulnerable to climate change. The 2015 population census estimates the population of Irbid governorate at 1,770,158 (Syrian DPs 134,649), The population of Mafraq governorate was estimated at 549,948 (Syrian DPs 161,977).

**Jordan Vision 2025:** This document (Jordan 2025) represents a long-term national vision and strategy (framework) rather than a detailed government action plan. The vision acknowledged the impact of climate change in widening the gap between water supply and demand and improve national water security and agricultural productivity.

**Jordan Economic Growth Plan 2018-2022:** The JEGP is comprised of economic, fiscal and sectoral strategies that outline the vision and policies pertaining to each sector published by The Economic Policy Council.

JEGP in terms of achieving water security and sustain agriculture through;

- ? Integrating the management of water resources by increasing the quantities of water available and storage capacity of all the WWTP. Also implementing rainwater harvesting interventions
- ? Improving the quality of water and wastewater services.
- ? Supplying water for agriculture through replacing freshwater from surface and groundwater sources with treated wastewater from wastewater treatment plants
- ? Promote efficient use of water in irrigation and high-yield agricultural products.
- ? Adopt and publish an updated ?Action Plan? to reduce water sector loss.
- ? capitalise on new agricultural technologies such as hydroponic systems to enhance the efficiency of the agriculture sector in Jordan.

**Jordan's National Water Strategy (2016-2025):** This document represents the vision and reference of the water sector in Jordan, which sets the goals and objectives for the water sector and also provides an initial response to Jordan's commitment to the Global Sustainable Development Goals, highlighting the need for stronger intersectoral coordination and producing a National Water Master Plan, including Management Plans for managing water resources and water demand.

The proposed project is generally well aligned with the adaptation to climate change measures. In addition, the project will contribute to reducing inefficient use of water as well as increasing water supply for irrigation.

**National Strategy for Agricultural Development 2016-2025:** The National Strategy for Agricultural Development 2016-2025 stated that among challenges facing the agricultural sector is desertification in Jordan, which is increasing due to climate change, overgrazing and poor agricultural practices. The project is aligned with the strategy in terms of increasing the efficiency of water use in irrigation and the use of non-traditional water resources such as greywater.

**Land use plan 2007:** Comprehensive plan designating the land use throughout the Kingdom. This Master Plan is distinctive in that it is a directive map illustrating the natural, geographic and demographic characteristics, including the sustainability of natural resources. The plan aims to:

- ? Preserve agricultural lands, ensure its continuity, and its development.
- ? Control the arbitrary urban sprawl.
- ? Limitation of urban development based on natural features and actual needs.
- ? Protect the environment from pollution.

**The Aligned national action plan (NAP) to combat desertification in Jordan 2015-2020:**

Developed by the Ministry of Environment, the objectives of the plan are to improve the living conditions of affected populations, improve the condition of affected ecosystems, generate global benefits through effective implementation of the UNCCD/NAP, and international actors. The strategy designed five operational objectives for example (1) Advocacy, Awareness Raising, and Education. (2) Policy Framework. (3) Science, Technology, and Knowledge, (4) Capacity Building, (5) Financing and Technology Transfer. The action plan Highlighted the main causes of land degradation and the main barriers, and it focuses on sustainable land management (SLM) in Jordan.

**Integrated Investment framework of sustainable land management 2015:** Developed by the Ministry of Environment to enact Article 5 of the UNCCD (1994), whereby affected countries are required to prepare successful plans and programmes to combat desertification and mitigate the effects of drought. The purpose of the document; To update the situation in Jordan with regards to desertification and SLM following the first National Action Plan for Desertification for Jordan (JNAP); To provide a firm basis for work on the next JNAP, as well as financing opportunities for SLM, in response to the country's obligations to the United Nations Convention to Combat Desertification (UNCCD).

**National Rangeland Strategy for Jordan:** This strategy was developed in 2001 with the main objectives of controlling deterioration of the rangelands and reversing the desertification process; increasing sustainable livestock production by restoring the productivity of rangelands and increasing sustainable range fodder production; supporting fodder production in order to encourage intensive breeding; and encouraging local communities and sheep breeders to adopt intensive breeding techniques to regulate stocking rates.

The important role and unique local community's knowledge and skills especially women in the management and protection of rangeland have been given far too little attention in development programs and priority setting for policies and funding. For example, the Hima approach and its effective role in combating desertification and biodiversity conservation through community participation were overlooked.

Historically, Badia rangelands were managed by tribal institutions of local communities using traditional and cultural ecosystem management techniques. With the establishment of the Jordanian State, these lands became State property, resulting in the dissolution of traditional natural resource management institutions and systems. The disintegration of traditional systems and knowledge led to deterioration and degradation of the rangelands. In 2001 the Jordanian government published the National Rangeland Strategy, in an attempt to restore traditional ecosystem management techniques and to better involve tribal pastoralist communities in the conservation of rangelands

Many of these local communities are tribes that made use of the land they lived on for grazing and agricultural purposes. There are five agro-ecological zones in Jordan, determined by annual rain levels. The level of rainfall is the deciding factor on land use and farming systems in each zone. There are drier zones which consist of areas of small ruminant grazing and rain-fed barley cultivation. The physiographic land regions in the country are classified according to climate, land, terrain, elevation, soil and water characteristics. Crop and livestock agriculture are practiced at various levels in these five physiographic regions.

Pastoralism is a significant cultural and economic practice in the Badia, thus in the past, local nomads have developed and used pastureland management systems such as Hima. The Hima system is a controlled pastureland use and conservation system that allows for balanced grazing. The essence of Hima is to prevent overgrazing by seeking good forage within a tribe's territory while heavily grazed land is allowed to lie fallow and recover. The Jordanian Rangelands Strategy is a bottom-up and inclusive strategy, designed to incorporate Hima into the reforestation and revival of pasturelands efforts in the Badia and Jordan in general. This Strategy is a tool for the restoration of the rights and livelihood of the nomadic pastoralists.

Rangeland management includes:

- ? Protection of natural resources in the rangelands through the reversal of improper grazing practices and detrimental actions such as logging;
- ? Improvement and development of rangelands through water harvesting, planting rangeland seedlings, reseeding rangeland species and regulating the exploitation of pastures;
- ? Training of local communities on planned access water and fodder; and
- ? Building long-term joint management of rangelands partnerships between pastoralist communities and the government.

**Updated National Rangeland Strategy for Jordan:** The National Rangeland Strategy developed in 2001 and the related legislations have not been effective mainly because of the absence of national consensus and the lack of integrated plans. The status of poor management and use of the rangeland resources has not changed, which led to destruction of plant cover and weakening of productive capacities of rangelands. At present the rangelands of Jordan cannot provide animal feed for more than 3 months during the good rainy seasons and less than one month or none during the drought years. In addition, vast rangeland areas (about 1 million hectares ) known as claimed tribal lands have been allocated to private owners without proper plans for their restoration, development and management. This facilitated promotion of real-estate business in the rangeland areas and use of large areas for non-agricultural purposes

Strategy Main Goals:

- ? Rangelands sustainable development and management.
- ? Improvement of social and economic conditions for livestock breeders and pastoral communities taking into consideration gender issues
- ? Enhancement of capacity building (training and awareness)
- ? Monitoring and evaluation of rangeland status
- ? Engagement of Local communities in sustainable rangeland development and management.

**Climate issues and Climate related initiatives:**[\[56\]](#)<sup>56</sup>

#### **Climate Change Policy:**

Jordan faces potential serious impacts on its natural ecosystems, on its river basins and watersheds, on biodiversity?then cascading to impacts on food productivity, water resources, human health, public infrastructure, and human settlements. Climate change will have serious implications on the country?s efforts to eradicate poverty and realize sustainable development for current and future generations? ultimately making climate change an issue of intergenerational equity. Climate change scenarios indicate that Jordan and the Middle East could suffer from reduced agricultural productivity and water availability among other negative impacts. National Climate Change Policy, published by the Ministry of Environment of Jordan, aims to achieve a pro-active, climate risk-resilient Jordan, to remain with a low carbon but growing economy, with healthy, sustainable, resilient communities, sustainable water and agricultural resources, and thriving and productive ecosystems in the path towards sustainable development

#### **Jordan?s Third National Communication (TNC) Report to UNFCCC:**

Under the Third National Communication (TNC) to UNFCC, Adaptation strategies and measures suggested for the water sector are: Rainwater harvesting, Wastewater treatment, Desalination, Increasing Efficiency of irrigation technologies, Grey water Reuse and Public awareness. Where for the Agriculture Sector: Poor in rural areas in Jordan are expected to face the most severe consequences of climate change through disruption of livelihood options that depend on natural resources management.

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The expected impacts of climate change, particularly reduced agricultural productivity and water availability threaten livelihoods and keeps vulnerable people insecure. Poor families and households are the most vulnerable group to the impacts of climate change and deserve the priority in the design of appropriate adaptive measures. The major climate exposure risks associated with agriculture in Jordan were identified as: Temperature increase, Rainfall decrease, Droughts and Shift in rainy season. The major sectors of high climate sensitivities were; cropping systems, livestock production and livelihood and food security.

The key adaptation measure to climate change is setting and implementing a sustainable agriculture policy. Adaptation measures vary horizontally according to the agricultural subsectors and their vulnerability to climate change. These measures vary vertically according to the different actors involved in the development and implementation of this policy. The Adaptation strategies to a changing climate include: Agronomic and crop strategies that are intended to offset either partially or completely the loss of productivity caused by climate change through the application of defense tools with different temporal scales, e.g. short-term adjustments and long term national level adaptation and Socio-economic strategies intended to meet the agricultural costs of climate change.

Generally, the most important adaptation measures in agriculture are: modification of cropping pattern, modification of crop calendar including planting and harvesting dates, implementation of supplemental irrigation and water harvesting techniques, improve water use efficiency, use of different crops varieties and modification of policies and implementation of action plans.

**The National Biodiversity Strategy and Action Plan (NBSAP) in Jordan 2015 ? 2020:** The 2015-2020 NBSAP embraces a new vision for Jordan's biodiversity as follows: The project is specifically aligned with the objective regarding ecosystem services and climate change: through enhancing the national understanding of dryland ecosystem benefits to national resilience, economic sustainability and local livelihoods. This is mainly through increasing resilience to climate-induced drought.

**Jordan Response Plan 2020-2022:** This plan identifies infrastructure projects and strategic sectors for funding, among them water, energy efficiency, renewable energy, and green construction and their links to climate adaptation and environment. The Platform, chaired by the MoPIC, is the strategic partnership mechanism between the government of Jordan, donors, UN agencies and NGOs for the development of an integrated response.

#### **A National Green Growth Plan for Jordan (2017-2025):**

This NGGP seeks to understand what prevents Jordan from implementing the goals established in Jordan's current plans and strategies and offers suggestions in the context of green growth for other aspirations that will help to futureproof Jordan's Vision. The plan identified water as one of main six priority sectors that provide coverage of key green growth issues and opportunities for Jordan. The project is aligned with the plan in terms of:

- ? Acknowledging that water sector presents a crucial challenge to Jordan and that climate change has exacerbated existing water security issues resulting in significant negative implications for social development. Promoting the reuse of wastewater

- ? Reallocate humanitarian funding towards more strategic interventions to boost to boost resilience and minimise environmental impacts of refugee communities e.g. microgrid renewable energy, water harvesting
- ? Implementing a water provision intervention which could take the form of a desalination plant, a dam or a form of water harvesting.
- ? Educate the locals and different decision-making bodies on value and scarcity of water and on making water-efficient project decisions

### **NDC Action Plan:**

The Government of Jordan is fast-tracking its Partnership Plan, known as the NDC Action Plan, to deliver measurable and transformational action in the energy, transport, agriculture, water, and health sectors. The NDC Action Plan seeks to scale renewables and energy efficiency measures, adapt the water, agricultural and health sectors to climate change impacts, and strengthen the resilience of disadvantaged groups and vulnerable ecosystems.

Based on inputs of the Sector Working Groups (SWGs) that were established by line ministries and institutions, prioritization methodology and criteria were developed to assess the importance of each project with special focus on the five key sectors highlighted in the NDC Action Plan (Transport, Energy, Agriculture, Health, and Water). The prioritization list for these focus areas was finalized and validated by the National Climate Change Committee. While the Government took the leadership in identifying and prioritizing these projects, there are significant resource constraints to further develop and implement these. The NDC Action Plan and Green Growth Action Plan have also been integrated, primarily through this prioritization exercise.

The Government of Jordan, through a letter signed by Focal Points in the Ministry of Environment and Ministry of Planning and International Cooperation dated 17th Mar. 2020, has circulated the updated NDC Action Plan and the list of prioritized projects to its members, and requests partners to respond with information regarding the progress on their ongoing NDC-related projects as well as pipeline and new support to the NDC implementation priorities outlined by the Government of Jordan, so that NDC implementation in Jordan can be accelerated. All received responses from partners were incorporated with NDC action plan. Under Climate Action Enhancement package (CAEP), Technical assistance supported by NDC partnership through partners; Ricardo implementing cost benefit analysis for 35 priorities NDCs actions, W.B drafting roadmap Long Term Climate Change strategy, and support MOPIC in green recovery for COVID-19 pandemic impact focusing on Agriculture and Tourism sectors.

In parallel the Government also continues to follow up with partners that responded to the initial Request for Support Letter from Jordan in October 2018, including the European Commission, Germany, ILO, IsDB, Netherlands, and UNDP. The government of Jordan is looking to engage more partners as its NDC Action Plan implementation progresses.

### **Jordan's Climate Change Policy for a Resilient Water Sector (2016-2025):**

This document is an integral part of the National Water Strategy (2016 ? 2025) and related policies and action plans published by Ministry of Water and Irrigation (MoWI). It lists several water-related solutions include water storage options, e.g. dams & reservoirs and ponds, water harvesting (in combination with supplementary irrigation for drought and climate-proofing and increasing the water use efficiency of primarily rain fed agriculture, which is practiced on 60% of Jordan's cropland), water transfers and wastewater collection/treatment/reuse. Water quality protection and improvement to increase water availability for unrestricted use.

**Jordan's Intended Nationally Determined Contribution (INDC):** The adaptation measures for the water sector listed in the INDC are:

- ? Reducing water losses in distribution pipes;
- ? Introducing water saving technologies such as low-flow toilets and showers, and efficient appliances;
- ? Collection of rainwater for gardens, toilets, and other applications;
- ? Promoting water saving by awareness campaigns.
- ? Improving wastewater treatment plants (WWTP);
- ? Recycling wastewater;
- ? Increasing public awareness to water related issues;

The key adaptation measure to climate change in the agricultural/food security sector will be setting and implementing a sustainable agriculture policy addressing;

- ? Developing agronomic and crop strategies that are intended to offset either partially or completely the loss of productivity caused by climate change through the application of defines tools with different temporal scales.
- ? Modification of policies and implementation of action plans with emphasis on socio-economic strategies intended to meet the agricultural costs of climate change.
- ? Supporting environment friendly agriculture and permaculture designs as well as conservation and sustainable utilization of plant and animals genetic resources for food and agriculture that are climate resilient and adaptive to climate change especially landraces to improve rural sector adaptive capacity to changing environment to enhance food security.
- ? Maintenance of old Roman wells for water harvesting purposes and establishment of new wells in the rural area.

- ? Establishment of an integrated drought monitoring and early warning systems
- ? Use of different crops varieties and modification of cropping pattern and crop calendar including planting and harvesting dates.
- ? Implementation of supplemental irrigation, water harvesting techniques, maximizing treated wastewater re-use in agriculture, improving water use efficiency and the augmentation of drip irrigation in irrigated areas and utilization of saline water in the irrigation of crops tolerant to salinity.
- ? Establishment of desalinization units or sea water and use for agriculture.
- ? For rain-fed areas: adaptation measures include, but not limited to, improving soil water storage to maximize plant water availability by maximizing infiltration of rainfall; application of conservation agriculture, which involves minimum soil disturbance and encompasses land preparation techniques that improve soil fertility.
- ? Managing crop residue and tillage and conserving soil and water; using of supplemental irrigation from harvested rainwater in the critical stages of crop growth achieved through on-farm rainwater harvesting and management system
- ? Crop diversification: including integration of different varieties of crops, both food and cash crops which will increase farmers' income.
- ? Urgent need for restoration of the degraded forest ecosystem, protection of forest and reforestation to
- ? increase the green land area for compensation and equilibrium purposes for CO<sub>2</sub> fixation and release of O<sub>2</sub> since forestry sector face many challenges that result in reduction of forest vegetation cover in Jordan to sustain and keep ecosystem services from this vital ecosystem.

#### **Climate Change Technology Need Assessment Project of Jordan (TNA):**

The Report outlines all the adaptation technology options available for water and agriculture sectors in Jordan and prioritized them based on most cost-effective, sustainable and socially acceptable options. It also highlighted the main barriers to adopting each of these technologies that should be addressed. The top three adaptation technologies for both sectors include rainwater harvesting; optimizing water usage in Jordan's agriculture sector by implementing drip and subsurface irrigation desalination/brackish water treatment and re-use and Promoting plant varieties that are resistant to climate change.

#### **Project location selection criteria, process and description**

The Governates selected for project development are Aljoun, Irbid and Mafraq. Their location within the national territory and a description of their socio-economic and environmental context are presented

below. The information has been sourced primarily from the National Consultant PPG reports and stakeholder interventions.

## **AJLOUN GOVERNORATE**

The Governorate of Ajloun is located at the northwestern corner of the Kingdom of Jordan. It is bordered by Irbid Governorate to the north and west, Balqa Governorate to the south, and Jarash Governorate to the east.

The average annual rainfall in Ajloun is 750 mm. Average temperature stands at 5 degrees in the winter and 33 degrees in the summer. Its topography is characterized by different regions; there are high and low areas (foothills), as altitudes vary from 1,180 meters to 590 meters above sea level, which has given rise to a diverse mosaic of natural and agricultural landscapes.

The area of the governorate is 41,455 ha, representing around 0.5 percent of the Kingdom area of 8,902,428 ha, making Ajloun the Jordan's second smallest governorate after Jarash. The Governorate comprises 2 districts and 3 sub-districts. The administrative rulers of the Government include the Governor, District Director and Sub-district Director. The governorate has 5 municipal councils representing 5.38 percent of the total municipalities of the Kingdom, which employ 4.36 percent of the total municipal staff in Jordan.

With an estimated population of 185,700 in 2017, it holds approximately 1.8 percent of the national population. In terms of distribution, around 83.9 percent of the population reside in urban areas and the remaining 16.1 percent in rural areas. Ajloun, the capital of the Governorate, is located 76 Km north west of Amman. The Governorate has a consolidated network of main, secondary, rural and agricultural roads that connect it to the Kingdom.

There are 26,450 households in the governorate, with an average size of 5.8 individuals compared with an average of 5.4 individuals for the Kingdom. The demographic dependency rate in Ajloun stands at 78 percent, which is higher than the Kingdom's general rate of 68.2 percent. It is noted that the proportion of the population in the age group of under 15 years old is higher in Ajloun than the rest of the Kingdom, as more than half of the population (56.2%) in Ajloun are between the age group of 15-64 years.

Although Christians are a minority in the overall governorate, they form about more than half of the population in Ajloun city; most Christians reside in Ajloun city along with Muslims of the Al-Smadi tribe. Other tribes are distributed in the other districts of the governorate. Ajloun Governorate has four seats in the national parliament, one of which is dedicated for the indigenous Christian minority.

The Governate territory is occupied by 31% of rainfed agriculture, 1.3% irrigated and 28% of forests lands. Wheat, chickpea and barley are the most cultivated annuals cereals. Horticulture is principally comprised of olive, grape and apple. Ajloun is renowned its Mediterranean climate and its dense forests that are mostly composed of *Quercus calliprinos* and *Pinus* s. Up to date, there are two forests natural reserves with total area of 2000 ha namely; Ajloun, Dibben and Ajloun forests reserves.

There is widespread evidence of change in land use in the highlands, where forests have transitioned into agricultural lands and land degradation has been accelerated by mismanagement of soils and crops and illegal cutting of natural forests. This uncontrolled deforestation has been the main cause of land degradation and habitat fragmentation in the high rainfall zone in northwest of Jordan.

An overview of the development challenges and indicators for the Government is outlined below.

### **Development challenges:**

Among the identified development challenges are:

- The high percentage of the population in the age group under 15 years old, estimated at 40.1% in Ajloun Governorate compared with 37.3% in the Kingdom, which calls for more capital expenditure to improve the quality of services provided to this group in the fields of health care and education.
- The high rate of demographic dependency in Ajloun Governorate, estimated at 78.0 compared with 68.2 in the Kingdom, which means weak productivity and low rate of economically active citizens, and this leads to negative impacts on the per capita share of spending and income.

The development opportunities and trends are evident within the following sectors:

- ? Tourism sector: Ajloun is one of the important tourist areas in Jordan; it is the Kingdom's environmental resort in the summer for its evergreen forests and Islamic and Christian relics. However, the Governate is recognized as needing an integrated development plan for the advancement of the tourism sector, through collaboration and linkages between the various sectors at both local and Governate scales.
  - ? Agriculture: Ajloun is one of the important agricultural areas in the Jordan. The abundance of water is vital to agriculture and predictable rains typically fall during the winter season. This provides sufficient recharge to Ajloun's many springs and streams. In turn, the area has the potential to produce a wide range of different horticultural and cereal crops. The landscape also provides for other sources of income, such as medicinal and culinary herbs that are an important source of income for women in the area. Further support of these industries and activities related to the agriculture sector and the creation of 'cluster'[57]<sup>57</sup> models have been recommended to support this.
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## Development indicators:

Key development indicators for the Governate include:

- ? The poverty rate in Ajloun reached 25.6 percent compared with 14.4 percent average for the Kingdom. The number of poor individuals in Ajloun stood at 37,752 representing about 4.3 percent of the total poor population in the Kingdom. The number of poor households stood at 5,231, representing around 4.4 percent of the total poor households in the Kingdom. There are 3 poverty pockets in the governorate, namely: Orjan sub-district, Ajloun centre and Sakhra sub-district.
  - ? Percentage of citizens covered with health insurance is 90.2 percent (2011).[58]<sup>58</sup>
  - ? The annual household spending trends shows that food items account for 36 percent of spending, followed by housing (22.8%), transport and telecommunications (18.5%). The remaining annual household expenditure (16.1%) is allocated for clothing, footwear, alcohol, tobacco, cigarettes as well as education and health. It is noteworthy that average annual household expenditure on education and health care does not exceed 0.96 percent of annual household spending.
  - ? The success rate in the general secondary certificate stands at 30 percent in Ajloun compared with 36.6 percent in the Kingdom; the illiteracy rate stands at 8.8 percent compared with 7 percent in the Kingdom; the vocational training rate stands at 0.1 percent compared with 0.4 percent in the Kingdom.
  - ? The public sector accounts for the highest proportion of the workforce in Ajloun Governorate, where 48.3 percent of the workforce is concentrated in the public sector, defense and education.
  - ? Average annual household income in Ajloun Governorate stood at JD 7,470.9 compared with the Kingdom's average of JD 8,823.9. The average annual household spending in Ajloun Governorate stood at JD 7,528.6 compared with the Kingdom's average of JD 9,626. In any case, the average annual spending in the Governorate exceeds average income by JD 57.7, pointing to possible submerged economies.
  - ? Municipal administrations are facing many problems characterized by the deterioration of the environmental and health situation in their areas because of their inability to provide or maintain vehicles used for the transport of waste and cleaning. In addition, fiscal deficits of municipalities is an impediment to service provision or investments, and many are not capable of complying with basic duties.
  - ? Lack of upkeep or construction of basic infrastructure for competitive sectors, namely tourism and agriculture.
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## **IRBID GOVERNORATE**

Located in the far north west of Jordan in the Yarmouk River basin and Jordan Valley. Most of the governorate is part of the Hawran plateau, which covers northern Jordan, and south-west Syria. It borders with Syria to the north, Israel to west, and internally with Ajloun and Jarash to the south and Mafraq to the East, It has a variety of climate patterns due to the high variation in its topography. It represents an important geographic location as well, providing a link between Jordan and its neighbours countries. The annual rainfall in the governorate is approximately 396 mm., giving rise to several springs and wadis where water runs in the winter, providing refuge for livestock and wildlife.

Irbid Governorate comprises 9 districts, and 18 municipal councils.

Irbid Governorate has the second largest population in Jordan after Amman, the estimated population in 2017 was 1,867,000 (18.6% of Jordan), of which 92.4 percent live in urban centres and the remaining 7.6 percent in rural areas. It has the highest population density of the country with 1,188 inhabitants per km<sup>2</sup>. [59]<sup>59</sup> There are 212,077 households in the governorate, with an average size of 5.6 individuals compared with the national average of 5.4.

Of the 157,234 ha (or 1.8% of national total) that makes up the Governate, the majority is classed as arable lands (62%) in addition to large areas of grasslands and forests. The total cultivated area is dedicated to: fruit orchard (61%), cereals (22%) and vegetable production (17%). Wheat and barley are the most common cereals, with lentils, chickpeas and vetch serving as crops, fodder and green cover crops and manures. Olive plantations, followed by grape, almond and pomegranate are the most prominent fruit crops. It also has important nature reserves, with the The Yarmouk forests reserve covering a total area of 21000 ha. Shifting land use is also evident around the city of Irbid, where urbanization, and change of land use from rain-fed cereal crops into open rangelands are present. An overview of the development challenges, indicators and regional displaced people issues for the Government is outlined below.

### **Development challenges**

Among the identified development challenges are:

- ? Fragmentation of agricultural holdings and urbanization at the expense of productive agricultural land.
  - ? Agricultural production in Governate relies heavily on rainfall.
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- ? The high cost of agricultural production costs.
- ? Uncontrolled and improper grazing reduces landscape biomass and weakens CC mitigation options.
- ? Weak competitive capabilities of agricultural products compared to available imported products.
- ? Weak agricultural value-adding and marketing infrastructure.

### **Development Indicators:**

Key development indicators for the Governate include:

- ? An analysis of the annual household spending trends shows that food items account for 36.2 percent of spending, followed by housing (23.4%), transport and telecommunications (15.4%). The remaining annual household expenditure (18.1%) is allocated for education, health care and other various spending.
- ? Percentage of citizens covered with health insurance is 82,8 percent, compared with the average of 87 percent of the Kingdom.
- ? Agriculture lands in the Irbid Governorate constitute almost one-fifth (19%) of the cultivated land of the Kingdom. The Governorate also holds 22 percent of the total land planted with fruits and 11 percent of the land planted with vegetables.
- ? Data also shows that 10 percent of the livestock of the Kingdom reside within in the Irbid Governorate borders.
- ? The public sector accounts for the highest proportion of the workforce in Irbid Governorate, where 32.3 percent of the workforce is concentrated in the public sector, defense and education respectively.
- ? The Governorate also features surface water resources such as dams, channel, springs, wadi's and artesian wells, which are less frequent in other areas of Jordan.
- ? The high rate of poverty in the governorate (15% compared with 14.4% in the Kingdom) There are 2 pockets of poverty in the Governorate, namely: Al-Shoneh Al-Shamaliyyeh Sub-district and Ramtha Sub-district.
- ? High unemployment rates in Irbid Governorate, which lies at 13.2 percent compared with 11.9 percent for the Kingdom

- ? The fragmentation of agricultural holdings, urbanization at the expense of agricultural lands, and the weak competitive capability of agricultural products and the infrastructure of agricultural marketing.
- ? Weak tourism promotion and marketing programs in the Governorate, and lack of tourist facilities at a suitable cost, and weak training programs specialized in the tourism sector.
- ? Inability of municipalities to practice their development role: The municipalities sector is facing many problems characterized by the deterioration of the environmental and health situation in their areas and are running consecutive fiscal deficits.
- ? A development gap between the city center and remote areas: economic and trade activities are concentrated in the city center, while other areas suffer from poverty, unemployment, and poor infrastructure and quality of provided services.

### **Mafraq Governorate**

The Governorate of Mafraq is located at the northeast of Jordan. It is the second largest Governorate in the Kingdom in terms of area (28% national total); it is the only governorate in Jordan that has borders with three countries: Iraq to the east, Syria to the north, and Saudi Arabia to the south.

At the Jordanian national scale, it is bordered by Irbid and Jerash governorates to the west, and by Zarqa governorate to the south. Mafraq Governorate was administratively created in 1986, and has 4 main districts, 10 sub-districts, and 18 municipal councils, representing 19.4 percent of the municipalities in the Kingdom, and employing 8.8 percent of the total municipal staff in the Kingdom. The Governorate capital is Mafraq City, which is close to the three major cities in the region, Amman to the south (80 km), Irbid to the west and Damascus to the north.

The estimated population of the Governorate in 2017 was 580 000 (5.8 % of Jordan), of which 69.7 percent were living in urban centres and the remaining 30.3 percent in rural areas. Its population centres, which number 172, are dispersed throughout the Mafraq Governorate at considerable distance from each other. The population density is 7 individuals /km<sup>2</sup>.

There are 50,263 households in the governorate, with an average size of 6.2 individuals compared with an average of 5.4 individuals in the Kingdom. The demographic dependency rate in Mafraq stands at 77.7 percent, which is higher than the Kingdom's general rate of 68.2 percent. The proportion of the

population in the age group of under 15 years old is higher in Mafraq than the rest of the Kingdom, as more than half of the population in Mafraq are concentrated in the age group of 15-64 years.

Mafraq accounts for 17 percent of the farmed land and contains 21 percent of livestock in Jordan. In spite of apparent aridity, on some areas, especially the eastern part of the Governate do receive some rainfall and are rich in groundwater reserves. The western side has a favourable climate and can be productive when irrigation is available. Barley, clover trefoil and wheat are the most cultivated annual crops and olive and grape are the most common perennial horticultural crops. Nonetheless, the majority of the land area is covered by Other lands: bare soil (26%), Basaltic (26%) and chert plains (28%).

The steppe within the Irano-Turanian zone is considered as a transitional zone of the Badia. Intensive agricultural activity (barley cultivation) and some irrigation can be observed in this zone. The NAP found that the dominant aspects of desertification in this zone were the high rates of erosion by wind and water, the substantial accumulation of calcareous silt on the soil surface, the low germination rate of plants, the low intensity of plant cover caused by overgrazing and poor rainfall distribution. The area is also affected by soil surface crust that accelerates erosion by water and a soil compaction problems caused by uncontrolled movement and travel of grazing herds and vehicles. However, many parts of this zone are believed to have high resilience; indicated by a high recovery and productivity of the protected natural vegetation inside natural and range reserves.

#### **Development challenges:**

Among the identified development challenges are:

- ? Arid climate, with an average annual rainfall that doesn't exceed 209 mm.
- ? Large distances between the communities and the cost of maintaining a vast road and transport system.
- ? As for sanitation services, the percentage of residences connected to the sanitation network stands at 8 percent.
- ? Rising poverty and unemployment.
- ? Cultural barriers to women and youth economic empowerment and opportunities.
- ? Breakdown in traditional land management systems and lack of governance over critical natural resources.

- ? Mafraq Governorate has been among the Governates most affected by the Syrian crisis, where education, health, water, waste mangment, energy and labor services have been facing pressures and challenges.

In addition to the development challenges, the following opportunities and trends were identified:

- The location of Mafraq among neighbouring countries has boosted its strategic importance in Jordan. Its eastern side borders Iraq, via Al-Karma, and to the north side is Syria, via Jaber. This contributes to job opportunities in economic activities related to the maintenance and trade of motor vehicles and accessories.
- The presence of the King Hussein Bin Talal Development area in the province has attracted industrial investments and supporting activities, and the associated movement of the construction, transport and public services and commercial sectors.
- It is worth noting that there are 486 industrial enterprise facilities in the region. 15 percent of the total number of registered enterprises in the country are present in this region.
- There are a large number of archaeological sites in the region, including the ancient cities of Umm Al-Jimal, Umm Al-Sarb, and Sabha, as well as a large number of castles such as Burqa and Java.
- There are two vocational training centers in the Governate. However, they are in isolated areas and there is currently little demand for vocational training programs or other programs.
- There are 97 charities in the region, out of a total 1117 charities in the Kingdom. The number of cooperative societies is 94, out of total 1302 in the Kingdom. There are 17 sports clubs, 11 youth centers and 19 cultural commissions whilst the number of municipalities in the governorate is 18.

#### **Development Indicator:**

Key development indicators for the Governate include:

- ? High poverty rates which reached 19.2 percent compared to 14.4 percent for the Kingdom, and the presence of 11 poverty pockets in the Governorate, namely Ruweished, Khalidia, Salihia, Deir Kahf, Badia Shamalia Gharbia, Hosha, Balama, Um Jmal, Um Quttein, Arhab and Mafraq.[60]<sup>60</sup>
  - ? High unemployment rates in the Governorate which reached 18.9 percent compared to 18.6 percent for the Kingdom.
  - ? High percentage of the population in the age group under 15 years old, estimated at 40.9 percent in Mafraq Governorate compared with 37.3 percent for the Kingdom,
  - ? The high rate of demographic dependency in Mafraq Governorate, estimated at 77.7 percent compared with 68.2 percent in the Kingdom, which means weak productivity and a low rate of economically active citizens.
-

- ? Large household size (6.2 individuals) compared to 5.4 individuals in the Kingdom, and the high average of demographic dependency 77.7 percent compared to the Kingdom's average of 68.4 percent.
- ? A high illiteracy rate which stands at 13 percent compared to the Kingdom's rate of 7 percent.
- ? 63.4 percent of the workforce is concentrated in the public, defense, and education sectors.
- ? Per capita annual shares of available water for all uses have decreased to 15% of the international water poverty line.

### **Water supply and sanitation sector:**

Water issues are of special importance for the Mafraq Governate, and include:

- ? Limited ability of treatment plants to treat waste water quantitatively and qualitatively.
- ? Increased demand on sanitation services as a result of population and urban expansion, in addition to forced migrations.
- ? Insufficiency and incompetence of sewerage and wastewater networks
- ? Renewable water resources and ground recharge limited.
- ? Over-pumping of groundwater supplies, which affects the quantity and quality of remaining water.
- ? Need to respect international treaties regarding shared water sources.
- ? Negative effects of climate change on water resources.
- ? The growing gap between the demand on water and its availability.
- ? The poor efficiency and losses of water through supply and distribution systems.
- ? High rates of population growth.

### **Project demonstration and activity site selection**

While developing the mapping application and conducting the stakeholder interventions, the project development team presented the following criteria for target districts/landscapes selection during the PPG Inception Workshop and to the different stakeholder fora to facilitate information exchange and

transparency. The process had technical backstopping support from the Jordanian Country Office and from the Regional Office for the Near East and North Africa (RNE) to ensure adequate areas were selected for project activities.

The criteria presented were:

- ? Existence of the multiple typical problems regarding natural resource management, such as land degradation due to natural conditions (wind or water erosion) and unsustainable use, complexity of terrain and geographic features, soil conditions, patterns of the local agricultural activities and lack of regulatory mechanisms leading to land degradation;
- ? The importance of the agricultural sector to the region (GDP share and share of the population employed);
- ? Land degradation severity and hot spots from the UNCCD indicator assessments;
- ? Complementarities with other relevant on-going projects;
- ? Contribution to the National LDN targets;
- ? Existence of SLM practices (bright spots);
- ? Diversity of land tenure governance;
- ? Established linkages to the SDGs;
- ? Degree of impacts in particular vulnerable groups;
- ? Opportunity for multiple benefits or emergence events;
- ? Landscape and social resilience;
- ? Demonstrated community capacity for adaptive learning;
- ? Diversity among beneficiary groups;
- ? Potential for replication and scaling;
- ? Linkages and capacity to meet project core indicators;
- ? Climate Risk Analysis and vulnerability mapping.

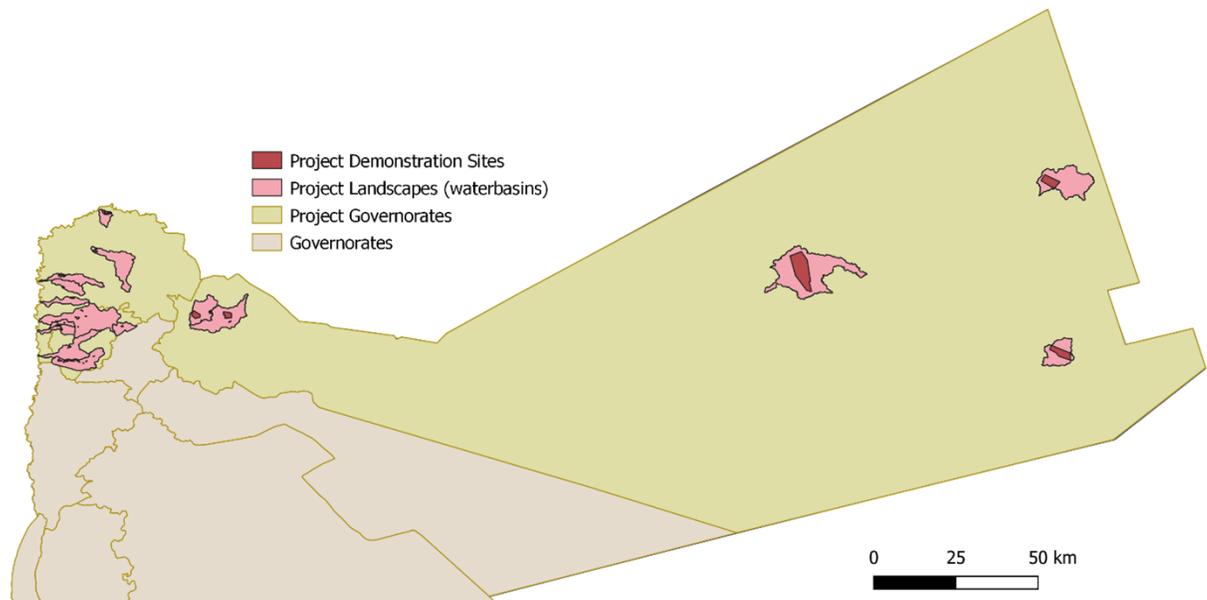
The final landscapes selection was a largely stakeholder driven process in close collaboration with representatives from the MoA, more precisely the Dept. of Land and Irrigation, Dept. of Rangeland and Dept. of Forestry. Inputs on target landscape selection were also gathered from land-users and administrators during the stakeholder engagement workshops held in the participant Governates.

In addition to the selection criteria above, the issue of access to the land in terms of tenure rights was a concern for stakeholders. On this point they argued that the demonstration sites and activities needed to be realised on State controlled lands and PAs for the targeted forestry and grassland restoration activities. Very little private forestry or rangeland areas exist and private owners are free to act within the law to manage the land as they see fit. As for the croplands targets, activities would focus on working with the private sector, key value chain actors and primary producers to implement the SLM

technologies and recommendations they provided through the stakeholder consultations. This includes activities that aim to improve landscape biophysical conditions through land planning and LDN-based decision-making.

Following these criteria and having been part of the stakeholder consultations, the Soil Survey and Land Use Management Division from the Land and Irrigation Department presented the project PPG development team with a group areas of forestry and grasslands that were under State land tenure. These areas also met the other criteria in terms of evidence of LD, proximity to target populations and the other key criteria listed above. Through a series of resulting meetings and stakeholder engagements, it was later decided that a waterbasin approach would be the most adequate biophysical and socio-economic context under which to develop the LDN landscape approach. It also builds on the successes the country has made in integrated waterbasin management and water-saving technologies and meets the SLM recommendations made by local stakeholders and link the required sectors of the administrations and communities. Finally, the biophysical conditions and boundaries provide a contextual basis on which to apply the DSS to be developed as an output of this project (Output 1.2.2).

The selected areas that are under State tenure and suitable for demonstration activities, are from now on referred as Project Demonstration Sites. These areas are distributed across the 3 project Governorates and thus covering all the range in climatic conditions, soil properties, topography that the Governorates have. Besides, they are scattered to cover diverse types of socio-economics context and local conditions to allow the implementing team the introduction of a variety of SLMs adapted to tackle particular LD drivers. A total of 57 Project Demonstration Sites are defining covering a total of 9,480 hectares, with 90% of the sites having a size of less than 80 ha, and 50% of the sites with less than 10ha. The larger Demonstration Sites are located in the eastern region of Mafraq and covering large Badia plots (Figure 2).

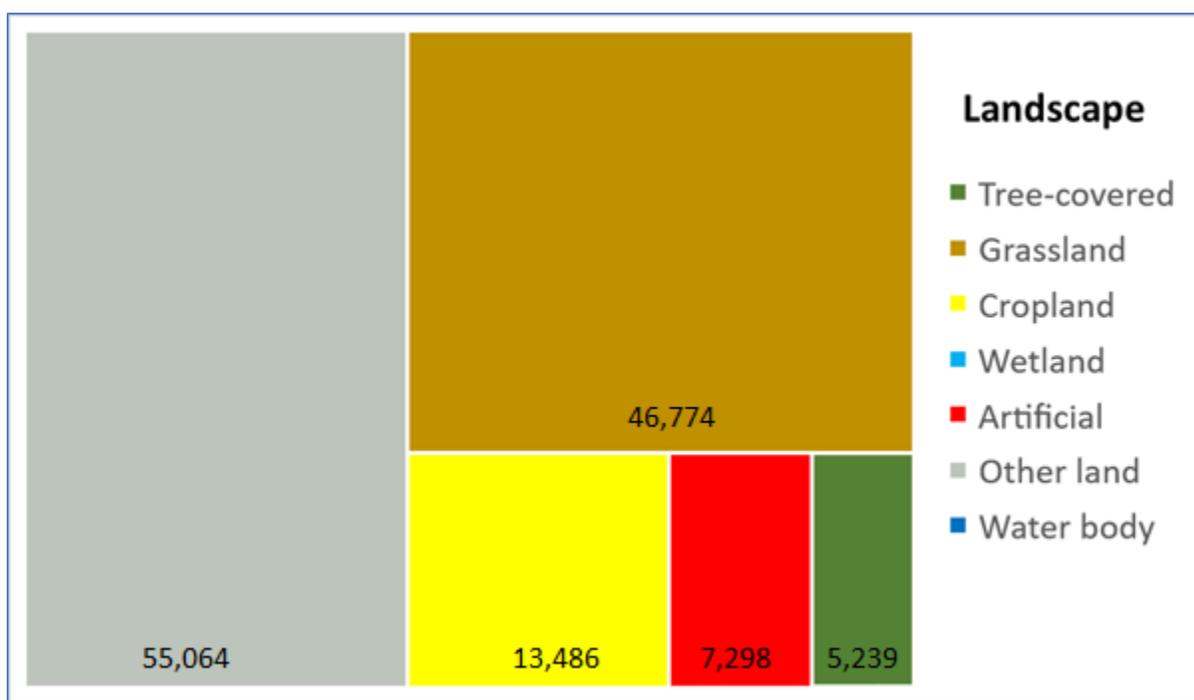


**Figure 2.** Project demonstration sites and project basin boundaries.

To date, most of the WOCAT registered and country implemented interventions to achieve LDN are focused on the avoidance or reduction component of LDN and have not addressed the more costly and sizable task of restoring severely degraded lands[61]<sup>61</sup> The selection of these areas as among those most degraded Treasury lands by the DLA whose responsibility includes their management and upkeep of Treasury lands has the potential to reverse this tendency, and provide models of integrated landscape management and SLM practices to restore other similar areas.

For the landscape approach the waterbasins were delineated using the Digital Elevation Model provided by CGIAR (SRTM 90m v4) in QGIS software. A total of 16 watersheds were obtained to delineate the project landscapes units with a average size of 6,723 ha the whole target landscape covers 107,571 ha (Figure 2).

According to Copernicus Global Land Cover 2019, the 80 percent of project selected landscapes are covered by grasslands and shrublands with different degrees of bare soil proportion. (Figure 3). But they still contain an important amount of area with cropland and forest to develop the project activities and achieve the target number of hectares proposed in the core indicators.



**Figure 3.** Land cover distribution in the project selected landscape according to Copernicus Global Land Cover 2019, reclassified in the 7 UNCCD categories.

The project selected landscape also contains a stock of SOC 36,793 tonnes (GSOC ? FAO) and 40,299 ha (37.4%) is covered by mountains (according to the Global Mountain Partnership definition) which is subject of the SDG 15.4 target. Besides mountains and LDN, SDG 15 also has target (15.1 and 15.2) on forest cover and management. In that sense it is important to take into account that project landscape offers the possibility of synergizing activities that can produce benefit to all of this targets with the same investment. Also, important to consider is that 20,368 ha (18.9%) are part of the Key Biodiversity Areas (Global KBA) and 8,818 ha (8.2%) are defined as Protected Areas. For more information, maps and statistics on the Project Demonstration Sites and Project selected Landscapes please refer to the Project App (<https://projectgeffao.users.earthengine.app/view/jordan-ldn>).

### **LDN baselines and DSS design support for project development**

Determining quality LDN baselines is a vital component in the application of the LDN conceptual framework, as the baseline will be used in determining areas for improvement, resource allocation and suitability of actions and decisions taken in the efforts to contain and reduce LD impacts.

#### **M&E**

The LDN approach has largely focused on a portion of the LDN impact pathway, but it is also important to mention M&E considerations. These include Change of State/ Impact indicators that may not have enough sensitivity to capture changes in the scale and lifetime of the project (Gonzalez-Roglich et al. 2018). A recent experience in Turkey (Tengberg et al. Publication in review) suggest that *to understand progress made in achieving LDN, it is important to monitor LDN along its entire impact pathway and include: process/response indicators related to strengthening of the enabling environment, including policies and legislation, individual and institutional capacities and monitoring and information systems; stress reduction/change of pressure indicators related to land-use planning, sustainable management practices and; change of state/ impact indicators of improved land productivity, land cover, SOC, and improved socio-economic conditions.*

While Jordan has a recognised scientific community and highly educated population, the context-specific nature of the SDG 15.3.1 indicator, which is built using 3 sub-indicators Land Cover Change, Land Productivity Trend and Trend in Soil Organic Carbon (SOC; seen as a proxy for carbon stocks above and below ground, 30cm of the soil), and the complexities surrounding large scale surveys on the extent, degree and rate of LD, made establishing baselines based on previous data difficult for the project design team. This was further complicated by the barriers that exist regarding actualised data accessibility and paywalls that exists between the Jordanian Public Institutions. The data that was available was often limited to small areas, or was not linked to map coordinates. The COVID19 restrictions during the PPG phase (2020-2021) also made field surveys on the proposed project sites to establish baselines difficult.

Given these conditions, the project design team relied on use of remote sensing following recommendations from the UNCCD. the [Good Practice Guidance \(GAP\)](#) promotes the use of at minimum the SDG 15.3.1 and its sub-indicators . Nevertheless, it is recommended to go beyond this basic approach during project implementation and to incorporate national datasets and more accurate or tailored information and analyses to capture the local context.

Definitions for Land Cover classes under the UNCCD guidelines fall under 7 simplified classes, being Tree-Covered, Grassland, Cropland, Wetland, Artificial, Other Land, Water Bodies?. Measurement is typically done using one of the available land cover data sets and recategorizing the results . Land Productivity typically relies on estimating a proxy for Net Primary Productivity (NPP) trend to locate areas of ecological disequilibrium. The SOC trend for the period normally relies on using models on Digital SOC maps and ancillary datasets. There has been some debate on the accuracy of the maps produced using global datasets for other PPG design processes conducted in Central Asia and other regions.

The default process is to calculate independently each of the sub-indicators using the Trends.Earth software and default datasets. The resulting map is divided into 3 categories of degraded, stable, improving? (Sims et al. 2020). If one of the 3 sub-indicators gives degraded? as a result, the entire area is to be considered as degraded under the GPG?s one-out-all-out (IOAO) principle. Issues with the IOAO principle have arisen and led to the recently published LDN Interpretation Matrix (Sims et al. 2020) which allows to fine tune definitions of Land Degradation by taking into account stakeholder viewpoints and management objectives. Also, beside the biases in the global datasets that affect with different intensity the different regions, the methods to produce sub-indicators also present some known-issues. For example, trends in land cover and in SOC are highly correlated and dependant because the land cover data is the principal source for temporal variation in both analyses, also the same land cover is used in the performance sub-indicator that originates the Land Productivity, all of which also contribute to propagation of biases.

To better understand and present the location and information available on LDN and natural resources of the project Governorates, **the project designers have developed an interactive app that was used during the PPG phase and will be available for use and further development during project implementation.** This allows for context specific baseline establishment at the required scales, providing data at Landscape, District, Governate and National scales and for individual land cover classes and cross-analysis of data.

To access the project specific LDN app, please follow the provided link:

<https://projectgeffao.users.earthengine.app/view/jordan-ldn>

This application allows users to set baselines and collect/validate data for a wide range of scenarios and scales, , and therefore set context specific baselines on a range of factors for diverse land units types. The App allows to perform multi-criteria analysis to select hotspot and areas of interest and thus serving as a basis for a future DSS development. The possibility to explore the dataset in a dynamic way without any GIS requirement and in an intuitive environment also facilitates that more stakeholders can evaluate the quality and usefulness of the data, which contributes to understand how to improve the

LDN indicators in the future. It also can provide a range of information on project demonstration sites and their waterbasin areas, as described below.

### **Socio-economic profiling and selection process of target beneficiaries, value chains and target landscapes**

#### **Project Beneficiary Profiles**

Upon realizing the FGD and other stakeholder data collection, project stakeholders outlined key aspects for project beneficiary selection:

- ? Dependence on natural resources for livelihoods that are susceptible to climate change. 20 percent of the national population depends on agriculture for their income.
- ? Dependence on rainfed crops and systems was included, including dependence on rainfed pastures and rangelands.
- ? Households suffering from poverty, or transient poverty due to seasonal incomes or external economic support. Of special importance are links to the 'poverty pockets' identified in the earlier sections.
- ? Dependence of communities on landscape ecosystem services (Artesian springs, rangelands, medicinal plants, bee-keeping, rainfed agriculture, forestry) that are at risk due to LD and climate change.
- ? Settlements in high risk areas (drought/flooding prone). They have been linked to lower income groups and households;
- ? Low levels of education and professional skills that prevent members of poor households to transition to climate-resilient sources of income;
- ? Role of women in economy of rural areas. Women in these areas are traditionally responsible for the household economy and are active in field work as well. Any negative consequences of LD or CC will therefore impact women the hardest. Women make crucial contributions in agriculture and rural enterprises in dry lands as farmers, animal husbandry, workers and entrepreneurs through their traditional knowledge
- ? Areas of youth poverty and unemployment. The three Governates chosen have a large youth population that suffers from unemployment and lack of economic opportunity.

These beneficiary profiles are in line with those made by the Third National Communication (TNC) to UNFCC. This report found that those living in poverty or transient poverty are expected to face the most severe consequences of CC. Food insecurity linked to CC, LD and natural resource management by those who depend on them for their livelihoods was also highlighted.

From a gender perspective, the participants agreed that one of the most important issue that women face is finance. The areas targeted by the study are poverty pockets which register low salaries and material resources? scarcity. These factors, combined with the high cost of living, growing inflation and the lack of funding, contribute to the inability for women to establish or continue an enterprise, despite the presence of some loan institutions that finance women?s small enterprises. Additionally, the majority of lending institutions currently require the provision of guarantees and warranties, difficult for the women to provide. The participants from all of the areas agreed that marketing is one of the most important obstacles facing women who want to start or have an enterprise. Some of the participants talked at length about the marketing opportunities and their weaknesses.

On the other hand, FGD participants mentioned that, few women owned lands and farms, citing this to be around 10 percent on average, most of them as an inheritance from their families though managed by family males husbands, brothers and sons. This contrasts with the Department of Statistics figures (2019) that show that 19 percent of women own lands, compared with 51 percent of men,. This was confirmed by the FGD participants , this is due to some credit policies which are not gender neutral as the participants explained and this is in line with the, Jordanian business women claim that their male counterparts receive more favorable treatment and more favorable responses to new business ideas.[62]<sup>62</sup>

It was found that only 9 percent of women they are working as a paid labor in agriculture, against 91% of male according to the DoS (2019), This finding was validated by the focus group discussions in the 3 targeted areas.[63]<sup>63</sup> According to the participants of FGDs, some of the key defining characteristics of women?s involvement in home-based agriculture include undertaking agricultural production activities from home, either on family-owned or rented land, both to produce food for household consumption as well as to sell surplus in local markets. Meanwhile, women?s engagement as agricultural labor is reportedly common among women from poorer economic backgrounds, who are usually employed informally on these farms. This finding might indicate that women?s involvement in the agricultural sector is being driven, to a large extent, by their financial circumstances and the need to generate income to meet household expenses. In other words, one could derive from this that a woman who is the head of her household is more likely to engage in both types of agricultural activities as it increases her sources of income and enables her to provide better for the needs of the people in her household.

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All FGD participants also indicated that **employment conditions** in the agriculture sector do little to support social development or poverty reduction for women or youth, which is why many in these two groups are turning away from the sector. This finding is consistent with the UN Women estimates that 52% of rural Jordanian women work in the agriculture sector, mostly as farm laborers, representing 21% of the formal agricultural labor force.[64]<sup>64</sup> However, the majority of women who engage in **paid agricultural** labor (rather than home-based agriculture) tend to do so informally and seasonally, meaning they do not receive a stable salary or enjoy the protections that might come with a legal contract, such as safe working conditions and access to social security and health insurance.

### Validation of CC impacts and responses

Another issue discussed in depth through the FGDs and key informant interviews was CC issues. Respondents gave evidence of increasing temperatures and a decline in rainfall as the two of the main CC impacts in northern Jordan. At the same time, those interviewed pointed to flooding as emerging hazard. This confirms the outcomes of Jordan's Third National Communication[65]<sup>65</sup> to the UNFCCC based on long historical data obtained from Jordan Metrology Department (JMD) that predicted a general decline in precipitation trends and an increase in rainfall erraticity and flooding.

More details on CC impacts as experienced for each Governorate are provided below:

- ? Mafraq Governorate: The two most problematic climate change hazards identified throughout the focus group discussions were; flooding and drought. The area has been experiencing an increase in the frequency of flood occurrence and decline in precipitation levels. The lack of recharge and overexploitation have led to a decline in water tables and groundwater levels, increasing water scarcity. Farmers specifically mentioned an increase in drought and extreme weather (heat and cold) over the past 10 years. The uncertainty in rainfall patterns has reduced crop yields of wheat and barley and has increased the number of farmers transitioning from rainfed to irrigated agriculture. CC is also acting as a driver of unsustainable practices and increasing the extent and degree of LD.
  - ? Irbid Governorate: Flooding and drought are the two most hazardous climate change impacts affecting the area. Increased frequency of flooding which occurs mainly in winter has also been followed by drought conditions and led to water scarcity and shortages in drinking water. Drought also caused a shrinkage in the agricultural area, changes in the vegetation cover, loss of soil fertility and productivity, driven overgrazing and water and wind erosion. For example, the production of olive oil has been lower than historic trends and has led to significantly
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higher prices. The agricultural pattern has also changed due to increased temperature with a decline in wheat and clover production. With water prioritisation being directed to maintain household levels, farmers are more dependent on reclaimed water, yet pay higher prices, increasing production costs and making imported food items more affordable. Drought has also caused a decline in natural forage and water availability for livestock production. As cereal production falls and the natural grasslands are devoid of fodder, feed prices escalate and increase financial burdens on farmers and pastoralist, with migrant pastoralist living in poverty situations being particularly impacted. Prices to water livestock also increase under drought conditions. Farmers are forced to receive reclaimed water in times that they do not need for irrigation (e.g. during rainy season) and they cannot store it for long as its quality will quickly deteriorate, resulting in health risks for the population. Women pointed out that lack of knowledge around modern water-harvesting, storage and greywater use was common, in addition to lack of funding to install rainwater harvesting systems at HH levels.

- ? Aljoun Governorate: As with the other project Governorates, flooding and drought were listed as the two most significant climate change hazards. The lack of water purification systems leads to point source pollution in area waterways and farmers are forced to rely on poor quality waste water during drought times. Farms in general are in critical economic conditions, and productivity has decreased on the majority of sectors. Livestock, table olive and olive oil production has been especially impacted, reducing rural economies, driving unemployment and increasing income gaps between urban and rural populations. Extreme temperatures have also led to increased access of the cooler forests and mountains in summer by local and neighbouring Governorate residents, increasing habitat disturbance and forest fires.

### **Validation of Project Value Chains and links to house-hold based agricultural production**

- ? Vegetables (Gender-sensitive):

For a country that relies heavily on food imports, horticulture is a vital subsector for Jordanian agriculture, representing over half of the total agricultural export value in 2010[66]<sup>66</sup> and occupying approximately half of cultivated lands. Average farm sizes are 1.2 ha and often combine open field cultivation and greenhouses of diverse constructions and qualities. While being more common the Jordan Valley where half of national production is located[67]<sup>67</sup>, they can be found at less commercial scales in the highlands and in larger, commercial farms in irrigated areas, with the Northern Highlands in the Mafraq Governorate also being an area of production. The horticulture sector also employs roughly 25 percent of the population that live below the poverty line, including refugees and migrant workers from North Africa. Small gardens also play a crucial role in food security in vulnerable populations. Main vegetables crops include tomato (43.4% of the total vegetable production), cucumber (9.2%),

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potato (8.3%), eggplant (7.1%) and watermelon (6.4%).<sup>[68]</sup><sup>68</sup> Jordan valley produces almost half of the national production

The sector has seen some difficult period following recent conflicts in the region, reducing income and employment opportunities. Export markets to neighbouring countries were disrupted following the conflict in Iraq and Syria and the Syrian crisis cut traditional trade routes to Eastern Europe. The high Jordanian Dinar and increasing competition from regional players has also limited export opportunities. Small to medium size producers during these times would either have a contract or would sell at the farm gate to travelling middlemen and load the produce without having to arrange transport or find a buyer.

Today markets are more fragmented and small to medium size growers have less marketing options and rarely have contact with final consumers or know about the value chains that their products go through from farm to plate. In addition, health and environmental standards in the Middle Eastern export markets are increasing and consumers are becoming more knowledgeable and demanding. Meeting product quality standards and controlling pesticide residue levels are a challenge for many smaller growers. At the same time, crop rotations and other SLM practices are often not applied and pest and disease pressure has been increasing, which in turn increases the applications and concentrations of chemical pesticides. Lack of coordination between farmers also means that pests find refuge in neighbouring crops and reinfest adjacent lands after pesticide applications have lost their effectiveness. Other challenges are related to CC and water scarcity, which not only is decreasing water availability but also impacting water quality as the water becomes more concentrated in salts and contaminants. High temperatures can also increase spoiling and loss of vegetable and fruit products without storage or refrigeration facilities.

? Dairy (Gender-sensitive):

National milk production represents around 45 percent of total milk consumption for Jordan, with sheep and goat milk accounting for around 29 percent of total production. What is not consumed at a HH level is sold to the 10 large dairy plants and 230 smaller plants and processed into a range of dairy products. Women are overrepresented in the sector, working in most value chain components, from production to processing in the plants.

The milk sector has low profit margins due to the high input costs of feed, infrastructure, machinery and livestock breeding and genetics.<sup>[69]</sup><sup>69</sup> Small to Medium milk producers typically have low educational backgrounds, little professional training or experience and low revenues and income. The high costs of feed, poor animal health, poor milking hygiene and storage conditions and rudimentary farm infrastructure and waste management options generally reduce quality of the milk produced on these farms. This limits their potential access to the milk processing plants. They also face challenges in the form of low financial support, lack of specific extension services adapted to their scales and

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technologies, low market access and increasing competition from the entry of large capital investments into the sector.

Supplementary feeding, principally barley and crop residues, are the largest sources of animal feed in Jordan while the contribution of the rangeland is limited. Feed prices and related subsidies therefore play a major role both in supporting smaller herders and promoting rangeland resource conservation.

Climate change is expected to decrease pasture productivity, decrease water availability, spatial distribution and quality and an increase heat loads on animals. High temperatures can also increase spoiling and loss dairy products without storage or refrigeration facilities.

? Olive:

Providing for some of the world oldest production olive trees, Jordan has cultural and historic links to olive trees and its products. Jordan is currently (2018) one of the top ten olive producing countries in the world, representing one of the leading agricultural sectors due to the volume of annual turnover and investment, which stands at over 1.5 billion USD (2018).[70]<sup>70</sup> According to the Director of the Socio-economic Studies Directorate, NCARE, Jordan 20 million trees and they account for 72 percent of fruit tree cropping area,[71]<sup>71</sup> As of the year 2000, the country has been self-sufficient in olive oil and table olives, with national average annual consumption at 2.5kg/person.[72]<sup>72</sup> Over thirty olive varieties are registered and their interaction with Jordan's climate also make for unique characteristics and taste. As of 2018, 134 oil mills were operational, with most employing advanced technologies. The availability of migrant labor allows for manually harvesting which increases quality product. The use of chemicals is typically low and there is currently interest in organic farming. Links exists between the MoA and organisations working in the sector, namely the Olive Oil Press Owner Association (OPOA) and the Jordan Olive Products Exporters Association (JOPEA).

Olives also play a significant role in Jordan, with large numbers of olive farms belonging to small and medium-size holders, representing a source of income for rural families, and providing seasonal job opportunities in rural areas. Around 180,000 families receive a portion or all of their income from olive production.[73]<sup>73</sup> Olive trees are also well known for being drought resistant; 76 percent of Jordan's olive orchards are rainfed. CC impacts on Jordan's olive orchards are predicted to be severe, and not only reducing crop yields, but alter phenological timings, such as flowering and will extend seasonal growth and accelerate fruit maturity, which will not only require cultural adaptations, but will affect final product qualities.[74]<sup>74</sup> While drought-tolerant, Olive trees go dormant and can even die during periods of consistent high temperatures, while lower number of chilling hours in winter also are predicted to reduce crop yields. Additionally, low production costs and low maintenance needs also makes them appropriate SLM candidates.

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? Beekeeping:

Of the listed project value chains, beekeeping and honey production is the lesser developed sectors, yet has been identified as a potential market for growth and development, according to USAID and other lead agencies working in the area. Many areas in Jordan have diverse ecosystems and are rich in melliferous plants, yet are not being managed or used for beekeeping. In addition, collaborations with the horticultural industry to diversify incomes and increase pollination and crop yields have not been explored.

Jordanian beekeepers have received little or no formal training and lack marketing and business management skills. Apiary and honey and other apiary product processing equipment is typically rudimentary and global expansion of key pests species are also limiting potential production

CC will also negatively affect this currently underdeveloped sector. A change in temperature upward to abnormal limits significantly reduces the flight activity of bees.[75]<sup>75</sup> At high temperatures, a significant proportion of worker bees gather under the hive to cool their bodies. Research shows that the rise in temperature has caused the formation of toxic substances in nectar and pollen of many plants, which can cause basic melliferous plants to become poisonous to bees.[76]<sup>76</sup> Introduction and development of beekeeping in the region will consider the climate trends and future impacts to determine timing and geographical location of activities.

### **Validation of SLM practices and Climate**

The participatory stakeholder consultations also allowed for inputs on previous projects and GoJ-led initiatives and SLM practices for the target Governates. The FGDs and Key Informants Interviews (KII) revealed the projects implemented in Irbid, Ajloun and Mafraq over the last 10 years related to land degradation and sustainable land management that had enjoyed success were community-based and had a wide base of support by government and non-governmental organizations working in the targets areas.

More specifically, the SLM approaches that had been successful and were promoted as best practice by Governate stakeholders are described below (Table 7).

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**Table 7.** Description of the SLM technologies identified by stakeholders during project development:

<b>NAME OF SLM</b>	<b>DEFINITION (FAO)</b>	<b>TARGETED BENEFICIARIES</b>	<b>BARRIERS</b>
Water Harvesting	<p>"collection of runoff for its productive use".<sup>[77]</sup><sup>77</sup></p> <p>Runoff may be harvested from roofs and ground surfaces as well as from intermittent or ephemeral watercourses.</p>	Rural and urban communities, land users, especially those dependent on natural resources for livelihoods and drainage-basin communities	Cost of construction and upkeep, debatable returns on investment (lack of data), lack of economic incentives, knowledge gaps
Water-saving and recovery technologies	Technologies or approaches that increase production efficiency or water recovery rates for secondary uses	Small and medium size farms, rural households and communities, value chain operators	Initial investment costs and high amortization, maintenance, lack of economic incentives, knowledge gaps
Soil fertility practices & technologies	Soil fertility is the ability of a soil to sustain plant growth by providing essential plant nutrients and favorable chemical, physical, and biological characteristics as a habitat for plant growth. <sup>[78]</sup> <sup>78</sup>	Small and medium size farms, rural households and communities, value chain operators	Lack of economic incentives, knowledge gaps

Soil conservation practices & technologies	Reversing the degradation of soil, water and biological resources and enhancing crop and livestock production through appropriate land use and management practices are essential components in achieving food and livelihood security[79] <sup>79</sup>	Small and medium size farms, rural households and communities, drainage-basin communities	Lack of economic incentives, knowledge gaps
Forest Regeneration	Forest regeneration is the application of technology to allow forest to return to their ecological climax after trees have been harvested or have died from fire, insects, or disease.	Rural and urban communities, land users, especially those dependent on natural resources for livelihoods and drainage-basin communities, value chain and tourism operators	Initial investment costs, lack of economic incentives, knowledge gaps
Rangeland rehabilitation	Process by which rangeland species return to a contextually appropriate species composition and land productivity as stipulated by the Land Potential[80] <sup>80</sup> and land management objectives	Pastoralists, rural households, rural communities and drainage-basin communities	Initial investment costs, lack of economic incentives, knowledge gaps

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Climate Smart Agriculture and integrated farm design	Climate-smart agriculture (CSA) is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate.[81] <sup>81</sup> Integral, holistic design of the production space is a key element to the approach.	Small and medium size farms, rural households and communities, drainage-basin communities	Initial investment costs, lack of economic incentives, knowledge gaps
Wetlands and Riparian zone rehabilitation	Process by which riparian forest and wetland species return to their historic species composition and density	Rural and urban communities, land users, especially those dependent on natural resources for livelihoods and drainage-basin communities, value chain and tourism operators	Initial investment costs, lack of economic incentives, knowledge gaps

Detailed information on each SLM practice is provided in the tables below:

<b>Water Harvesting</b>	
The three-targeted regions showed different model of water catchment successful techniques such as Hafir and Water Ponds and Romani Wells as in Mafraq. In addition, some rangeland rehabilitation programs used the V"-shaped micro catchments and contour catchment systems in the Badia area. On the other hand, water-harvesting techniques in both Ajloun and Irbid focused more at the household level (Rooftop Rain Water Harvesting) and "V"-shaped micro catchments and contour catchment systems for farms.	
Governate	Baseline
<b>Mafraq</b>	Medium-low presence and usage of water harvesting due to low rainfall
<b>Irbid</b>	Widespread acceptance and usage of water harvesting due to high rainfall
<b>Ajloun</b>	Widespread acceptance and usage of water harvesting due to high rainfall

<b>CC risks</b>	<p>Lower precipitation rates contrast with increases in rainfall intensity and flooding risks. This poses issues for water harvesting, in that precipitation rates will decrease, yet infrastructure, especially physical water capture and storage units, need to be built to withstand extreme climate events, increasing their costs.</p> <p>Landscape planning and green infrastructures can help to mitigate these risks and reduce costs, and should be considered and contrasted with more standard approaches.</p>
<b>Recommendations</b>	<p>Provide technical support and financial incentives to local communities to adopt water-harvesting techniques on private lands and use LDN DSS and stakeholder-endorsed land management plans to study the landscape context to site project activities on State Lands (Output 1.1.4/2.2.1) and ensure application of proper techniques.</p>

<b>Water-saving and recovery technologies</b>	
<p>Waste and Greywater recovery, drip irrigation and improvement of existing water distribution systems leads to increased water use efficiency and economic returns. It also reduces pressure on surface and groundwater reserves. This relates to Jordan's voluntary LDN targets #5</p>	
<b>Governate</b>	<b>Baseline</b>
<b>Mafraq</b>	<p>Most households and urban centres are isolated and have rudimentary collection and treatment systems.</p> <p>Drip irrigation is most common irrigation system used in Mafraq</p>
<b>Irbid</b>	<p>Waste water recovery is practiced in most locations, though maintenance and further investment is needed.</p> <p>Drip irrigation is most common irrigation system used in Irbid;</p> <p>Illegal water usage (non-licensed ground water usage/unbilled water use) and the excessive pumping (over pumping) still are issues for area</p>
<b>Ajloun</b>	<p>Waste water recovery is practiced in most locations, though maintenance and further investment is needed.</p> <p>Drip irrigation is used in some areas</p>
<b>CC risks</b>	<p>Flooding and extreme heat can cause damage to water-saving technologies in low-lying areas</p>

<b>Recommendations</b>	Incentivise locals and farmers to increase use of drip irrigation and maintain water distribution networks in optimal condition. Provide technical support to improve water quality and infiltration and retention in soils through cover crops and SOC. These technologies will be combined with the above-mentioned water harvesting and green infrastructure techniques to increase yield by synergizing activities.
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<b>Soil fertility practices &amp; technologies</b>	
<p>Recuperation of traditional soil management practices are in line with Jordan's voluntary LDN targets #5. Together with crop rotations that optimise soil structure and soil organic matter accumulation it improves their chemical, physical and biological characteristics in cultivated, rangeland and forestry areas.</p>	
<b>Governate</b>	<b>Baseline</b>
<b>Mafrq</b>	<p>Sandy soil with low clay content and low levels of SOC make soil fertility and water retention difficult</p> <p>Production of organic fertilizers at the household level is not common</p> <p>Irrigated cereal monocultures are heavily dependents on agricultural inputs</p> <p>Crop rotations / cover crops are not commonly practiced</p>
<b>Irbid</b>	<p>Heavy clay soils provide for improved fertility rates, yet require adequate attention to their structure</p> <p>Soil amendments and organic fertilizers are commonly produced at the household level</p> <p>Dependence on agricultural inputs is nonetheless high</p> <p>Rotations are practiced on smaller plots</p>
<b>Ajloun</b>	<p>Light to medium clay soils provide for good fertility rates</p> <p>Soil amendments and organic fertilizers are commonly produced at the household level</p> <p>Dependence on agricultural inputs is nonetheless high</p> <p>Rotations are practiced on smaller plots</p>
<b>CC risks</b>	<p>Increased temperatures and decreased precipitation are expected to reduce local soil capacities to accumulate SOC in soil profiles, as well as reduce the efficiency of synthetic fertilisers. Diversification and use of leguminous crops and cover crops, plus inputs of soil amendments, can increase soil productivity and fertility under CC conditions, while keeping production costs low.</p>

<b>Recommendations</b>	Provide training and demonstrations of improved soil management practices that build soil fertility and structure, allowing for increased water infiltration, biological activity and aeration.
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Soil conservation practices & technologies	
Soil movement due to wind, water and human and animal traffic is prevalent in Jordan. However, soil conservation measures, such as terraces, contour tillage, gabions <sup>[82]</sup> , weirs and other soil stabilisation technologies, have been proven to be effective at stabilising soil to wind and water erosion, more so if combined with reforestation works.	
Governate	Baseline
<b>Mafraq</b>	The large size of the Governate and prevalence of wind erosion as the main erosion type make its use in Mafraq difficult  It is suitable for more abrupt topography in rainfed areas and around settlements to stabilize moving sands using larger structures, yet is currently uncommon.
<b>Irbid</b>	Widespread acceptance and usage of soil conservation measures, i.e. terraces, contour tillage, and stonewalls, as a SLM best practice to conserve soil.  The topography in the highlands encourage farmers and locals to adopt such techniques as they provide clear returns for the effort.
<b>Ajloun</b>	Widespread acceptance and usage of soil conservation measures, i.e. terraces, contour tillage, and stonewalls, as a SLM best practice to conserve soil.  The topography in the highlands encourage farmers and locals to adopt such techniques as they provide clear returns for the effort.
<b>CC risks</b>	Increased rainfall intensity will increase erodibility pressures on exposed soil surfaces as well as lessen available root mass and leaf litter due to decreasing average precipitation, making soil conservation measures necessary to maintain ecosystem and cultivated land productivity
<b>Recommendations</b>	Soil conservation measures such as terraces, contour tillage, and stonewalls are highly needed in Ajloun, and at Irbid highlands higher than needed in Mafraq due to topography. Technical support and incentives are needed to help spread adoption among locals and famers.

<b>Forest Regeneration</b>
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Forest regeneration is a principal component of Jordan's voluntary LDN targets #1 and #2. Stakeholder recommend using a wider variety of natural and assisted reforestation and afforestation techniques, with a strong focus on recovering native species. Like most countries, Jordan faces challenges related to the adopted wrong management practices such as mixing forest seeds together ignoring the genetic makeup of the collected seeds which later grown in environmental different than the original environment that adapted for. Locally-sourced seed or seedlings are often not produced by commercial nurseries, and individuals often lack the technical and material support to produce these species in sufficient numbers for reforestation works.

Governate	Baseline
<b>Mafrq</b>	<ul style="list-style-type: none"> <li>? There are currently insufficient financial and human resources to conduct reforestation and afforestation programs in Mafrq</li> <li>? Although the forest area is limited by low precipitation in Mafrq, there is the potential for expansion if overgrazing was addressed and community support was provided</li> <li>? Traditional reforestation techniques that rely on the planting of seedling of commercial forestry species have experienced high rates of failure</li> </ul>
<b>Irbid</b>	<ul style="list-style-type: none"> <li>? Governate has a established tradition of realising reforestation and afforestation programs</li> <li>? Higher rainfall rates facilitates natural regeneration under limited grazing situations</li> <li>? Reforestation efficiency using traditional reforestation techniques is below what would be considered acceptable</li> <li>? Governate contains some of the more emblematic forest reserves (Yarmouk Forest Reserve)</li> </ul>
<b>Ajloun</b>	<ul style="list-style-type: none"> <li>? Governate has a established tradition of realising reforestation and afforestation programs</li> <li>? Higher rainfall rates facilitates natural regeneration under limited grazing situations</li> <li>? Reforestation efficiency using traditional reforestation techniques is below what would be considered acceptable using</li> </ul>
<b>CC risks</b>	Use of drought tolerant, sclerophyll species and native deep-rooting shrubs would offer more resilience under increasing temperatures and drought conditions.

<b>Recommendations</b>	Assisted Natural Reforestation is recommended for the higher rainfall areas though it needs to be realised within a management plan context to not only reduce overgrazing but also to allow livestock to reduce flammable biomass, eat windfall resources and maintain soil fertility. In addition, the establishment of community-supported plant nurseries to produce local plant species was a common proposal among the stakeholders. Trees and shrubs that can offer multiple benefits should also be prioritized, considering those that can have multiple uses (Windbreaker curtains, wood, forage, CO2 capture and nitrogen fixation, shade for crops and livestock, living barriers, erosion control by containment slopes to control drainage and advance of gullies, etc.)
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Rangeland rehabilitation	
<p>Rangeland rehabilitation and productivity is the principal focus for Jordan voluntary LDN Target #3. Mafraq is the Governate whose stakeholders were most adamant about the importance of the rangelands to local livelihoods and their high level of degradation. The loss of traditional management systems has led to a 'first come, first serve' communal approach to range management that is not allowing for grasses and shrubs to recover from intense, continuous grazing applications. Nonetheless, much work has been done working on SLM approaches to Jordan's rangelands and the Hima system of management has been reinstated in some areas. However, this work has not been scaled within a larger, Governate level approach to improve grazing productivity and the seasonality of rangeland resources.</p>	
Governate	Baseline
<b>Mafraq</b>	<ul style="list-style-type: none"> <li>? High to medium levels of rangeland degradation</li> <li>? Selective grazing of palatable species occurring</li> <li>? Grazing restricted to water point areas and settlements</li> <li>? Experiences and demonstrations have been conducted using Artemisia and Atriplex, although farmers consulted in area say they prefer Salsola spp.</li> </ul>
<b>Irbid</b>	<p>Rangeland degradation was not considered a priority for stakeholders in this Governate</p> <p>Selective grazing of palatable species occurring</p> <p>These areas provide habitat for many of the Governates IUCN red-list species</p> <p>Higher rainfall allows provides potential for silvopastoral production systems</p> <p>Governate contains some of the more emblematic rangeland and grassland reserves</p>

<b>Ajloun</b>	<p>Rangeland degradation was not considered a priority for stakeholders in this Governate</p> <p>Selective grazing of palatable species occurring</p> <p>These areas provide habitat for many of the Governates IUCN red-list species</p> <p>Higher rainfall allows provides potential for silvopastoral production systems</p>
<b>CC risks</b>	<p>Under continuous grazing conditions, it is difficult to understand land potential under improved management, yet those rangeland improvement systems that allow for plant recovery between grazing applications has allowed for regeneration of rangelands, even under low rainfall situations. Therefore, this practice fits well within current climate scenarios.</p>
<b>Recommendations</b>	<p>Grazing applications need to take into account recovery times of palatable species between grazing applications. This can take many forms according to local context and needs, but might mean permanent fencing in wetter climates where management units are small (&gt;1 ha), or herding in arid areas where livestock movement is essential.</p>

Climate Smart Agriculture and integrated farm design	
<p>Drought resistant crops and varieties, multispecies or mixed cropping of perennial and annual species, cover crops and green manures, integration of livestock and cropping and Climate Smart Agricultural practices are all options under Conservation Agriculture (CA)</p>	
Governate	Baseline
<b>Mafraq</b>	<ul style="list-style-type: none"> <li>? Current use of drought resistant horticultural (Olive, Grape) and cereal (barley) crops.</li> <li>? Further potential exists with annual cropping and integral farm design.</li> <li>? Native forage species produced in plantation style could increase offer of quality fodder</li> </ul>
<b>Irbid</b>	<ul style="list-style-type: none"> <li>? Lack of transition of cropping approaches and types to new climatic patterns not evident and current systems rely on increasing scarce water sources.</li> <li>? Isolated examples of innovative SLM approaches and integrated, efficient farm design exist but have not achieved scaling</li> </ul>
<b>Ajloun</b>	<ul style="list-style-type: none"> <li>? Lack of transition of cropping approaches and types to new climatic patterns not evident and current systems rely on increasing scarce water sources.</li> <li>? Isolated examples of innovative SLM approaches and integrated, efficient farm design exist but have not achieved scaling</li> </ul>

<b>CC risks</b>	Increasing aridity could reduce annual cropping production below economic thresholds in North-Central Jordan, thus limiting options for intercropping and integrated farm design.
<b>Recommendations</b>	Drought resistant crops typically meet production targets in terms of yield per water, labor and fertiliser cost, yet fail to have a developed market or adequate economic return to justify their promotion. Research and expansion of drought and heat resistant varieties of current crop types may increase adoption rates by small to medium size farms.

<b>Wetlands and Riparian zone rehabilitation</b>	
Often the most productive, and abused, areas of the landscape, the lower drainage and wetlands have seen a continual degradation and removal of vegetation as a result of poor land management and overexploitation. Riparian corridors and forest provide refuge in arid environments and should be restored through engagement with communities and participatory land planning.	
<b>Governate</b>	<b>Baseline</b>
<b>Mafrq</b>	Limited attention, maintenance and rehabilitation activities are directed at wetland or riparian forest conservation or restoration, by either government, international organizations, investors or producers
<b>Irbid</b>	Limited attention, maintenance and rehabilitation activities are directed at wetland or riparian forest conservation or restoration, by either government, international organizations, investors or producers
<b>Ajloun</b>	Limited attention, maintenance and rehabilitation activities are directed at wetland or riparian forest conservation or restoration, by either government, international organizations, investors or producers
<b>CC risks</b>	Increased aridity and frequency of flooding are predicted which will reduce productivity of these areas. However, they are often the most productive sites in the landscape and can act to cool landscapes, increase water flow in streams and rivers, and provide habitat and refuge for wildlife in arid environments when properly conserved, thus making them vital components for Climate Change Adaptation (CCA)
<b>Recommendations</b>	Targeted knowledge products outlining role of riparian and wetland areas in maintaining ecosystem services. Production of native seedlings in FFS and other project run nurseries. Targeted activities (Output 1.1.4) to improve water retention, infiltration and flow through riparian areas. Work with local communities to maintain restoration activities and endorse land management plans (Output 2.2.1).

Other proposed activities by stakeholders were as follows:

- Diversified and strengthened livelihoods and sources of income for vulnerable people (women and youth) in targeted areas like sustainable practice which increase crop productivity, irrigation network efficiency, canals maintenance,..
- Facilitate access financial resources, provide financial instruments like guarantee, revolving fund, grants, equity,..
- Support small farmers on promote market, labeling and packaging.
- Conducting an integrated study of the region with the aim of shedding light on wildlife, biodiversity, available tourism opportunities, and integrating local communities into the tourism sector by creating opportunities for development and tourism projects in the region.
- Explain the role of ecotourism as a sustainable tourist destination to enhance the preservation of wildlife and biodiversity.
- Preparing the training manual to build the capacity of guides in the field of ecotourism as a participatory tool to improve public capacities and avoid the lack of knowledge and skills related to ecotourism.
- Introducing the concept of agrotourism, which is an activity through which farmers are able to receive visitors (citizens, residents and foreigners) on their farms and organize programs, activities and events that are beneficial and enjoyable for them. Thus achieving economic benefit with the recreational, scientific, sports, cultural and environmental benefit for visitors, including learning about environmentally friendly agricultural alternatives.
- Creating support for farmers by rehabilitating some neglected agricultural lands, and developing infrastructure, such as constructing some wooden huts, information signs, paths and paths in agricultural fields in order to stimulate agricultural tourism.
- Introducing invasive species should be considered as "Not recommended Practice?". Such introduction "if exists- should be among the most important redline consideration at national level when it comes to best SLM practices.

These recommendations and SLM proposals are in line with those made by the Third National Communication (TNC) to UNFCCC. Under this report, adaptation strategies and measures suggested for the water sector included: Rainwater harvesting, Wastewater treatment, Desalination, Increasing Efficiency of irrigation technologies, Grey water Reuse and Public awareness.

For instance, in the Badia Restoration Program (BRP) Community Action Plan (CAP) 2011-2019, SLM options were studied and presented in great detail. Those SLM options covered under this report and that are directly related to those listed by stakeholders are:

- ? Development of Macro-catchment Structures
- ? Development of Micro-catchment Structures
- ? Water Spreading and Soil Conservation
- ? Planting Native Fodder Shrubs
- ? Protection and Managed Grazing
- ? Improving Water Quality for Livestock Watering
- ? Facilitating Access to Watersheds

They also have SLM and other earthworking machinery, plus materials and contacts within the same areas this project intends to work, according to conversations with their coordinator.

### **1.3. Project Theory of Change**

According to the IPCC report on Land, SLM, including sustainable forest management, can prevent and reduce land degradation, maintain land productivity, and sometimes reverse the adverse impacts of climate change on land degradation.[83]<sup>83</sup> Using a holistic, contextual framework on which decisions can best tested and actions prioritized, the LDN approach hierarchy of 'avoid, reduce and reverse?' allows for perspective and attention of key stakeholders and sectors on land degradation issues. It is also scalable, allowing for data and information to be captured and relevant to scales from individual farms to watersheds to larger administrative units. It provides cost effective, immediate, and long-term benefits to communities, taking into account available resources and potential options and returns on investments. It is also clearly linked to several SDGs, with co-benefits for adaptation to and mitigation of climate change. The project will therefore promote SLM/SFM and landscapes restoration for achieving LDN commitments, through application of the framework and supporting decision -making tools and using the landscape approach[84]<sup>84</sup> to integration across sectors and scales increases the chance of maximizing co-benefits and minimizing trade-offs.

LDN also marks a change in how LD and nature conservation has traditionally been approached. It recognised the need for land use by communities and allows to a certain degree for sacrificial areas and other difficult to avoid LD hotspots. At least in the early stages of land planning, such hotspots and high use areas are difficult to avoid. This recognition and spatial representation of LD also provides a baseline on which communities can be informed about real and potential LD and work to address management issues and drivers, as well as find solutions to hotspot areas. Furthermore, LDN steps away from a more rigid conservation model in that it recognises that landscapes have historically been, and currently are, in a state of change, not only as markets and other sectoral demands transition to new states and demands, but as CC and other environmental issues impact local ecosystems.

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It is important to mention that while LDN is bound to SDG target 15.3 and its indicator SDG 15.3.1 which was presented above (and is normally reported by countries to UNCCD), there is a holistic approach of considering the whole LDN impact Pathway. This means not only focus on SDG 15.3.1 Change of State indicator, but also on Response Indicators (linked to capacity building, mainstreaming legislation, etc.) and Stress Reduction Indicators (linked to SLM, good practices, etc). Besides the obvious benefits from this holistic approach in achieving LDN the projects normally invest most resources in Components dedicated to enabling environment and SLM. This effort can be better capitalized in the monitoring and reporting if the whole LDN impact pathway is considered as the goal instead of just the SDG 15.3.1.

Nonetheless, the challenges and barriers to LDN and the upscaling and mainstreaming of SLM practices within an integral landscape context are formidable. For this reason, a well defined strategic approach that recognises and outlines capacities and resources and then allows for participatory identification key priorities is needed within context where funding and resources are highly limited.

Against this background, the project will implement the following approach that aims to consider the whole LDN impact Pathway.

### **Project Objective, Outcomes and proposed Causal Pathways (CP)**

The project objective is to support the national efforts to implement LDN national targets through SLM and contribute to the achievement of SDGs 15.2 and 15.3, delivering particularly on LDN-TSP targets 1,2, 3 and 5 pertaining to forest management and rehabilitation and improved productivity of rangeland and bare land, in the Aljoun, Irbid and Mafraq Governorates. The project will work within the Governorates of Aljoun, Irbid and Mafraq to support the target beneficiaries to deliver the GEB (global environmental benefits) through the application of the LDN conceptual framework in line with the UNCCD guidelines in the pilot areas and watersheds/landscapes outlined below. Through the project, the following Outcomes will be delivered:

1.1: Land use planning and monitoring frameworks strengthened at national and sub-national levels to support LDN

1.2: LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes

1.3: Enhanced capacity at national and sub-national levels to support the achievement of LDN in Irbid, Mafraq, and Ajloun Governorates

2.1: Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Irbid, Mafraq and Ajloun Governorates

2.2: Increased investments in sustainable land management to achieve LDN

3.1: Knowledge management, M&E and lessons learned disseminated

To achieve these Outcomes, the causal pathways<sup>[85]</sup> prescribed to effectively address the barriers describe in the earlier sections are as follows:

CP1: M&E of Key Performance Indicators (SDG 15.3.1 indicators and national LDN indicators)

CP2: Policy reform

CP3: ILM through LDN conceptual framework

CP4: Training/ capacity building

CP5: Value Chain enhancement

CP6: R&D on improved SLM technologies with LDN Framework

CP7: Knowledge sharing and networking

CP8: Conflict Sensitive Programming

Through supporting activities that provide for the causal pathways, it is assumed<sup>[86]</sup> that the identified beneficiaries would benefit from capacity changes in knowledge, attitudes, aspirations, skills, & opportunities, leading to behavioural changes and therefore improved land use selection and natural resource management.<sup>[87]</sup> It is therefore through improved landscape scale planning and livelihoods and equality measures that promote SLM that the project envisions achieving the objective. The role of each causal pathway are briefly described below:

**CP1: M&E of Key Performance Indicators (SDG 15.3.1 indicators and national LDN indicators)**

Measurement of specific metrics or indicators is vital to understanding the impacts of activities and management. Key Performance Indicators have long been used as instruments to measure how funds were being spent and what was being achieved in real terms with public funds.<sup>[88]</sup> In this case, the focus is on measurement of LD not only as a state, but of trends over time to build baselines and

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understand consequence of actions and decisions within a highly complex system context that has local, regional and national implications that are interlinked.

Those countries that have to date attempted to implement LDN have struggled to apply results or find indicators that speak to a wide variety of stakeholders and data needs. For instance, both Ministry officials and Pasture User Groups in several countries have asked how to apply the results of LDN mapping and balances at national and pasture level scales. Along the same lines, most official stakeholder groups have expected to be able very early in the process to develop the final methodology for data collection and find common ground on additional national indicators, though in practice this has not been the case.

Much of this comes from the fact that the three SDG 15.3.1 sub-indicators described in the previous section are *Change of State* indicators and represent only one dimension in the LDN impact Pathway, providing for the view that this alone is not enough to capture more subtle changes in landscape processes until a change of state has been made.[89]<sup>89</sup> How to link the spatial results and trends to LDN practices is also under debate and testing.

To monitor LDN along its entire impact pathway there is the need to include also *Process* and *Response* indicators that are related to strengthening of the enabling environment, which includes policy framework changes, increased capacities of stakeholders and improved information /monitoring systems. Also, there are the *Stress Reduction/Change of Pressure* indicators, these ones are the improved management of natural resources, sustainable management practices, land-use planning activities, that in time may produce or not a *Change of State*, but will act in avoiding and reducing land degradation.

Essential to this process is LDN Principle #19. Monitoring should be viewed as **a vehicle for learning**. Monitoring provides: opportunities for capacity building; the basis for testing hypotheses that underpin the counterbalancing decisions and the interventions implemented, the LDN concept, and this conceptual framework; and knowledge to inform adaptive management?.

Therefore, under this project the aim is to develop, **test** and consolidate an accepted methodology for measuring LD and ecological trends and having an agreed system of criteria for defining LD. It will initially attempt to do so through systematic measurement of the three global voluntary LDN indicators (land cover change, Net primary productivity trend, and Soil Organic Carbon trend), supported by the recently developed LDN Interpretation Matrix.[90]<sup>90</sup>, plus the additional national impact, process, and stress-reduction indicators described below[91]<sup>91</sup> Each of the *impact indicators* assesses a different aspect relevant to LDN: LCC detects the human actions that drive land degradation and its reversal; land productivity reflects the impacts of those drivers on plant production as a measure of ecosystem function; and change in the SOC stocks, which responds more slowly, indicates a change in productive capacity. During the PPG phase, the design team developed described above to jumpstart the process for project implementation. the interactive app described above to jumpstart the process for project implementation.

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Additional national impact indicators have been proposed and validated during the PPG phase by the GoJ as those chosen to begin project implementation. These were based closely on the 5 voluntary LDN national targets. Further verification, including methodological development for participatory data collection and assigning the responsible parties within the Government. This will be carried out under Component 1 (see Annex H Work Plan).

National *impact indicators* based on Jordan's 5 voluntary targets include the following:

- ? Area under community based forest management (ha, expansion)
- ? Portion (%) of land classed as forest or woodland (ha)
- ? Portion (%) of land classed as arable land (ha)
- ? Forest Productivity (NDVI, and other productivity measurements)
- ? Rangelands productivity (Range of measurement options available can we say where to find how to measure it)
- ? Cropland productivity (Remote sensing and field assessment)
- ? Bare lands / Badia productivity
- ? Soil health (Properties via Field Assessment and Digital Soil Mapping)

*Process indicators* include the following:

- ? Adoption of the LDN monitoring framework
- ? Strengthened LDN monitoring framework:
  - o Improved governance for forestry, pastoral and agricultural land systems
  - o Number of sectoral and local authorities that report on improved legal framework supporting sustainable land management
  - o Number of participatory landscape management plans
  - o Number of people trained on SLM on pasturelands and investment planning (described by group)

*Stress-reduction indicators* include the following environmental and socio-economic indicators:

*Environmental:*

- ? Increased amount of productive pasturelands and forestlands (2,750ha restored and 25,000 ha under improved SLM practices)
- ? Increased CO2 sequestration in pasturelands and forests (2,539,046 metric tonnes CO2-eq)
- ? Increased climate resilience of the landscapes

*Socio-economic:*

- ? A number of farmers with access to advisory/extension services or FFS tutorials (total # per administrative district per region)
- ? Increased investments in SLM
- ? Number of awareness raising activities
- ? Increased livelihoods and economic resilience through improved climate resilient bee-keeping, medicinal plants, and milk value chains
- ? Improved food security
- ? Increased social resilience and human well-being (Gender equality, access to information and finance)
- ? Improved access to finance for small-holder farmers
- ? Increased climate resilience of the local farmer communities

**CP2: Policy reform**

As typically the most difficult causal pathway to influence and change, it is often where the most significant barriers, logjams and barriers to SLM and SFM are found. Policy reform is also vital to scaling of SLM and SFM practices, especially under the requirements and ambition of the LDN framework. Lastly, policy reform plays a key role in developing incentives for increased SLM, SFM and water-saving approaches.

Study of national context and baselines presented above have shown that there are a number of land planning councils and higher institutions, and a clear institutional responsibility for management of State lands by the DLA. However, currently no clear policy frameworks exists on which to collect LD data, analyse results and assign activities through a stakeholder-endorsed LDN action plan that not only collects data and provides analysis of State lands, but LD status of the landscape as a whole. At a sectoral level, few incentive programs aimed at increasing SLM and water-saving exist, especially for small to medium scale farms. Increasing income and education gaps threaten to increase market restrictions and further limit economic opportunities for these groups.

From a CC perspective, the key adaptation measure to climate change is setting and implementing a sustainable agriculture and land use policy. Adaptation measures vary horizontally according to the agricultural subsectors and their vulnerability to climate change. These measures vary vertically according to the different actors involved in the development and implementation of this policy. The policy adaptation strategies identified for Jordan under the Third National Communication<sup>[92]</sup> to the UNFCCC include: Agronomic and crop strategies that are intended to offset either partially or completely the loss of productivity caused by climate change through the application of defense tools with different temporal scales, e.g. short-term adjustments and long term national level adaptation and Socio-economic strategies intended to meet the agricultural costs of climate change.

The project's policy focused activities will therefore include policy reviews and assessments and publication of policy papers with clear, achievable recommendations for cross-sectoral coordination and collaboration within a revised national framework, as well as providing support to GoJ and Governate partners in testing and development of potential incentive programs.

### **CP3: ILM through LDN conceptual framework**

Achieving LDN requires land managers to monitor land use decisions that may impact the neutrality, and estimate their likely cumulative impacts, so that these can be counter-balanced by reversing land degradation on the same land type, elsewhere; and/or mitigated by the introduction of SLM or improved practices. Integrated Landscape Management models are nothing new to the country and Jordan has been recognised internationally for its innovative and forward-thinking regarding water and other natural resource planning and use.

As described in the earlier sections, Jordan has established land use planning processes, though they are principally focused on urban or industrial land use, with the DLA being primarily responsible for monitoring and management of State lands, including leasing and other oversight measures. Land tenure rights are also well-developed in Jordan, though land development and demand remain complex issues. The advantage of the LDN conceptual framework is that it provides decision-making context and classification of land uses on which to assess and prioritise resource development and use for multisectoral stakeholders.

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Land planning is recommended as a causal pathway, therefore, due to its logical links to the results of the LD assessments previously described and the counter-balancing objectives of the LDN framework. In fact, monitoring of LD through the proposed channels only has economic sense if the results have the capacity and necessary information to inform and influence decisions. As such, the project will develop participatory integrated land-use plans in the Governates of Aljoun, Irbid and Mafrua (Output 2.1.1) and manage land degradation counter-balancing at the landscape (waterbasin) level.

The increased coordination at wider landscape levels could also improve efficiency of pesticide applications, landscape-scale water retention through water harvesting and use of cover crops, increase forestry and other marginal land outputs and economic opportunities, etc. To ensure that counterbalancing measures do not diminish the well-being of land users, beneficiary targets identification has been participatory and inclusive, adhering to GEF guidelines and the GoJ protocols and standards, with efforts going towards supporting vulnerable livelihoods dependent on natural ecosystems and ecosystem services.

#### **CP4: Training/ capacity building**

The country of Jordan is internationally recognised as having a highly developed and inclusive education system that attends a wide range of needs and specialities. It has been a cornerstone in its economic development. Not only in health and industry, Jordanian institutions in Agriculture have long served the need for research in arid environments and now are developing digital formats to increase knowledge on key production issues for Jordan's producers.

Nonetheless, the PPG stage found important gaps in key populations and sectors. Of special importance were gaps in knowledge by small producers and vulnerable populations on issues relating to SLM options and systems thinking as applied to ecosystem services. The LDN survey showed that only 17% of women producers get training in agriculture issues, especially in those areas where they were most represented, such as the household vegetable and dairy industries. In all the identified value chains, lack of information on SLM and product quality issues were apparent, with an increasing knowledge and technology gap between commercial and small producer level production types.

Among other public and private sectors, LDN is still an innovative concept. To achieve project objective and outcomes, capacity will need to be built among key actors within private and public institutions, and training will play a key role in this process. Project developers will also need to look outside traditional groups for capacity building and knowledge transfer by including a wider range of sectors and representatives.

#### **CP5: Value Chain enhancement**

SLM and SFM options are ultimately subject to economic realities, thus making value chain development and diversification another vital component for project success in achieving project

outcomes. At the same time, the project needs to be realistic about what it can do given its own resource limitations.

The 4 selected value chains of Vegetables, Dairy, Olive and Beekeeping have deep structural and demand problems that will most likely remain outside of the project sphere of influence.<sup>[93]</sup> Value chain development and support are especially challenging for project developers given the role and importance of the private sector.

However there are components of the chains that can be targeted and improved within project scope and resource limitations, especially those related to production issues such as pest or post-harvest issues for cultivated crops, dairy hygiene and processing, increased efficiency and design of small holder farms and improved land productivity through rotational grazing for dairy and beekeeping.

At the same time, trainings and project sponsored events provide a valuable access point to specific social groups and increases networking and identification of potential areas for economic development. Showcasing successful models also builds confidence which is a key requirement ahead of any successful business venture or investment.

#### **CP6: R&D on improved SLM technologies within LDN framework**

While economic context are a requirement for applying individual SLM technologies, there is also a need for continued R&D on their role within a wider biophysical and social context. Jordanian institutions have pioneered arid varieties of modern crops as well as improved native and drought-resistant and innovative SLM approaches to water harvesting and waterbasin management. The revival of traditional, participatory management systems have also proven to provide multiple benefits. What LDN brings to the conversation is how these SLM approaches could work in unison to increase ecosystem services and achieve Jordan's LDN targets for 2030.

Therefore, further research and study of integral design and circular economies using a combination of SLM and innovative crop options and designs at farm level and participatory resource management and planning at landscape scales is a vital causal pathway for project outcomes.

#### **CP7: Knowledge sharing and networking**

Most likely one of the most effective and efficient causal pathways to implement behavioural change and development is knowledge sharing and networking. In fact, Jordan's long history of research, strategic planning and SLM technology development has prepared the ground for a vibrant and adaptive social ecosystem of information sharing and networking.

For the most part the project will rely on multiple training and capacity building approaches, from Farmer Field Schools (FFS, or Agro-Pastoral Field Schools (APFS), as well as training and capacity building provided to other organisations or entities, value chain interventions, field days and special events, in addition to awards ceremonies and exchange visits (farmer to farmer), to increase social interactions and sharing of ideas and business models.

#### **CP8: Conflict Sensitive Programming**

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The project will also focus on contributing to the social stability in the projects' implementation areas. Wishing to ensure a win-win approach for all community groups through the LDN process, understanding that the project activities will encounter and interact in a positive and negative manner with certain new community realities, dynamics and practices generated as a result of land degradation coping mechanisms, and understanding that the project can create competition in the targeted communities through benefits it can generate, the project will implement its activities in a conflict sensitive manner.

In line with FAO's practice of conflict-sensitive programming, project activities are allocated for the assessment of disagreement/ tension and peace drivers related to water and land in the implementation areas, with specific focus on project activities relation community dynamics. Complementing such analysis activities will be the implementation of a conflict-sensitive Programme Clinic, which will allow the project team and partners to discuss the results of the assessment and put together recommendations on implementing project activities in line with the discovered community sensitivities.

The Programme Clinic is part of FAO's official methodology to mainstream conflict-sensitivity into its programmes, projects and activities. FAO's Programme Clinic for Designing Conflict-sensitive Interventions is a structured participatory analysis designed to identify and integrate 'conflict-sensitive' strategies into the design and implementation of FAO interventions. Implemented in the form of facilitated and participatory workshops/ webinars, the Clinic's aim is to bring forward a set of programming recommendations based on answering a series of learning questions related to conflict dynamics in the project implementation areas, and the relationship dynamics between project stakeholders, beneficiaries and the wider community.

It is assumed that under the specified baseline and through the project Theory of Change, confidence and transfer of knowledge will increase sustainable agricultural practices and land management, allowing for Jordan to meet its 5 voluntary LDN targets by 2030.

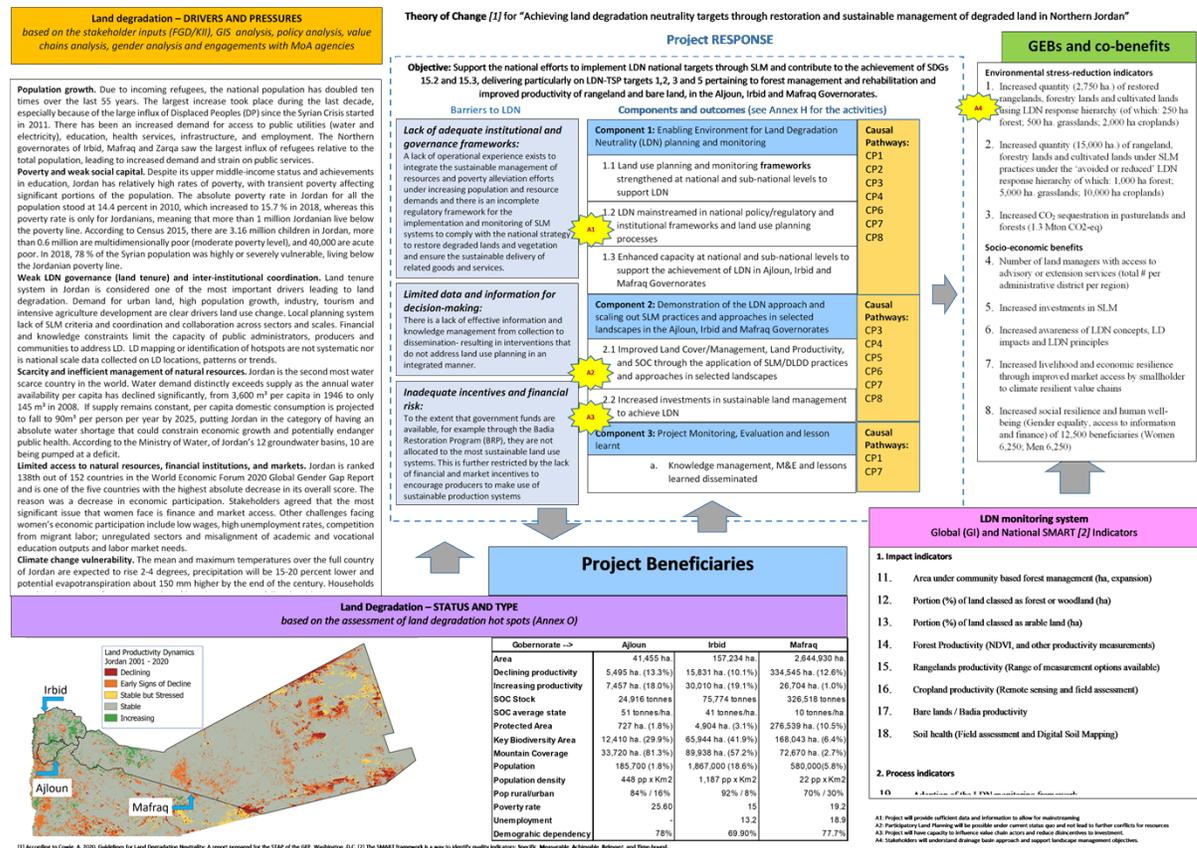
### **Project Theory of Change**

The Theory of Change (ToC) for the project was developed to provide to assure quality of the intervention in the complex and multi-causal contexts. The ToC diagram (Figure 4) outlines a set of key causal pathways arising from the project activities and the assumptions underlying these causal connections. It ensures stakeholder engagement throughout the lifecycle of the project; helps define and analyze monitoring data that contribute to continuous learning through the intervention; constraints the flexibility boundaries in the project to genuine adaptability justified by thoughtful amendments to the

ToC and consistent with agreed goals, rather than being a result of arbitrary deviations; frames ex post evaluation; and aids learning that informs subsequent projects[94]<sup>94</sup>. The ToC follows the STAP guidelines on the scientific conceptual framework for LDN[95]<sup>95</sup> and takes a phased approach adapting the DPSIR framework[96]<sup>96</sup> to the project needs.

## Project Theory of Change.

The project Theory of Change is available in the document attached, and as a Figure in the following page (Figure 4).



**Figure 4.** GCP/JOR/024/GFF Theory of Change

## **Description of Project Components, Outcomes and Outputs**

Detailed in this section are the Components, Outcomes and Outputs for the GCP/JOR/024/GFF .Activities for the outputs typically follow a step-wise approach and are detailed for this output, and for all following outputs, in the project Workplan (Annex H), as well as being closely linked to the indicators outlined in the LogFrame (Annex A1).

### **Component 1. Enabling Environment for Land Degradation Neutrality (LDN) planning and monitoring**

*Outcome 1.1. Land use planning and monitoring frameworks strengthened at national and sub-national levels to support LDN*

- 1.1.1. The baseline measured by a set of three global LDN indicators (Land cover, Land productivity, SOC) and land degradation status in various land use types (e.g. forest, grassland) in demonstration landscapes verified

The interactive mapping app does allow for observation of different data layers generated within a GIS environment; this allows for speed and efficiency in covering large areas, yet the PPG phase was not able to assess and collect site-specific field data and stakeholder observations. This information and a concise ground-truthing campaign to validate the mapping data presented in the interactive online app should be the focus of this output.

Although a range of field-based assessment approaches and methodology options are available, experience in application of LDN assessments in other countries has been the need for a tailored approach that incorporated different elements of the available methodologies as data needs become clear through consistent stakeholder interventions at the multiple scales involved. This said, the Participatory Assessment of Land Degradation and Sustainable Land management in Grassland and Pastoral Systems (PRAGA) has been the most widely used tool for this process, in addition to Land Degradation Assessment in Drylands (LADA), GLEAM and a number of others developed, although most need some modification to collect data for the LDN conceptual framework. Issues mentioned above about monitoring changes of state and the need for national stress indicators to better understand disequilibriums within the system before a change of state occurs are also an essential component of the process. This includes a significant input from local stakeholders and landusers.[97]<sup>97</sup>

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The size and diversity of ecosystem types also implies certain conditions on field and stakeholder data collection approaches. Smaller areas obviously allow for more precise and detailed data that can be collected using grid, blanket or transect approaches, while open, homogenous landscapes require a more cost-effective and speedier collection process and reliance on stakeholder opinions and suggestions. SOC measurement and baseline establishment is also proving problematic and will require attention and innovative thinking on how it can be cheaply and effectively measured to support baselines.

The baseline field data would be collected at an early stage in the project development, and recommendations would be built on the excellent knowledge and technical base that exists within the NARC and ICARDA, who have been responsible for previous LD assessments, and compare against those models currently being employed at a global level to collect LDN specific or supporting data types. There are currently many solid and scientific methods and available datasets for the three global indicators, yet many of them show contrasting results in some areas. Besides that, scale issues have also been identified in many countries as problematic and still is challenging to bridge local results with sub-national and national level assessments. Funding for international experts is also provided in the budget to speed this process to have a developed and tested prototype at an earlier stage in project implementation.

Indicators and testing approach is provided above under **CP1: M&E of Key Performance Indicators (SDG 15.3.1 indicators and national LDN indicators)**. Annual testing of the prototype should be undertaken to improve the model and to receive and ensure endorsement from key stakeholders.

1.1.2. Effective approach for monitoring three global LDN indicators (and potentially other participatory field indicators) and land degradation status identified and integrated into the existing national and sub-national monitoring systems

The baseline data collection will most likely provide the foundations of the work for the use of the prototype model and the integration of the developed and subsequent LDN monitoring system into national and sub-national frameworks and assessments.

A suggested model could build on the following options:

1) An initial M&E strategy for measuring project impact and effectivity would be the use of an adapted participatory monitoring system that developed in close coordination with land users. This would initially require identification of monitoring areas within the demonstration sites sited on State lands as well as others within the waterbasin landscape areas where project activities are focused, forementioned indicators, regularity of data collection and the Decision Support System (DSS) developed under Output 1.1.3 for this purpose. Plot areas that have activities undertaken within their boundaries would provide field data on indicators such as ground cover, SOC, LD rates and extent and other soil surface observations plus overviews of dominant plant species and vegetation structure/stratification, if present. Those plot areas outside project influence or activities can act to inform analysis and decision-making. The need to integrate locals and existing government policy should be considered when designing and promoting a long-term landscape monitoring system which requires field surveys and data analysis.

2) Participatory inputs on ecosystem health and productivity, represented by the delineation of the locally recognized natural areas and their ranking on a 1-3 scale (Good, Moderate, Bad). This early baseline can be regularly reassessed by local stakeholders to determine the state and evolution of locally recognized ecosystems and provides a good indicators of project impacts both on-ground and within the local mindset. It also is highly cost-effective and serves to increase stakeholder interactions, inputs and knowledge of project activities.

3) Participatory Impact Monitoring (PIM) to measure stakeholder satisfaction and project impact in target communities. The third pillar to the project M&E system as applied to rangeland and pastureland situations would be a participatory evaluation system similar to others used in past GEF projects as Tracking Tools. The PIM survey proposed in this regard would rely on 4 questions and be undertaken at the end of each year of project implementation, interviewing 25 women and 25 men that had participated in one or more project activities that year in each participant district, giving a total of 50 surveys conducted in the months of November or December.

4) Use of adapted remote sensing outputs based on the findings of Output 1.1.1. The current emphasis and issues with remote sensing within the LDN concept are multiple and include the fact that satellite imagery has not been efficient in providing data or products at the scales land users typically use, Government agencies are complaining about the difficulty in applying measures based solely on use of the Good Practice Guidance (GPG) and use of this system to monitor project impact is also hindered by the difficulty in relating project impact and activities conducted in smaller areas to wider landscape change and trends. However, their disadvantages are outweighed by the cost-effectiveness and scale at which they collect data, and therefore will most likely continue to be an integral part of the project's M&E proposal.

As mentioned above in the **CPI: M&E of Key Performance Indicators (SDG 15.3.1 indicators and national LDN indicators)** section, LDN principal #19 clearly outlines this as a process of learning and project developers encourage a consistent, yet transparent approach of trial and error, in addition to an open debate about what KPIs are truly providing a return on investment for their collection and analysis.

At the same time, this output will rely on building capacity to first understand the LDN framework, understand available options for implementation and adapt them to each contextual situation without losing sight of the overall national and local scale implications and data collection, being especially linked and supported by the activities under Outcome 1.3.

1.1.3. Decision support system (DSS) based on the three global LDN indicators developed, piloted in the Irbid, Mafrqa and Ajloun Governorates, calibrated, and scaled up to all of Jordan

Development of a DSS are integral components of conceptual decision-making frameworks, and are intended to address data inquiries on multiple issues. They also serve to understand at a spatial scale

where limited resources are best employed within complex environments. DSS are often rely on digital formats, are data driven and dependent and work with spatially linked datasets, meaning the higher the quality and amount of information they contain, the better the suggested courses of action are at potentially meeting objectives. They can also be used for M&E analysis, though often the spatial scales and information is to low a resolution to be used practically for daily decision-making and monitoring.

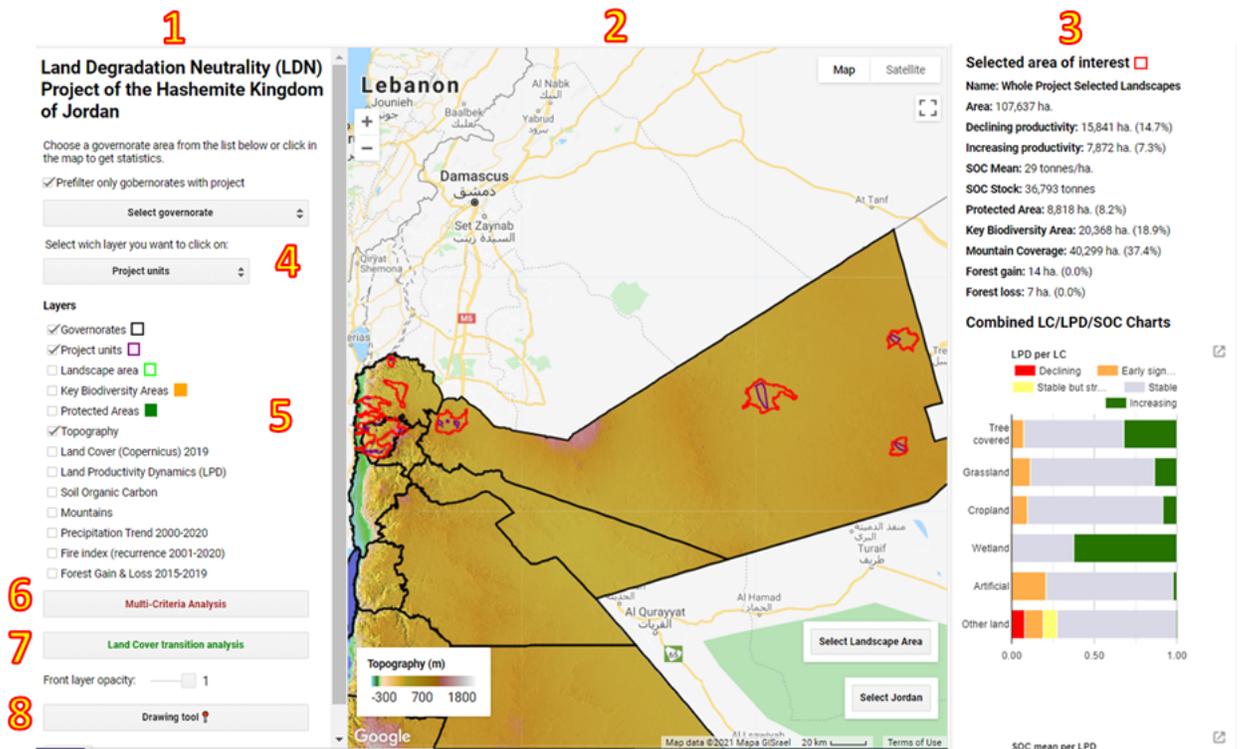
However, they cannot provide definitive answers, nor ramifications of potential consequences of actions. Hence the continuing need for well capacitated experts who can use the data and observations to provide analysis and recommendations, and the reliance and importance of capacity building and training for the success of this output.

It is recommended as well that the interactive mapping app created during the project PPG phase be used as the basis and foundation for DSS development. Currently there is no evaluation on the quality of the data and that would be a requisite of the DSS, because wrong layers can induce wrong decisions. The DSS should be used to assess and monitor the waterbasin areas selected for project activities using the data layers in the GIS environment, but also based on a field and participatory monitoring structure that links analysis from the various data sources. Once again, exactly how this would be conducted needs to take into account previous approaches and indicators of LD assessments carried out by DLS, NARC, IUCN and ICARDA, but also studying those approaches being used by other.

The type of data in the DSS will be agreed with relevant partners and selected to comply with the function of providing basic statistics to describe the current state of the areas, but also allow data analysis to answer specific questions. One of the most used is the mutli-criteria analysis that permits overlaying of datasets to find suitable areas, hotspot or land management units. Other analytical tools that are important are the ones that allow trend analysis and transition analysis since this allows the users to find and select areas with different behaviour. So, defining the users of the DSS and the level of decision they need is crucial to start the development of the tool.

The current project App[98]<sup>98</sup> already serves as a mean to test some of the future functionalities of the DSS, the layout is presented in the next figure (Figure 5). The system as 3 main panels: (1) Layer and Tool panel, where the user do most interactions, (2) Map view panel where cartographic responses are shown, (3) Statistic and Chart panel where information is updated according to the user choices: Charts, Figures and Tables can be zoomed and downloaded together with their data. In the Section 4 of the Tool panel, the user can choose how to query areas, either administrative areas from a list or using a specific layer to click on the map. The base layers are shown in section 5 for the user to choose, but extra layers can be found in toolboxes. The first toolbox is the multi-Criteria analysis (6) which allows to combine specific layers in order to find areas of interest (For example: Grasslands with decreasing productivity in non-mountain areas for restoration or Forest with stable or improving productivity in mountain areas to protect or avoid degradation). The tool also provides statistic on the combination of three global LDN indicators: Land Cover, Soil Organic Carbon and Land Productivity Dynamics, including reporting tables. The second toolbox is the Land Cover Transition analysis (7) where users can choose to compare changes (Gain/Loss) from different initial years. Finally the system has a Drawing tool (8) that users can use to create layers to provide feedback or submit ideas i.e: mark areas of interest, sites undergoing important issues, map or system errors, priority sites for specific SLM, etc.

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**Figure 5:** Layout of the current project App and its functionalities.

It is intended that the DSS be applied to the project selected drainage basins and these limits are considered the contextual boundaries. The idea is that by addressing LD and ecosystem service conservation at a wider landscape level, the restoration activities being realised within the project demonstration sites will be further supported and enhanced and the process will provide for learning opportunities and adaptive measures will be realised at various sectoral levels. Therefore, it is the participatory learning process itself in addition to the development of the DSS that is important and should be the focus of work within this output.

Use of DSS is aligned with the UN Decade on ecosystem restoration. To track progress of efforts to restore degraded ecosystems at required scales, FAO and partners are developing an operational monitoring and reporting framework for the United Nations Decade on Ecosystem Restoration. FERM registry is integrated with Dryland Restoration Initiatives platform<sup>[99]</sup> to monitor and document LD and restoration processes.

#### 1.1.4. DLDD integrated into the LDN DSS and tested on target landscapes in the Irbid, Mafraq, and Ajloun Governorates

Land tenure arrangement in the Governate areas where the project will work necessitate a different approach to forest and grassland land cover types, which typically are State owned lands, and cultivated lands, which are typically under private ownership. The project has set as a target for this Output 10,000 ha under SLM practices (of which: 2,000 ha forest; 8,000 ha grasslands) and to restore 750 ha of land (of which: 250 ha forest; 500 ha grasslands). Therefore, the forest and grassland areas that are under State ownership will be addressed and be placed under the 'avoided' degradation category through use of SLM practices or will be restored through this Output; the remaining 15,000 ha to be placed under SLM practices and the 2,000 ha of cultivated lands to be restored as described in the core indicators will be realised through Component 2.

This approach of dividing the forestry and grassland restoration works from the croplands targets was done for two principal reasons, the first being that the majority of forestry and grasslands in the Governate areas are under State land tenure types. The second reason being that the output should be realised in such a way to involve key MoA and research institutions in the restoration activities. This will ensure that funds are available to not only test the SLM options identified under participatory stakeholder interventions, but for innovate, landscape scale interventions to be realised and provide information on returns on investment of the works conducted. Unless an economic case is developed and consolidated, funding for such SLM practices and interventions will not take place under difficult economic conditions.

Therefore, the logic behind this Output and its principal objective is to provide funds for the MoA to test and demonstrate the SLM options within a large landscape model to meet the country's voluntary LDN targets. Following analysis of the results through the LDN conceptual framework, those models that were most effective could then be scaled to similar sub-district areas using a suitability analysis; an example and the results of such an approach are provided in section 7) below regarding innovativeness, sustainability and scalability.

For water harvesting and other landscape investments, the project 'Improvement of Green Infrastructure in Jordan through Labor-Intensive Measures' (CfW-GI, PN 2017.4052.1) project that is currently working with the Jordanian National Agricultural Research Center (NARC) on very similar issues. Another potential project partner for this Output is the GIZ MoEnv project Ecosystem Services (EKF ESS PN 2013.9753.8). This BMZ funded ESS project has developed tools for sustainable ecosystem services management for rangelands and highlands.

*Outcome 1.2. LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes*

1.2.1. Assessment of LDN policy gaps and development of cross-sectoral policies/legal framework supporting LDN principles at national level and improving the investment policy focusing on land management

As mentioned earlier, the capacity to influence or change policies will depend on the project's sphere of influence and the capacity to present logical, win-win scenarios for change. Of special importance will be incentive programmes aimed at removing barriers to SLM and increasing incentives among the described project beneficiaries. This will produce the required behavioural change that results in stable land cover classifications, increasing land productivity and increasing or stable levels of SOC.

This output is intended to explore further the potential links between the planning processes and institutions mentioned in the baseline section and the LDN principles, LD status, available SLM within the LDN response hierarchy (avoid, reduce and restore). Policy assessments and papers will also include policy responses to the barriers to SLM experienced by small and medium size producers and vulnerable populations who depend on natural resources for their livelihoods. Lastly, Jordan has a well-established CC knowledge base and data. Policy work will also assess how to better adapt policy structures to increase incentives and investments in Climate Smart Agricultural (CSA) and Conservation Agriculture (CA) to provide a roadmap for integration into national and sub-national frameworks. At project closure, 3 clear examples of LDN principles being integrated into national frameworks will be presented.

Inter-sectoral coordination mechanisms for SLM and LDN will be strengthened, especially between the Ministries and other relevant stakeholders, such as Department of Lands & Irrigation. The focus on the national policies as well as monitoring systems will ensure its sustainability from an institutional perspective.

#### 1.2.2. LDN Platform for stakeholder engagement created at national level

A clear gap identified during project development was a centralised, open platform for Jordan that presented information and updates on the LDN concept, proposals, mapping options, experiences. In addition, links for sharing information on SLM and integral landscape management and the WOCAT database would be established through this online platform. Many SLM technologies have been developed, imported, and applied in Jordan nevertheless access to information, tutorial, business plans results or lesson learned from these experiences is hard to obtain. To be able to curate a database with such information and make it available in different formats to diverse stakeholders (Web Apps, Books, Booklets, Manuals for producers or extension services) will produce more cost-effective management and help to scale up proven best practices.

While developing this project proposal, it was also apparent the lack of information sharing between Jordanian institutions, even within the same Ministry. Expensive paywalls can exist for even the most basic data on climate or socio-economic indicators. The project does not necessarily need to use limited resources and funds to lobby and change this fact, but increasing and centralising publicly available information on LDN relevant topics and project outputs to a highly educated public is expected, or assumed, to be a necessary step in removing barriers to more sustainable land use and agricultural production. The project DSS developed under Output 1.1.3. would also be a component of this proposal. Other options could include development of an LDN index for awareness raising at national level, that would alert to the level of LD or natural resource scarcity.

Therefore, the focus of this output is the development and maintenance during the project implementation period of an online, interactive portal where the public and specialised stakeholders can obtain and share their information on LDN relevant issues and the project can increase its impact and raise awareness on its activities and objectives. This output will also work to increase cross-sectoral stakeholder engagement by facilitating and understanding different uses and needs for real-time, land-based data and information, which will include working with relevant national partners to increase public access to data in simple online formats.

### 1.2.3. Inter-sectoral coordination mechanisms strengthened at all levels for LDN implementation, ensuring upward and downward accountability and transparency

The drivers of LD and cross-cutting, intersectoral nature of the LDN approach requires conversations with many stakeholders who exert pressures and influence landscape functions and ecosystem services. While in-person meetings and events may be a part of the strategy and mechanism options, others options include simple measures such as increasing data flow and information sharing, participatory interventions, physical infrastructure investments, land restoration activities or Public-Private Partnerships (PPP) or participatory target setting. They should likewise include horizontal elements, between line ministries and vertical elements, between different levels of administration/monitoring centers and local communities.

They can also include more ambitious efforts in terms of coordinating biocide applications, collaborations on water-saving or harvesting development and monitoring within the project selected drainage basins. The mechanism need to include those sectors at work within the landscapes, for instance construction companies, agricultural representatives, tourism representatives, as well as conservation groups, representatives of the project beneficiaries and finally the value chain operators and private enterprises.

Given this background, the principal goal should be to raise awareness on LDN principals, increase data flow on LD and its drivers, pinpoint to the best of knowledge LD hotspots and the sectors contributing and being impacted. For this reason the workplan outlines the creation of an inter-agency Working Group to coordinate, supervise and monitor the implementation of SLM extension activities in project areas, in coordination and partnership with NGOs and local stakeholders. This Working Group will also be well-positioned to support the participatory land use plans to be developed under Output 2.1.1., and should be a mechanism for realising the action plans associated with the land use planning results. It is recommended in this sense that the UNCCD TSP members and Working groups, especially the **Jordanian Working Group on Dryland Forests and Agrosilvopastoral Systems**, be contacted and focal points established to ensure adequate information flow and collaborations.

### 1.2.4. Integrated land use planning and drought management using FAO Land Resources Planning Toolbox elaborated, consulted, and adopted by authorities in the Irbid, Mafraq, and Ajloun Governorates

Technical and monitoring support manuals and other informed planning systems are available at <http://www.fao.org/land-water/land/land-governance/land-resources-planning-toolbox/en/> in the 6 official UN languages, including Arabic.

These tools are well adapted to the LDN framework and provide stepwise approaches to land assessment and SLM options. The LDN counter-balancing approach also provides a contextual background on which to utilise the provided tools, or adapt them to local needs. In addition to this tool kit, the WOCAT database<sup>[100]</sup> continues to develop and provide a wider range of SLM technologies for consideration under the project's planning processes and DSS frameworks. To complement a SLM local database should be created in order to have context adapted measures. but also those best experiences can be uploaded to WOCAT and be used in the UNCCD National report and to give the project international visibility

The tools, or at least the fundamental concepts behind them, allow for LD drivers to be identified, land to be assessed and solutions to be found within a holistic, multisectoral approach which can improve and inform decision-making. The principal goal of this output is therefore the awareness and capacity building within key Governate agencies and organisations. Results will be measured against the transfer of knowledge and demonstratable impact and appropriation of methods within participant agencies and partners.

### *1.3. Enhanced capacity at national and sub-national levels to support the achievement of LDN in Irbid, Mafraq, and Ajloun Governorates*

#### 1.3.1. Knowledge products on SLM and LDN prepared and shared

The project development stage and stakeholder feedback were clear on the need for information to support SLM concepts and practices, as well as present the LDN targets, principals, objectives and conceptual framework to the wider public. Recommendations for this output are therefore the development and distribution of the following knowledge products:

- ? 1 knowledge product explaining and promoting LDN framework and Jordan's voluntary targets edited and developed for a public audience. Associated with this could be promotional materials to inform on project objectives and activities, or information on LD baselines, hotspots and monitoring approaches for scaling.
  - ? 4 knowledge product promoting SLM production practices and techniques, 1 for each selected project value-chains (vegetables, pasture (dairy), Olive and Beekeeping), including information on Climate Change Adaptations (CCA) and links to LDN and landscape planning.
-

- ? 2 gender-sensitive knowledge products focusing on improving post-harvest/post-milking treatment, value-adding options and marketing of sustainably produced vegetable and dairy products.

While most projects tend to focus on technical manuals for these products given ease of distribution and budgeting, project developers are encouraged to explore innovative audio-visual methods to reach new audiences and increase impact. The inter-agency Working Group could perform a key role in identifying best channels and mainstreaming information.

### 1.3.2. Capacity development and awareness raising program in place targeting stakeholders and policy makers for LDN targets implementation and monitoring

Although a significant degree of knowledge on the LDN voluntary targets exists, further training in LDN of decision makers and technical staff at the national level on baseline assessment and LDN monitoring, land tenure issues, etc is recommended to facilitate dialog and communication. It also sets the foundations to further explore the results of the outputs under Outcomes 1.1 and 1.2 within a learning environment, thus allowing for further refinement of the developed LDN baseline and monitoring systems and the DSS.

The first step in the process, according to the Workplan (Annex H), is a gender-sensitive capacity needs assessment on key stakeholder and relevant decision-makers to understand the existing knowledge baseline for LDN principals, objectives, targets and potential mechanisms, plus other relevant components of SLM and natural resource planning. Of special importance are 3 principal social collectives or groups:

- ? Social groups that make of the core project beneficiaries, especially for development of outcomes in Component 2. This capacity needs assessment of these groups can also assess motivation and demand for the FFS developed under Output 2.1.2., thus providing information to facilitate their formation in areas where they have the highest options for success.
- ? Members of those agencies within the Dept. of Lands & Survey that will be responsible for taking on the LDN monitoring system developed under Outcome 1.1 and members of the inter-agency Working Group.
- ? Administrators and public officials who will be informed of the results and will take action at the different scales of governance within the national and governate levels.

At the same time, it is this last group that is best positioned to provide opinions and recommendations for the functioning of the different LDN planning and monitoring systems developed within this component, as they are most likely the most informed group on the subject given the training provided and the fact that the system is intended to meet their needs. Therefore, it is recommended that this process be closely linked with the Working Group created under output 1.2.3. and that for the capacity building to happen under a learning, hands-on approach.

## **Component 2. Demonstrating the LDN approach and scaling out SLM practices and approaches in selected landscapes in the Irbid, Mafraq and Ajloun Governorates**

### *2.1. Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Aljoun, Irbid and Mafraq Governates*

#### 2.1.1. Participatory integrated land-use plans developed and priorities identified by the DSS in the Irbid, Mafraq and Ajloun Governorates

Land use planning is intrinsic to achieving the LDN targets, especially #1 and 4 which entail restoring forestry land use and cover and stopping the loss of arable lands to urban development. And to a certain extent, public participation in land use planning is encouraged under this output. However, land use is closely linked to land markets which is a complex issue for the project to address within its sphere of influence. In addition, land tenure rights are clearly outlined for private land areas and their land use is subject to the rights and decisions of the owners. Therefore, the recommended focus of this output to support to the DLS in their mandate to manage and maintain State owned forestry and rangelands, by using project resources and support to identify areas for increasing forestry cover and rangeland productivity (Target #3). This process also allows for a working relationship to be established between the DLS and the LDN framework and principles. Private landowner wanting to participate in this activity can enter into land stewardship agreements to protect particular habitat types or land uses.

Land use planning, especially that related to urban land use planning, is realised by the Higher Planning Council and the various village Committee. State forestry and rangelands are owned by the Treasury, but the DLS has the responsibility to management and maintain their productivity. With the exception of urban lands which are growing under enormous socio-economic pressures, for the most part land use follows the historic land use, or a degraded version of this land use. The traditional focus on the conservation of land use types therefore may not allow for more adaptive land use systems, that take into account modern needs and CC. They also lack participatory inputs, especially by those using the land under *de facto* land tenures to obtain livelihoods.

One of the options available under the developed DSS is to compare land cover to estimated rates of LD. It can indicate issues within inappropriate land use patterns, or increasing CC impacts on one land cover type. Therefore, as a starting point, land use patterns can be assessed on State owned lands to potentially link inadequate land use provisions or classifications under current or historic conditions. Other GEF projects have taken the DSS one step further to include other data layers related to

proximity to infrastructures and roadways, wind and solar potential, soil salinity, NDVI and estimated land prices as a proxy to improve the land use criteria and match land use to land potential.[101]<sup>101</sup> This process has been described as a land suitability analysis, though it differs substantially from the one presented below in section 7) ?Innovativeness, sustainability, potential for scaling up and capacity development?, in that it is focused not on which SLM practices fit within broad biophysical and climatic environments, but what land uses are suitable to particular area or land unit, which is a more complex and context-driven process that required highly detailed and complete data sets.

Lastly, the land use plans are essential for the counterbalancing within land cover types to achieve LDN. If forestry land cover is lost within a selected area, then this same amount of forest needs to be restored in another area, hence the key links of LDN to land use planning. Recommendations for development of this output in the Workplan (Annex H) call for use of the spatial analysis and mapping products produced during the project development phase and their further refinement through implementation of Component 1 to be linked to current water and urban land development planning frameworks to ensure LDN is considered and integrated into decision-making.

To aid the resulting planning process and to ensure that participatory, gender appropriate approaches are used, the FAO Land Resources Planning Toolbox has a number of manuals and methodologies for this process, though the identification and classification of land units should follow those used by the DLS and the Jordanian catastre to ensure and increase appropriation and synergies between the project developed land use plans and the institutional and biophysical realities that currently exist within the country. As mentioned before, State lands under the mandate of the DLS should be those most targeted by this output to check to see if land use is appropriate given the socio-economic and biophysical conditions. Private land areas can enter into the process through Land Stewardship agreements to fulfil key landscape features, habitat types, wildlife corridors or other conservation targets.

Therefore, this Output will lead to a total of 15,000 ha of land (10,000 ha cropland; 5,000 mixed land cover types) placed under participatory land planning in accordance with the LDN conceptual framework, which benefits a total of 10,000 beneficiaries within the project pilot water basins outlined in the baseline section (Section 1.2).

2.1.2. Innovative and integrated Sustainable Land/Water Management practices and technologies adopted in farmer field schools (FFS) to enhance land productivity, restore degraded land and reduce pressure on NR (e.g. agro-forestry, afforestation integrated crop/livestock production systems, water harvesting, grazing of riparian zones, grazing crop residues to allow vegetation recovery, pasture and crop rotation, organic manure, soil moisture harvesting, drip irrigation)

With the results of the gender-sensitive Capacity Needs Assessment realised, the assessment will provide a basis to design a training and capacity building program (Output 1.3.2) to be implemented with project resources. Among the options for realising this output are of course FFS. These FAO-led initiatives have been successfully implemented across the globe in a wide range of context and within a wide range of beneficiaries. They are to some extent the preferred option for introducing not only practical knowledge on basic agricultural practices and animal husbandry to vulnerable or socially difficult to access groups but also given the control the organisers have over the setting and

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environment, allowing for gender-sensitive approaches within transparent, open environments. For more information on this methodology, please visit: <http://www.fao.org/3/ap094e/ap094e.pdf>

While providing for a wide range of benefits, FFS also require tremendous investments in time and resources to be successfully created, managed and supported in its eventual transition to other formal and informal entities. Procurement of materials, conflict management and management of the communal demonstration sites and SLM trials are common and not easily dealt with. A common mantra of the African school of FFS Master Trainers of Trainers was 'Every FFS is unique and is a project unto itself'. Therefore, project developers would recommend a mixed approach and have chosen a conservative number of FFS to be created and run by the project, placing the optimal number at 20, given the baseline mentioned earlier in the document. The idea is that quality is provided over quantity, though 20 will still require a considerable investment to make them operational and efficient.

A potential deviation from official FFS methodology that is recommended is the use of project consultants to provide the training sessions instead of FFS facilitators trained especially for this task. The FFS board of directors would still exist and be responsible for administration and management and the FFS members would still select the subjects of the trainings and SLM demonstrations and field trials, but those responsible for ensuring the trainings were conducted on these subjects and that the information was of sufficient quality would be the project consultants selected specifically for this task. Facilitators are often not paid for their time in organising and providing the trainings, or are paid lower rates than project consultants. The ambiguous nature of the relationship to the project and the continuous follow-up training on FFS methodology and protocols often leads to conflict.

In any case, the output is principally focused on providing SLM training and transfer of knowledge to the project's core beneficiaries, and this means the project coordinators and developers must find other means and organisations to provide training in order to meet the target of 2,250 people (50% women) trained through this output. The national baseline number of members per FFS is 13-14 people, meaning 20 FFS could optimally train 280 people, meaning an additional 2,000 people must be trained outside of the FFS approach under output activities.

There are other ways to meeting the training targets without having to create and operate FFS, which could include providing training and curriculum to other functioning FFS, offering training to NGO staff, assisting in national conferences, conducting workshops with key Government officials, supporting cooperatives in SLM trials and research, etc. At the same time, the recommendations for the knowledge materials (Output 1.1.3) can apply to this output, in that innovative solutions in communication technologies and social media could potentially allow for more digital approaches to the FFS.

NARC has recently launched digital extension services and the demand has been high for the format and information. The FAO Agri Apps - El Mufeed - Saida - Hinga Worore<sup>[102]</sup><sup>102</sup> is another invaluable and freely available app that provides farmers with information and advisory services that will facilitate them to boost their production, access market and nutrition information. The application consists of different services that change depending on the GPS location detected by the user's device. The application contains information in the form of written texts, and audio recordings. The content is

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available in the local languages. The application does not require any procedures to enter or register, therefore, no personal data is collected; its use requires only internet service. Options such as this increase the success rate of this output.

The project should within its capacity apply a 'no one left behind' approach by ensuring inclusive and gender-sensitive participation of beneficiaries, especially in order to provide certified training to smallholders to allow them access markets and participate in local value chains, plus others identified under Output 2.1.4 below.

Output 2.1.3. Measures and approaches for reducing the impacts of drought integrated into SLM practices and tested/demonstrated in the context of FFS

Generally, the most important drought adaptation measures in agriculture are: modification of cropping pattern, modification of cropping species, modification of crop calendar including planting and harvesting dates, implementation of supplemental irrigation and water harvesting techniques, improvement of water use efficiency, use of different crops varieties and modification of policies and implementation of action plans.

Primary producers, especially smallholders and those dependent directly on natural resources for their livelihoods, are generally risk averse even under optimistic socio-economic conditions, hence they are slow and reluctant to adopt new technologies or practices. Therefore, the FFS environment provides a risk-free environment to put into practice innovative or ambitious SLM techniques. Material goods are purchased and can be used and assessed before investments are made. FFS also provide technical support to realise these practices and interpret the results throughout the production calendar.

However, as mentioned in the last output, FFS operation need not be an essential criteria for operating project demonstration sites, other lands outside an FFS organisation could and should serve as open-air demonstration sites for stakeholders. The restoration, reduction or avoidance activities realised under Output 1.1.4. are good examples of SLM and SFM works that will take place on State lands but serve a wider landscape role and function.

Drought adaptation options as described and selected by stakeholders are presented in the baseline section of this project document; however, recommendations of options to consider under this output through a diversified stakeholder and beneficiary strategy are as follows:

- ? Demonstration of sustainable agricultural practices for **sustainable rangeland management realised**, taking into account climate change risks and opportunities, including rotation of pastures based on forage recovery times, improved forage and soil management through proper field monitoring methods, creation of drought and forage reserve areas, including leguminous forage trees and shrubs, cultivation of drought-resistant forage crops requiring lower water and fertilizer inputs, integration of livestock and cropping systems, use of natural

plants and additives to improve on livestock nutrition, ethnoveterinary options and use and improved breeding strategies for traditional breeds

- ? Demonstration of sustainable agricultural practices for **sustainable forestry and agroforestry management**, taking into account climate change risks and opportunities, including native seed collection and multiplication of native forest and pasture species in FFS or project sponsored nurseries, planting of deep-rooted native trees and shrubs on shallow terraces to improve the productivity of rain-fed lands and promote habitat creation, VC diversification and erosion control, experimentation with CCA cultivars and crops in cultivated and extensively managed lands, creation of green belts and wildlife corridors (desert zone, mountainous landscapes) and integration of specialised grazing management techniques in forestry areas to improve ground cover, species diversity and soil fertility.
- ? Demonstration of sustainable agricultural practices for the **efficient soil and water management realised**, taking into account climate change risks and opportunities, including role of SOC in soil properties and fertility, introduction of innovative technologies such as drip irrigation, rainwater harvesting, water harvesting techniques for landscape scales, conservation Agriculture (minimal, zero or gentle tillage; vegetation cover, mulching, crop rotation), improved efficiency and control of water use for irrigation and livestock use and renewable energy pumping systems
- ? Demonstration of sustainable innovative agricultural practices for the **sustainable cropland management realised**, taking into account climate change risks and opportunities, including diversification of crops under real and potential value chains, crop rotations, with special focus on legumes, intercropping of diverse species, including perennial and annual crop mixtures, mulching or green cover crop management, integrated pest, disease and weed control and introduction of drought and salt tolerant species and varieties.
- ? Demonstrations of **restoration of degraded areas of pastures** in project select drainage basins, including accelerated rehabilitation of mid-mountain, highly degraded pastures, in accordance with SDG Indicator 15.4.2: Mountain Green Cover Index, using the LDN DSS, increased use and planting of deep-rooted perennial forage shrubs and trees to provide green forage in drought and dry conditions, and other supporting ecosystem services and brokering of agreements to ensure plant recovery times are being respected in key habitat and ecosystem service sites within pilot landscapes, using combination of participatory FAO tools and traditional management systems (Hima)

To increase scaling and awareness on SLM options within Jordan and surrounding regions, it is recommended that at least 1 SLM technique or approach is described and uploaded into the global WOCAT database.

#### Output 2.1.4. Introduction of gender sensitive sustainable livelihood strategies

This output is supported by the policy barriers to SLM findings under Output 1.2.1. and is closely linked to the value chain strengthening activities outlined in Outputs 2.2.2 and 2.2.3. However, this output will specifically look at more holistic options and barriers to sustainable livelihoods and seek to unify resource options into a steady source of income by providing business models and addressing the policy gaps and barriers.

The output will therefore be focused on providing basic business administration and accounting training to beneficiaries through FFS and other educational fora. It will also offer training and awareness raising among extension staff about smallholder barriers to markets and issues with product certifications and traceability procedures. It will also include the realisation of visits to innovative, sustainable operators and producers.

As training is provided to the FFS and other participant organisations, it is assumed that individuals or groups will come forward with business proposals and ways of transitioning smaller production systems to more technologically advanced or productive states. This output would be used to support through project technical staff and materials this process. An exit strategy must be addressed early on among FFS members and other participant organisations in order to attend to expectations and prepare for project closure.

Among the recommended activities is also a project promoted awards and recognitions provided for FFS initiatives and value chain actors who are contributing to LDN and other SDG within their localities. This is one more way this output increases visibility of these livelihoods, and provides alternative models within their respective value chains.

## *2.2. Increased investments in sustainable land management to achieve LDN*

### *2.2.1. LDN Action Plan with voluntary targets defined in the landscapes of Irbid, Mafrqa, and Ajloun Governorates*

Experience has shown that diverse stakeholder groups face significant challenges and reservations about setting precise LD targets. Participatory workshops where the setting of precise LDN targets has been the objective have received two principal complaints from participants, being a) they don't feel prepared or qualified to set such a concrete target and b) the Government is the only stakeholder with the capacity to set and abide by developed targets. As Governments are typically adverse to setting targets they may not be able to achieve, for the most part concise, concrete targets are highly difficult to establish within participatory, workshop settings. However, when the same group is asked to prioritise areas and actions within a specified context, it is often easier to find common ground given the focus is on trends and not a concrete number or figures. Therefore, it is perhaps more efficient use of project resources to work to establish priority actions and activities with stakeholders on particular landscapes and landscape context, than to debate and try to establish LDN targets for project Governorates and landscapes where theoretical targets often will divide groups based on interests and ideological lines.

To aid this contextual, site-specific focus, the results of the mapping, field surveys and stakeholder consultations to map and verify hotspots of LD and potential brightspots of SLM is a valid starting point. However, other stakeholder indicators and assessments should be overlaid to improve the prioritisation and alignment with of stakeholder opinions and needs. The underlying reason for this exercise is to develop an informed response to those areas needing attention due to increases in the extent and the rate of LD, and potentially protect the enabling environments where SLM is being practiced. Using LDN terminology, the response hierarchy is 'avoid, reduce, restore?', with the global objective of achieving neutrality between those lands under LD and those listed in the 'stable?' or 'improving?' categories explained above. Vision setting for the landscape is also a recommended practice, at both HH and community levels, though great care must be made to not let expectations exceed project capacities to deliver. Nonetheless, the future vision can provide a clear context on which to make decisions and establish a roadmap between the actual state and the desired state.

An action plan is the logical step once the status of the areas' ecological trends are clear and the means by which resources are to be invested to create the future vision. How ambitious these plans should be or what should be the scale or type of interventions is a question commonly asked by project staff responsible for development and implementation of these plans. No simple answer exists, but the plans should at minimum address the following:

A description and boundaries for potential land management units (units that are to be used for project planning purposes, not to be confused by other official descriptions or titles) and their LD status according to the DSS (degraded, stable, improving)

Distinction or categorisation of areas or management units by the type of potential response (avoid, reduce or restore). This could also include a ranking of key indicators or rely on stakeholder inputs to determine priority areas to target amid budgetary restrictions.

List of priority areas, SLM activities or approaches, materials, budget, human resources and calendar. The SLM activities selected by stakeholders for these areas are listed above, though they can include others that meet requirements. The process can also be linked to the LDN baseline and monitoring data collection sites so as to be able to improve project impact M&E.

Knowledge management and options for scaling to surrounding landscapes (potentially through suitability analysis of bio-physical, climatic risk analysis and socio-economic conditions) is part of the process and should be addressed through the output activities.

It is also important to remember that while actions or activities may be realised at individual sites, they should be framed and selected for their overall contributions to the flow of energy and materials at landscape scales and increase ecosystem services for the wider area. This linking of activities to

landscape functions is an essential innovation that the LDN conceptual framework promotes and needs to be present in all actions and programmes. If these benefits can be mapped and costed, then it can help to further promote this LDN principle.

#### 2.2.2. Market access mechanism identified and key value chains (i.e. vegetables, olives, figs and grapes) strengthened to achieve LDN in the landscapes of Irbid, Mafraq, and Ajloun Governorates

Market access gaps not only exist but are growing as technology and market regulations continue to develop in an increasingly globalised agricultural market. Therefore, market access strengthening activities will be conducted within the 4 project selected value chains, with a special focus on smallholder and project beneficiaries, as well as food security, youth and vulnerable populations and innovative technologies and applications. Green or sustainable components of the selected Value Chains are also included for development (including research and development for new products, improved post-production and marketing), and the Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) are to be used to guide this process in combination with the FAO's Programme Clinic described in earlier sections. These guidelines seek to promote the land rights of women farmers, among others, who face serious gender discrimination.

The project will therefore conduct a value chain mapping for the 4 selected value chains, with special attention on the gaps and market barriers for smallholders and project beneficiaries. Interventions within the project selected value chains will also need to consider increasing temperatures and changes in rainfall patterns and intensity when considering the climate resilient options. These findings will then be presented to stakeholder groups and FGDs and KIIs will be used to establish the motivation and opportunities for investment and co-financing options that exist within these groups. Of special importance are the FFS members and other project participants; the project needs to provide them with solutions to maintain their confidence and motivation.

The stakeholder interventions and data collection will also provide opportunities for joint-investments or co-financing of materials and VC goods. This requirement improves outcomes and impact as beneficiaries are more prone to care for materials and tools if they have invested in them.

#### 2.2.3. Training programs on value-chains management (e.g. marketing, processing, certification) for local communities, extension services, farmers, women groups, and youth

The findings of the stakeholder capacity assessment (Output 1.3.2), the value chain mapping and the stakeholder responses to the FGD and KII (Output 2.2.2), plus the information from the FFS and other training programmes (Output 2.1.2) will provide an adequate basis on which to develop a tailored value

chain management curriculum for local communities, extension services, farmers, women groups and youth. These beneficiary groups should also be active with the project in finding and developing solutions to the principal market barriers they face.

The focus of this output will therefore be to conduct trainings for a minimum of 250 people, with clear links to the value chains outlined in Outputs 2.1.4 and 2.2.2. Encourage participants to establish impact indicators and participate in the M&E to determine how the project is meeting these goals.

### **Component 3. Project Monitoring, Evaluation and lesson learned**

#### *Outcome 3.1. Knowledge management, M&E and lessons learned disseminated*

This outcome includes a functioning project M&E system and mid-term and final evaluation. Global environmental benefits generated by the project will also be assessed together with co-benefits and costs of SLM. It also includes the project's knowledge management and knowledge products will be widely disseminated to support out and upscaling of the LDN approach. It will be generated by four outputs:

##### 3.1.1 Project mid-term and final evaluation conducted

Activities include:

- Project mid-term evaluation
- Project final evaluation

##### 3.1.2 Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed.

Activities include:

- Monitoring of GEBs, including area under SLM/SFM and carbon benefits.
- Monitoring of socio-economic benefits using gender disaggregated data.
- Assessment of GEBs and co-benefits for reporting to the GEF and for the mid-term and final evaluations.

Scaling up options and measures (3 year project activity)

3.1.3. Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets

Activities include:

- Development of communication strategy in consultation with key national and sub-national stakeholders.
- Adoption of the communication strategy by the national LDN coordination mechanism that will be established under outcome 1.2.2.

#### 1.4. Alignment with GEF focal area and/or Impact Program strategies;

##### **2.1.4: Alignment with GEF focal area and/or Impact Program strategies;**

The proposed project is aligned with the following GEF focal areas and IP strategies:

- ? Land Degradation Focal Area Strategy Objective 1-1 ?Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM)?. Improved management is almost universally based on measurement of productive base and resources and monitoring for adaptive management. Likewise, technical options for LDN and increased flow of ecosystem services are only valid if they meet contextual conditions and provide for livelihoods and decent employment. This project allows monitoring of ecosystem and landscape trends to inform management decisions provide realtime data on the resource status and location.
- ? LD 1-4 ?Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape?. To this issue, the project takes a number of different approaches. Firstly, by mapping and placing values or at least estimates on the status of natural resources and ecosystems, classed by land cover units as defined by the UNCCD under the GPG. Secondly by understanding the socio-economic impacts of intervention by conflict sensitivity analysis and participatory methodologies and approaches to land planning and resource allocation. Lastly, it aims to provide means and knowledge to increase productivity on a range of land use systems, thus benefiting livelihoods and ecosystem services, reducing pressure on natural systems and biodiversity.

? Objective 2-5 ?Create enabling environments to support scaling up and mainstreaming of SLM and LDN?. This is clearly the principal goal of this project, as is described throughout this document.

The project will therefore work to develop SLM options within landscape context that increase productivity and CC resilience in key value chains for food security, rural employment and income and gender-sensitive issues. LD will be balanced through use of the LDN response hierarchy of avoid, reduce and restore in 16 drainage basins in the Aljoun, Irbid and Mafraq Governates. Innovative tools and analysis will allow data gathering to locate LD and drivers. In addition, the project will support efforts to restore productivity of degraded lands identified above to meet LDN targets at national and sub-national level.

As mentioned earlier, at an international scale, the project will establish linkages with the **Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes (DSL-IP)**[103]<sup>103</sup> and the **Dryland Restoration Initiative Platform (DRIP)** which will allow for further integration and information sharing opportunities for dryland areas across the globe.

#### 1.5. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF,

##### LDCE, SCCF, and co-financing;

The project's incremental reasoning adds value to the ongoing efforts in the country and enables conditions towards achieving LDN by 2030. It follows a phased approach: 1) Setting the LDN (impact, process, and stress-reduction indicators) and project baseline; 2) Establishing mechanism for neutrality by monitoring land use decisions that may impact the neutrality, and estimate their likely cumulative impacts, so that these can be counter-balanced by reversing land degradation on the same land type, elsewhere; 3) LDN planning and implementation applying a participatory process by including land users and relevant representatives of local government and extension, strengthening the enabling environment for LDN, land-use planning processes, and security of tenure rights with the specific focus on pasturelands and forest lands, followed by development of LDN Decision Support System (DSS); 4) Monitoring neutrality setting up the LDN monitoring system, while applying local knowledge and continuous learning to validate/interpret the data, and anticipate/adjust/create new steps ? closing the LDN loop.

Without GEF support, baseline interventions would lack the landscape-level planning layer needed to identify landscape restoration hotspots and define LDN priorities emphasizing the restoration of ecosystem services and the sustainable use through innovative SLM/SFM approaches and technologies and sustainable value chain development that brings socio-economic co-benefits (Table 8). This would increase the environmental and social risks from drivers of land degradation, aggravating pressures on the vulnerable ecosystems of selected Governates.

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With GEF funding, the project will complement baseline interventions with: (i) additional resources to capacitate key stakeholders for an integrated planning and implementation of sustainable landscape-level interventions and for mainstreaming LDN into relevant policies and practices, enabling the upscaling/outscaling of SLM and SFM; (ii) enhancing agricultural know-how and leveraging investments for sustainable value chains with focus on gender and youth inclusion, diversification of production, and restoration climate-resilient SLM measures.

**Table 8.** Incremental cost reasoning and the expected contributions from the baseline, the GEF financing and co-financing for each component.

Project component	Baseline scenario	With-project scenario
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Component 1. Enabling Environment for Land Degradation Neutrality (LDN) planning and monitoring

Policies that support sustainable agriculture and ecological restoration are in place at national level. In the baseline, however, policies still have limited reach and scope, and there is a lack of holistic, integrated approach for landscape level planning. Local administrative planning system lack of SLM criteria and coordination and collaboration across sectors and scales.

The country has a stable and robust institutional structure with relevant state institutions having the mandates on the environmental protection, management and use of land and natural resources, monitoring and impact assessment. The implementation of environmental protection measures are entrusted to a number of Ministries and entities, whose functions and actions are clearly defined. The responsibilities of these structures include the development and implementation of specialized programs, strategies and action plans in the field of environmental protection and nature management. However, the country does not have a robust coordination mechanism to ensure LDN.

The country does not have any LDN monitoring or DSS system and as such, will be unable to meet the country's commitments by 2030

GEF funds will be invested through a bottom-up approach to integrate landscape management principles into sector strategies and ensure strong linkages between sectors to generate environmental and socio-economic benefits, as well as to engage multiple stakeholders at multiple scales, as per LDN requirements.

GEF support will strengthen capacities at national and sub-national level to achieve LDN and no net loss of productive land. A monitoring and decision-support system for the LDN will be put in place. GEF funds will be invested in strengthening capacities for integrated landscape management (ILM) and restoration based on multi-stakeholder, science-based planning.

? The project has developed and tested an LDN DSS for the pilot landscape activities, resulting in the restoration of 250 ha of forest and 500 ha of grassland.

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The project coordinates and support 2,000 ha of forest and 8,000 ha of grassland being placed under SFM / SLM practices.

<p>Component 2. Demonstrating the LDN approach and scaling out SLM practices and approaches in selected landscapes in the Irbid, Mafraq and Ajloun Governorates</p>	<p>In the baseline, there are limited interventions that support comprehensive SLM to achieve LDN. SLM activities and approaches have been implemented in pilot Governates but take place in outside of a structured, integral landscape approach based on LDN principles</p> <p>Drought and flooding are increasing and inadequate use of natural resources is decreasing land productivity The observed land degradation trends will lead to further loss of ecosystem services and global environmental goods and loss of socio-economic opportunities for local communities. There is also no systematic effort to strengthen value chains and access to rural finance, and strengthen local public-private partnerships and private sector engagement, in support of sustainable production.</p> <p>There is limited capacity and knowledge on LDN, and the role that SLM can play in strengthening resilience of farmland and landscapes. Lack of finance or credit is the biggest obstacles for SLM as reported by the households.</p>	<p>The GEF project will make targeted investments in capacity building, planning and implementing ecological restoration through climate resilience SLM.</p> <p>Through the LDN DSS developed and participatory workshops, the project has developed a minium of 3 plans that directly benefit a total of 10,000 people.</p> <p>Through partnerships with CSO, NGO and FFS, training is provided to a total of 2.250 people through and leads to the restoration of 750 ha and introduction and practice of SLM / SFM on 10,000 ha of cropland.</p> <p>Results of demonstrations from participant organisations/FFS are documented and analysed, resulting in publication of knowledge products and WOCAT publications</p> <p>4 essential Value Chain components are strenghtened through project support that results in increased market access for project beneficiaries (2 are gender sensitive) directly impacting 2,500 beneficiaries</p> <p>The GEF supported SLM/SFM measures will also enhance the resilience of the 16 drainage basins to climate-change induced stress and shocks. The project with GEF support will also be building sustainable livelihoods through SFM/SLM practices and improve market access through effective private sector engagement through project value chains. It is anticipated that the improved practices and restoration interventions will generate significant land degradation GEBs and deliver climate change mitigation and substantial socio-economic co-benefits.</p>
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Component 3. Project Monitoring, Evaluation and lesson learned	In the baseline, the Ministries, universities and research organizations, international organization, and other actors, are contributing to knowledge creation and exchange with regard to SLM within the country and at the producer level using the regional platforms. There is, however, no systematic effort to share knowledge and coalesce action towards the LDN.	<p>GEF investments will fund the incremental costs of systematic information and knowledge sharing at local, sub-national, and national levels. Furthermore, regular meetings and exchanges will be organized under the PSC, to ensure that lessons learned are compiled, shared, and used to inform policies at the national and sub-national levels. Project inception workshops, project completion workshop, and project related monitoring and evaluation will be funded.</p> <p>Results from process will inform and be promoted through the Sustainable Forest Management Impact program on Dryland Landscapes (DSL IP)  <a href="http://www.fao.org/gef/dryland-sustainable-landscapes/en/">http://www.fao.org/gef/dryland-sustainable-landscapes/en/</a></p>
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#### **1.6. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);**

The project will generate a range of global environmental benefits in the land degradation focal area with co-benefits related to climate change mitigation through increased carbon sequestration in land use systems. The GoJ has indicated interest in scaling out the LND approach outlined in this project document to other regions of the country in the lifetime of the project implementation (see *Chapter 7. Innovativeness, sustainability, potential for scaling up and capacity development* below).

The global environmental benefits thus include the following:

- ? Increased quantity (2,750 ha.) of restored rangelands, forestry lands and cultivated lands using LDN response hierarchy (of which: 250 ha forest; 500 ha. grasslands; 2,000 ha croplands)
- ? Increased quantity (25,000 ha.) of rangeland, forestry lands and cultivated lands under SLM practices under the ?avoided or reduced? LDN response hierarchy of which: 1,000 ha forest; 5,000 ha. grasslands; 10,000 ha croplands+ 5,000 ha accompanying landscape areas of mixed land cover types)
- ? Increased CO<sub>2</sub> sequestration in pasturelands and forests (2,539,046 MTCO<sub>2</sub>-eq)

In addition, strengthening of key value-chains will lead to improved income generation opportunities and more diversified livelihoods for around Increased social resilience and human well-being (Gender equality, access to information and finance) of 12,500 beneficiaries (Women 6,250; Men 6,250) in the target landscape. Section 10 *Benefits* outlines the additional socio-economic benefits resulting from the project.

## **1.7. Innovativeness, sustainability, potential for scaling up and capacity development. [104]<sup>104</sup> ?**

### **2.1.7: Innovativeness, sustainability, potential for scaling up and capacity development . ??**

#### Innovation

Innovation in a country as dynamic and developed as Jordan is difficult to measure to an accurate degree. This said, the project does introduce new or infrequently used technologies, holistic landscape perspectives and framing of decisions within the LDN conceptual framework. Innovation could therefore be summarised as building on the following baselines:

LDN knowledge support systems: Apart from Jordan leading the region in natural resource management and conservation, CC adaptation and compromise with national and international conventions on human rights and biodiversity, significant awareness and work has been realised through the LDN TSP to develop the 5 voluntary targets for the Kingdom for 2030. In addition to the TSP, LDN provides a range of tools, principles and guidelines on how to measure SDG 15 and other national indicators which have not been introduced or appropriated by Jordan's institutions.

The landscape approach: The Kingdom has been a leader in development of SLM and adapted crop varieties for drylands and many of the dryland practices now realised in other parts of the world originated in Jordan. The scarcity of water resources also has allowed for vast experience on resource management at large spatial scales. What the project attempts to introduce or strengthen is the landscape perspective that is closely tied to ecosystem services and energy and material flows. Therefore, a SLM practice is not realised in isolation, or with the notion that the application of one single SLM practice will provide for sustainability. A more holistic approach is needed and various SLM practices can and should be practiced within the same land space in order to achieve sustainable management objectives and provide for economic returns through identified value chains.

LDN conceptual framework: From a holistic management perspective, LDN provides a framework on which to analyse trends and status of land resources and make improved, informed decision-making. This stems from an understanding that resources to address LD are in fact limited and activities that

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offer the highest marginal reaction and return need to be identified and realised. The LDN targets and global objective of LD neutrality also offer a collective vision for the future and a context on which to base decisions within the framework.

### Sustainability

The project approach related to LDN and scaling up of investments on SLM/SFM will be integrated into national policies and programmes as well as monitoring systems that will ensure its sustainability from an institutional perspective. The project will seek to improve value chains to develop self-sustaining business models that will ensure the sustainability of project investments. Capacity development and training of policy-makers as well as technical staff in implementation and monitoring of LDN will further support the sustainability of the project approach and be supported by strengthened capacities and participation at the sub-national level of extension staff and local communities in reaching LDN targets. Connection between inter-agency Working Group and University and Research centres will be supported by the project to support the studies on land degradation neutral value chains to ensure long-term sustainability of the project results.

To increase the project's climate resilience<sup>[105]</sup>, climate change risks and opportunities at various levels were assessed and incorporated in the project design during the PPG. [Annex M](#) provides a detailed analysis of the historical trends in climate and extreme weather events, future projected changes according to climatic scenarios, impacts on target agro-climatic resources and agro-food systems in the project area and proposed risk mitigation measures for project implementation. This assessment and incorporation of climate considerations at every stage of the project design, ensures that resilience is integrated across the project and targeted measures have been integrated into the project design. A summary of the main findings and considerations are outlined *Climate change risks and opportunities* section of the prodoc.

The project will also collaborate and take advantage of the experience of international partners working in the region ( ICARDA, WB, UNDP, IUCN and others).

### Scaling up

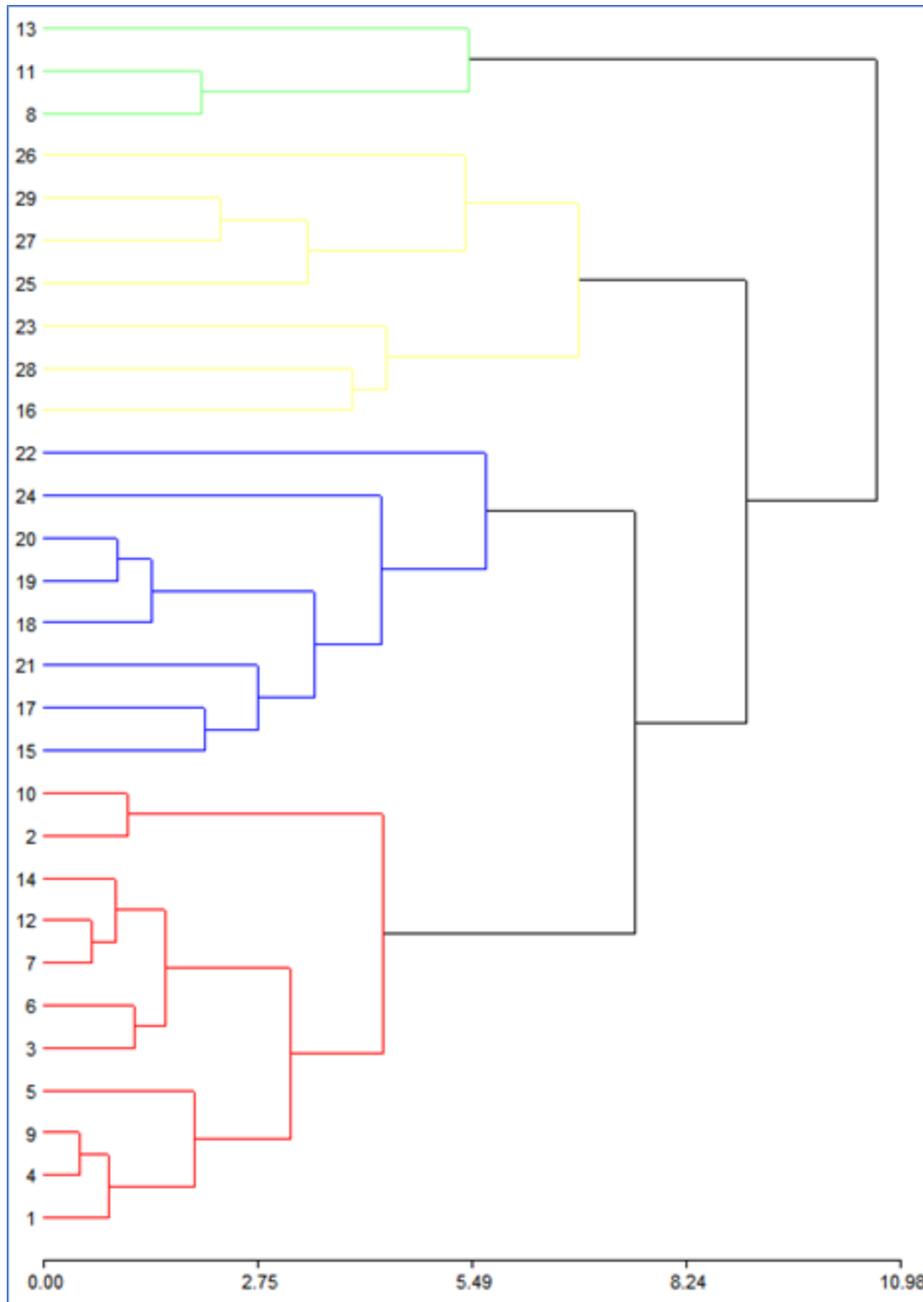
The project will achieve large-scale impact and transformative change through operationalizing the landscape and LDN approaches in a target landscapes. The project's ToC (see section 3.1. *Project strategy and Theory of Change*) is integral to guiding longer-term scaling of impact. **Scaling up** to national level will be supported by policy and institutional strengthening as well as effective monitoring, knowledge management and capturing of best SFM and SLM practices and lessons learned. **Scaling up** will also be supported by development of a resource mobilization strategy and of transformative LDN project proposals (Component 2).

For **scaling out** strategy a Similarity Analysis should be conducted to support the dissemination of SLM. This requires the collection of SLM technologies and approaches applied in the field and data on

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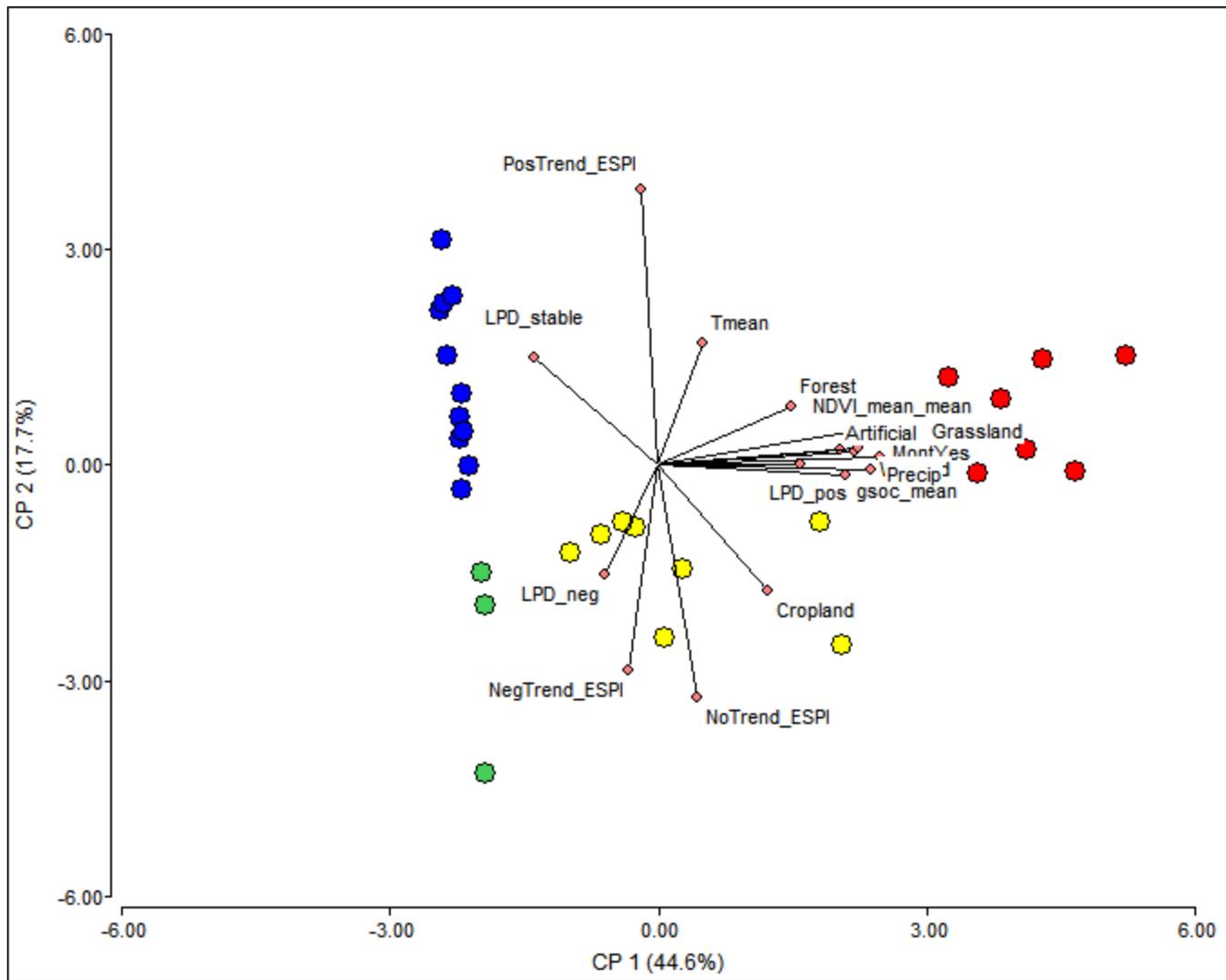
their result and site-specific characteristic to evaluate the biophysical ranges on which they can be applied. This should also be accompanied by a landscape characterization to produce Similarity Analysis. Landscapes in the region of interest should be delimited and characterized via multivariate analysis and clustering base on biophysical characteristics, LD status and Socioeconomic characteristics.

Using the data generated during the PPG a first version of Similarity maps for the 3 Governorates were obtained. Landscapes were defined using HydroSHEDS[106]<sup>106</sup> a Cluster analysis and Principal Component Analysis (PCA) was performed. All the data presented in the App and some ancillary variables were obtained to perform the multivariate analysis. A Cluster analysis was performed to produced 4 different groups (Figure 5), indicating a way in which the landscapes can be grouped according to the results.

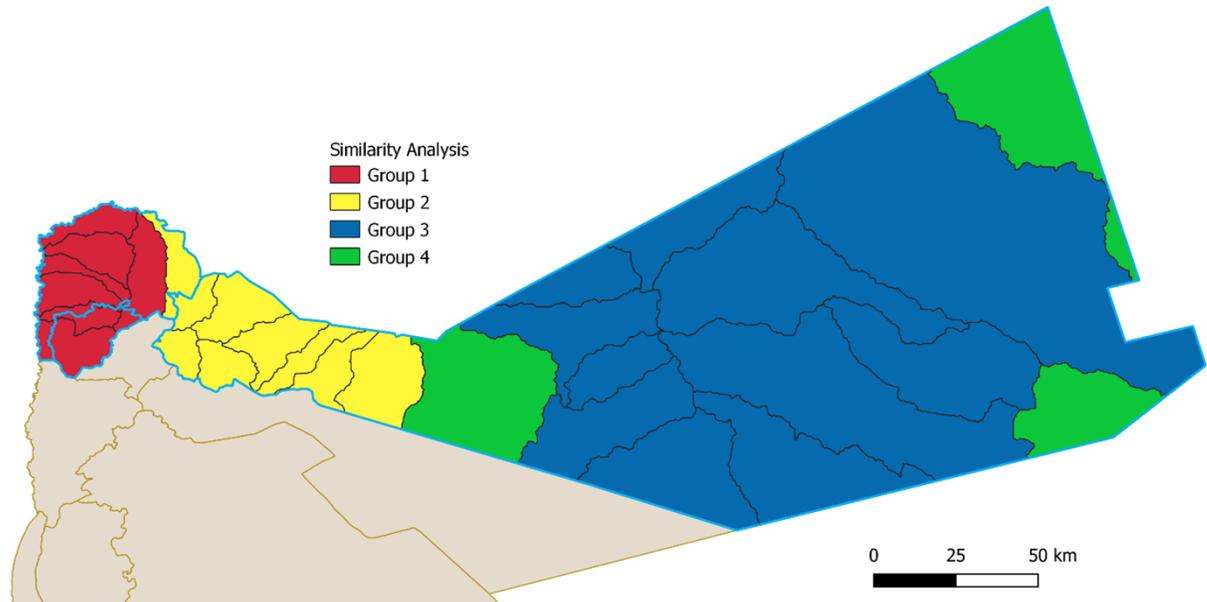


**Figure 6:** Cluster of districts according to their behavior on the set of studied variables.

A Principal Component Analysis (PCA) was used to further evaluate the relation that each variable has with the districts groups resulting from the cluster (Figure 6). The groups portrayed in the PCA and Cluster Analysis can be visualized in the Figure 7.



**Figure 7:** The PCA shows Districts painted with the colour of the groups obtained in the Cluster analysis and grey dots show the variables positions in the synthetic axis.



**Figure 8:** District groupings showing commonality in the multivariate space.

Group 1: characterized by: Higher Positive trends in the LPD and ESPI (Ecosystem Service Provision Index), land cover diversity, precipitation and mountain coverage and SOC.

Group 2: Intermediate areas with average conditions and transition to place to lower ESPI trends and less diversity in land cover.

Group 3: Areas with lower average NDVI, less mountains and Lower SOC and mostly stable in LPD.

Group 4: Areas similar to the Group 3 but with higher percentage of loss in ESPI and negative LPD.

### **1.8. Summary of changes in alignment with the project design with the original PIF**

The number of FFS mentioned in the PIF as a target for Output 2.1.2. was reduced from 'at least 100 FFS established' to 20 FFS, given the country's baseline of having created 153 FFS from the period of 2004 to 2018, and having trained between 2,000 and 2,500 people. It seemed that the original target of 'at least 100' was out of line with the baseline and local demand for such services. It is also expected that the project can achieve its capacity building and beneficiary core targets through other means that do not require the creation, maintenance, administration and procurement of FFS. This was previously discussed with stakeholders and approved at the Project Document Validation Workshop held on the 29th of July 2021 in Amman, Jordan and virtually.

Other changes to the current Logical Framework and the PIF can be seen in the table below (Table 9).

**Table 9.** Modifications from PIF to current project design

Original PIF	Current Logical Framework
<p>1.1. Land use planning and monitoring <b>frameworks</b> strengthened at national and sub-national levels to support LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- LDN monitoring system operational</li> <li>- local LDN hot and bright spots identified</li> </ul>	<p>1.1. Land use planning and monitoring <b>frameworks</b> strengthened at national and sub-national levels to support LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- LDN monitoring system operational</li> <li>- local LDN hot and bright spots identified</li> <li>- 10,000 ha under SLM that LDN are under the 'avoided' category of the hierarchy of responses (of which: 2,000 ha forest; 8,000 ha grasslands)</li> <li>- 750 ha of land restored (of which: 250 ha forest; 500 ha grasslands)</li> <li>- 419,006 Mtons CO<sub>2</sub>eq (EX ACT)</li> </ul>
<p>1.1.1. The baseline measured by a set of three global LDN indicators (Land cover, Land productivity, SOC) and land degradation status in various land use types (e.g. forest, grassland) in demonstration landscapes verified (using GLEAM, PRAGA, LADA, and others)</p>	<p>1.1.1. The baseline measured by a set of three global LDN indicators (Land cover, Land productivity, SOC) and land degradation status in various land use types (e.g. forest, grassland) in demonstration landscapes verified</p>

1.3. Enhanced capacity at national and sub-national levels to support the achievement of LDN in Irbid, Mafraq, and Ajloun Governorates

-

Targets:

- At least 15 Governorate staff trained on Monitoring of status of land and level of land degradation

- XX people (number TBC during PPG, 50% women) with enhanced capacity in LDN and SLM at national and sub-national level

- 4 knowledge products and training/awareness raising materials (which are gender sensitive in content and form) on SLM and LDN

1.3. Enhanced capacity at national and sub-national levels to support the achievement of LDN in Irbid, Mafraq, and Ajloun Governorates

-

Targets:

- .3. Enhanced capacity at national and sub-national levels to support the achievement of LDN in Ajloun, Irbid and Mafraq Governorates

-

Targets:

- At least 15 Governorate staff (20% women) trained on Monitoring of status of land and level of land degradation

- 90 people (50% women) with enhanced capacity in LDN and SLM at national and sub-national level

- 3 knowledge products and training/awareness raising materials (which are gender sensitive in content and form) on SLM and LDN

1.2. LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes

Targets:

- LDN principles integrated into the national frameworks

- Inter-sectoral coordination mechanisms on SLM, DLDD and LDN

1.2. LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes

Targets:

- LDN principles integrated into the national frameworks

- Inter-sectoral coordination mechanisms on SLM, DLDD and LDN

- 1 knowledge product and training/awareness raising materials (which are gender sensitive in content and form) on LDN principles[107]<sup>107</sup> and their application to land planning procedures

<p>2.1. Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Irbid, Mafraq and Ajloun Governorates</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- 2,500 producers trained through FFS, 50% of which are women</li> <li>- 15,000 ha under SLM that meet LDN criteria (of which: 1,000 ha forest; 4,000 ha grasslands; 10,000 ha croplands)</li> <li>- 2,750 ha of land restored (of which: 250 ha forest; 500 ha grasslands; 2,000 ha croplands)</li> <li>- 1,347,905 tCO<sub>2</sub>eq sequestered</li> <li>- 10,000 direct beneficiaries (of which 50% are women)</li> </ul>	<p>2.1. Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Aljoun, Irbid and Mafraq Governates</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- 2,500 producers trained through FFS, 50% of which are women</li> <li>- 25,000 ha under SLM that meet LDN criteria (of which 10,000 ha croplands + 5,000 ha of accompanying landscape areas of mixed land cover types)</li> <li>- 2,000 ha of land restored (of which 2,000 ha croplands)</li> <li>- 2,120,040 Mtons CO<sub>2</sub>eq (EX ACT) sequestered</li> <li>- 10,000 direct beneficiaries (of which 50% are women)</li> </ul>
<p>2.2. Increased investments in sustainable land management to achieve LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- At least four value-chains strengthened and resulting in increased revenue of local population (at least two value chains target women)</li> <li>- 2,500 small-holders (50% women) with strengthened livelihoods and sources of income</li> </ul>	<p>2.2. Increased investments in sustainable land management to achieve LDN</p> <p><u>Targets:</u></p> <ul style="list-style-type: none"> <li>- Vegetable, dairy (gender sensitive value chains), Olive and beekeeping value chains strengthened</li> <li>- 2,500 small-holders (50% women) with strengthened livelihoods and sources of income</li> </ul>

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[80] Land potential is defined as the inherent potential of the land to sustainably generate ecosystem services required to meet today's needs without compromising our ability to meet the needs of the future. <https://landpotential.org/knowledge/what-is-land-potential/>

[81] <http://www.fao.org/climate-smart-agriculture/en/>

[82] A *gabion* is a constructed cage, cylinder or box filled with rocks, concrete, or sometimes sand and soil for use in civil engineering and erosion control works.

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[93] Elements or concepts that project does not directly control but can influence to a degree

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[98] <https://projectgeffao.users.earthengine.app/view/jordan-ldn>

[99] <https://www.fao.org/in-action/dryland-restoration-initiative-platform/en>

[100] <https://www.wocat.net/en/>

[101] Land potential is defined as the inherent potential of the land to sustainably generate ecosystem services required to meet today's needs without compromising our ability to meet the needs of the future. A mismatch between land use and land potential can result in catastrophic land degradation as well as unrealized production opportunities. <https://landpotential.org/knowledge/what-is-land-potential/>

[102] <https://play.google.com/store/apps/details?id=com.fao.digitalafrica>

[103] <http://www.fao.org/gef/dryland-sustainable-landscapes/en/>

[104] System-wide capacity development (CD) is essential to achieve more sustainable, country-driven and transformational results at scale as deepening country ownership, commitment and mutually accountability. Incorporating system-wide CD means empowering people, strengthening organizations and institutions as well as enhancing the enabling policy environment interdependently and based on inclusive assessment of country needs and priorities.

- Country ownership, commitment and mutual accountability: Explain how the policy environment and the capacities of organizations, institutions and individuals involved will contribute to an enabling environment to achieve sustainable change

- Based on a participatory capacity assessment across people, organizations, institutions and the enabling policy environment, describe what system-wide capacities are likely to exist (within project, project partners and project context) to implement the project and contribute to effective management for results and mitigation of risks.

- Describe the project's exit / sustainability strategy and related handover mechanism as appropriate.

[105] STAP guidance on climate risk screening. 2019. Available at <https://stapgef.org/stap-guidance-climate-risk-screening>

[106] Lehner, B., Grill G. (2013): Global river hydrography and network routing: baseline data and new approaches to study the world's large river systems. Hydrological Processes, 27(15): 2171-2186. Data is available at [www.hydrosheds.org](http://www.hydrosheds.org)

[107] <https://knowledge.unccd.int/knowledge-products-and-pillars/guide-scientific-conceptual-framework-ldn/principles-land>

**1b. Project Map and Coordinates**

**Please provide geo-referenced information and map where the project interventions will take place.**

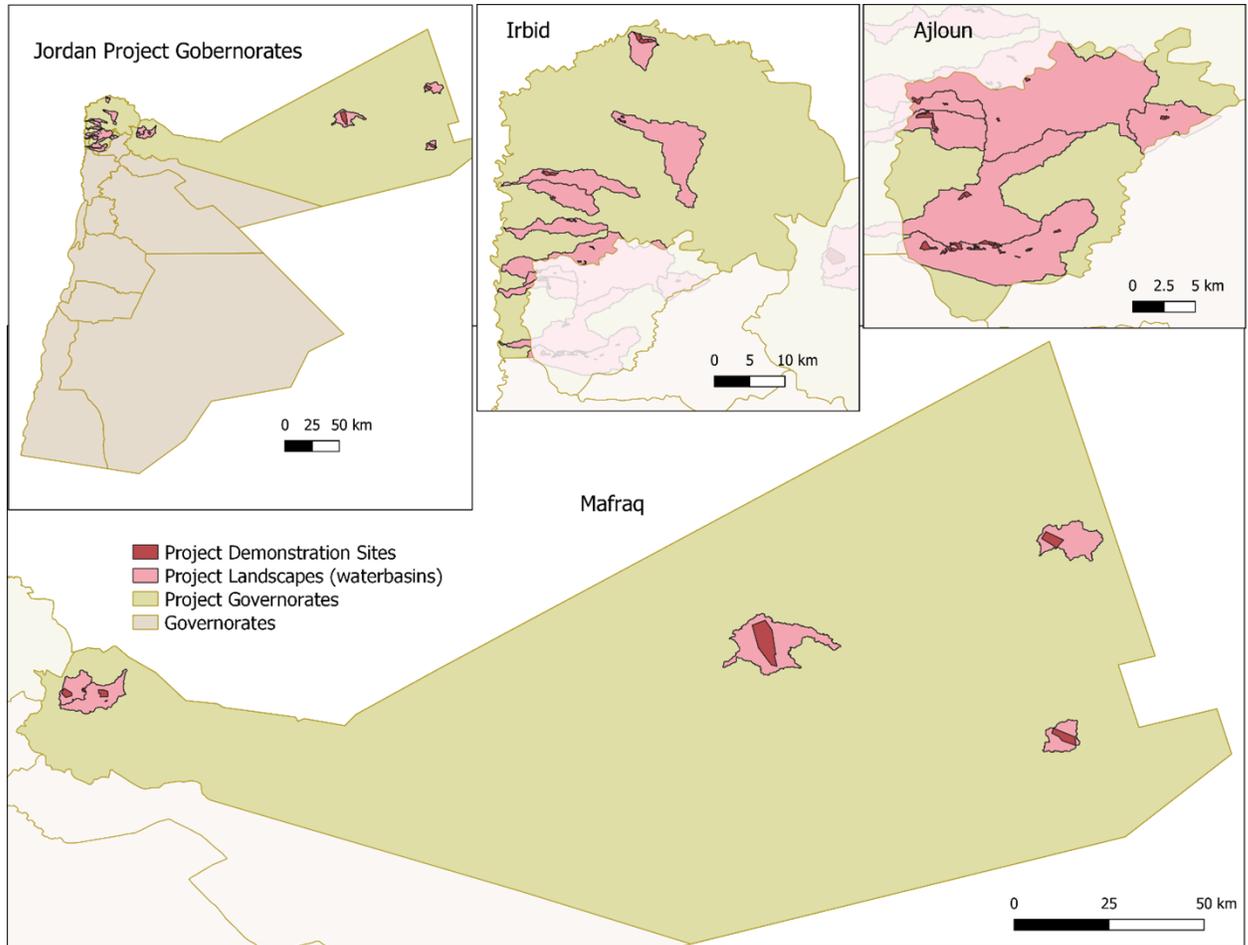
**Project Coordinates:**

<b>Aljoun Governate</b>	32°19'57"N 35°45'06"E 32.33250°N 35.75167°E 32.33250; 35.75167
<b>Irbid Governate</b>	32°33'0"N 35°51'0"E 32.55000°N 35.85000°E 32.55000; 35.85000
<b>Mafrq Governate</b>	32°20'24"N 36°12'19"E 32.339939°N 36.205166°E 32.339939; 36.205166

For all information regarding the project demonstration sites, project waterbasins and Governate boundaries, please follow the provided link:

<https://projectgeffao.users.earthengine.app/view/jordan-ldn>

Project selected Governorates with the landscapes and the demonstration sites can be seen in the following map:



**1c. Child Project?**

**If this is a child project under a program, describe how the components contribute to the overall program impact.**

**2. Stakeholders**

**Select the stakeholders that have participated in consultations during the project identification phase:**

**Civil Society Organizations** Yes

**Indigenous Peoples and Local Communities**

**Private Sector Entities** Yes

**If none of the above, please explain why:**

Stakeholder engagements to inform project development took place from November 2020 to August 2021. The timing of the PPG work coincided with the Covid-19 pandemic in the year 2020. Nonetheless, the overall approach and subsequent results met with expectations from different stakeholders and does provide a basis on which to inform the project development and design.

For the LD and SLM workstream, the participants in the consultative workshops were categorized into four main different groups; Land users (people who rely directly on lands a main livelihood source); old generations (who have an intimate knowledge of the area land management history); technicians and local experts (who have intimate knowledge of the natural systems or land degradation processes, extension workers/NGOs); and decision makers (who have a power of decision over the area (administrators/politicians). Gender aspects were taken in the consideration to understand further Gender issues and their links to Land Degradation and how governance of natural resource management and LD affected women and men. In total, approximately 120 participants of which 80 men and 40 women were actively participated and engaged in the three consultative workshops.

For more information, please consult the document provided in Annex I2.

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

**Table 10.** Stakeholders engagement during project development and design.

Stakeholder	Stakeholder Type	Stakeholder Profile	Consultation Methodology	Consultation Findings	Consultation Dates	Engagement in the project
Royal Scientific Society	Executing agency	-	-	? NA		? As described in section 7. Institutional Arrangements
Ministry of Agriculture	Co-financing partner Chair of PSC	Ministry	Joint Planning Meetings and workshops Project Inception and Validation Workshops	? Main project initiator. ? Key role in Agriculture, SLM and LDN-related policy frameworks.	November 2020-September 2021	? Decision-maker (chair of PSC); ? Co-financier, and responsible for upscaling; ? Beneficiary of capacity development.

Dept. Lands & Irrigation	Co-financing partner	National Governmental Institution	Joint Planning Meetings and workshops Technical Meetings Project Inception and Validation Workshops	? Has no land or natural resource monitoring systems as applied to LDN indicators ? Has limited capacity to intervene in LD situations	November 2020-September 2021	? Key recipient of LDN DSS and other spatial or land management related tools and resources ? Supervision of ecosystem restoration works
Dept. of Forestry + Rangeland	Co-financing partner	National Governmental Institution	Joint Planning Meetings and workshops Technical Meetings Project Inception and Validation Workshops	? Has vast experience dealing with local forestry contexts and issues ? Has no land or natural resource monitoring systems as applied to LDN indicators ? Has limited capacity to intervene in LD situations	November 2020-September 2021	? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials ? Advisory services to project development, especially regarding Outputs 1.1.4 and Output 2.1.1
Extension Directorate -MOA	Co-financing partner	National Governmental Institution	Project Inception and Validation Workshops	? Is innovating in new ways of reaching it target public and achieving its mandate ? Has practical experience running FFS in the country	November 2020-September 2021	? Support in the development and operation of 20 project FFS ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials

Ministry of Water and Irrigation	Co-financing partner PSC	Ministry	Project Inception and Validation Workshops	? Key role in water policy frameworks.	November 2020-September 2021	? Member PSC at national level  ? Policy advise and coordination, including to comply to national water strategies, plans and policies  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials
MOPIC	Co-financing partner PSC	Ministry	Project Inception and Validation Workshops	? Essential partner for key performance indicator monitoring and national and sub-national planning processes.	November 2020-September 2021	? Supervision of project implementation from key performance indicator perspective  ? Policy advise and coordination of integration of LDN principles and tools into national and sub-national planning processes  ? Member of PSC  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials

Ministry of Environment	Co-financing partner  PSC	Ministry	Joint Planning  Meetings and workshops  Project Inception and Validation Workshops	? Essential partner as the conservation department is the focal point for the UNCCD and the holder of the national land degradation neutrality report	November 2020-September 2021	<p>? Member PSC at regional level</p> <p>? Policy advice and coordination and focal point on national Environmental and Social Policies and standards compliance</p> <p>? Scaling up adaptive measures to mitigate pollution to water bodies through the environmentally friendly and sound interventions.</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>
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Ministry of Municipal Affairs	Co-financing partner  PSC	Ministry	Project Inception and Validation Workshops	? Key role in supervising the functions of municipal and the joint services councils	November 2020-September 2021	? Key recipient of LDN DSS and other spatial or land management related tools and resources  ? Supervision of project implementation from regional/district perspective  ? Policy advise and coordination  ? Member of PSC  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials
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Agricultural Credit Corporation	Partner PSC	National Governmental Institution	Project Inception and Validation Workshops	? Has a connection with farmers where the project can build on their database to reach out a wider audiences	November 2020-September 2021	<p>? Key recipient of LDN DSS and other spatial or land management related tools and resources</p> <p>? Supervision of project implementation from key indicator perspective</p> <p>? Policy advise and coordination</p> <p>? Member of PSC</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>
Regional Agricultural Dep. at Governorate	Co-financing partner	Regional Governmental Institutions	<p>Joint Planning Meetings and workshops</p> <p>Technical Meetings</p> <p>Project Inception and Validation Workshops</p>	<p>? Have no land or natural resource monitoring systems as applied to LDN indicators</p> <p>? Have limited capacity or resources to intervene in LD situations</p>	November 2020-September 2021	<p>? Support project activities at Governorate level;</p> <p>? Contribute to problem solving at household level;</p> <p>? Beneficiary of capacity development;</p> <p>? Replication across the governorate</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>

Badia Restoration Programme Coordination Unit	Co-financing partner	Iterational impact programme	Technical Meetings  Project Inception and Validation Workshops	<p>? Programme has generated significant findings and links to pilot communities</p> <p>? Programme pilot sites are in similar areas in the Mafrag region, and the co-financing agreements allow for shared activities and materials</p>	November 2020-September 2021	<p>? Co-financier, and responsible for upscaling.</p> <p>? Lesson learned</p> <p>? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials</p>
Beneficiary groups (small scale farmers)	Direct Beneficiaries	Local Community	Meetings and workshops  Focus groups discussions	<p>? Access to credit is main barrier to investment in VCs, SLM or resource efficiency.</p> <p>? Knowledge and access to resources are other barriers.</p> <p>? Land prices and markets limit options for smallholders</p> <p>? Communities and producers are motivated to improve management and ecosystem services.</p>	November 2020-September 2021	<p>? Contribute to problem solving at household level;</p> <p>? Beneficiary of all project support, including capacity development.</p> <p>? Recipient of SLM approaches, tools and materials</p> <p>? Support in Value Chain strengthening</p>

Private Sector	Direct Beneficiaries	Private sector	Meetings and workshops  Focus groups discussions  KII	? Technology transfer  ? Implementation of pilot projects	November 2020-September 2021	? Awareness raising campaigns  ? Support in Value Chain strengthening  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials
NGOs / CSOs	Indirect Beneficiaries	Non-Governmental Organisation	Meetings and workshops  Focus groups discussions  Project Inception and Validation Workshops	? Awareness and capacity building  ? Lobbying and advocacy  ? NGOs/ CSOs are motivated to improve management and ecosystem services	November 2020-September 2021	? Awareness raising campaigns  ? Support in Value Chain strengthening  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials

Municipalities	Direct Beneficiaries	Local Community	Meetings and workshops  Focus groups discussions	? Provide services such as water and electricity	November 2020-September 2021	? Support and increase adaptive measures through develop urban planning with considering Sustainable Land Practice  ? Awareness raising campaigns  ? Support in Value Chain strengthening  ? Recipient of LDN capacity building, ILM and other SLM approaches, tools and materials  ? Recipient of ecosystem restoration works
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In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

In addition to the stakeholder information provided in the document and the conflict programme clinic and other participatory and gender and socially vulnerable inclusive methodologies, the following stakeholder groups will be consulted during project implementation using the following methodologies, as seen in Table 11.

**Table 11.** Stakeholder Consultations outlined for project implementation.

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
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Ministry of Agriculture	Co-financing partner Chair of PSC	<i>National Government Institution body</i>	PSC Joint Planning Meetings and workshops Project Workshops	<i>Trimesterly</i>	<i>Chair of PSC and key policy partner</i>
Dept. Lands & Irrigation	Co-financing partner	<i>National Government Institution body</i>	Joint Planning Meetings and workshops Project Workshops Technical meetings	<i>Trimesterly</i>	<i>Key to develop Component 1 Outcomes</i>
Dept. of Forestry + Rangeland	Co-financing partner	<i>National Government Institution body</i>	Joint Planning Meetings and workshops Project Workshops Technical meetings	<i>Trimesterly</i>	<i>Collaborator on activities in Component 1</i>
NARC	Co-financing partner	<i>National Government Institution body</i>	Project Workshops Technical meetings	<i>Semesterly</i>	<i>Collaboration on issues relating to FFS and training</i>
Ministry of Water and Irrigation	Co-financing partner PSC	<i>National Government Institution body</i>	PSC Project Workshops Technical meetings	<i>Semesterly</i>	<i>Collaborator on activities in Component 1</i>
MOPIC	Co-financing partner PSC	<i>National Government Institution body</i>	PSC Project Workshops Technical meetings	<i>Semesterly</i>	<i>Collaborator on activities in Component 1</i>

Ministry of Environment	Co-financing partner  PSC	<i>National Government Institution body</i>	PSC Joint Planning  Meetings and workshops  Project Workshops  Technical meetings	<i>Trimesterly</i>	<i>Key policy partner on issues of BD</i>
Ministry of Municipal Affairs	Co-financing partner  PSC	<i>National Government Institution body</i>	PSC Joint Planning  Meetings and workshops  Project Workshops  Technical meetings	<i>Semesterly</i>	<i>Key partner on ILM and other land planning processes</i>
Agricultural Credit Corporation	Partner  PSC	<i>National Government Institution body</i>	PSC Joint Planning  Meetings and workshops  Project Workshops  Technical meetings	<i>Semesterly</i>	<i>Key partner regarding access to finance and other sources of funding for smallholder and agricultural investments</i>
Regional Agricultural Dep. at Governorate	Co-financing partner	<i>Regional Government Institution body</i>	Joint Planning  Meetings and workshops  Project Workshops  Technical meetings	<i>Trimesterly</i>	<i>Key policy partner at regional level</i>

Badia Restoration Programme Coordination Unit	Co-financing partner	<i>Other</i>	Project Workshops Technical meetings	<i>Trimesterly</i>	<i>Significant resource for project implementation and sustainability</i>
Beneficiary groups (small scale farmers)	Direct Beneficiaries	<i>Local Community</i>	Meetings and workshops Focus groups discussions	<i>Trimesterly</i>	Important roles during implementation to codesign participatory solution at field and household levels, as recipient of SLM approaches, tools and materials, and support in Value Chain strengthening
Private Sector	Direct Beneficiaries	<i>Other</i>	Meetings and workshops Focus groups discussions KII	<i>Semesterly</i>	<i>Key stakeholder for scaling and promotion of SLM and LDN principles</i>
NGOs / CSOs	Indirect Beneficiaries	<i>Non-Governmental Organization</i>	Meetings and workshops Focus groups discussions KII	<i>Semesterly</i>	<i>Key stakeholder for scaling and promotion of SLM and LDN principles</i>
Municipalities	Direct Beneficiaries	<i>Local Government Institution/body</i>	Joint Planning Meetings and workshops Project Workshops Technical meetings	<i>Trimesterly</i>	<i>Key partner on ILM and other land planning processes</i>

Select what role civil society will play in the project:

**Consulted only;**

**Member of Advisory Body; Contractor; Yes**

**Co-financier;**

**Member of project steering committee or equivalent decision-making body; Yes**

**Executor or co-executor; Yes**

**Other (Please explain)**

### **3. Gender Equality and Women's Empowerment**

**Provide the gender analysis or equivalent socio-economic assesment.**

A Gender Assessment was conducted to meet the FAO requirements, and was developed based on FAO gender policy standards, to eliminate all forms of discrimination against women, ensure that access to resources is more equal and that agricultural policies and programs are gender-aware, and make women's voices heard in decision-making at all levels.

This gender assessment also identifies gender issues that are relevant to the project and examines potential gender mainstreaming opportunities., therefore, stakeholders consultations were undertaken and focus group discussions (FGDs) were carried out in three sample provinces selected to benefit from the project (Ajloun , Irbid , Mafraq ) with a total participants of (120) in which about 35% were women to highlight the gender and social norms and identify key entry points for women participation in the project activity within the study area. The consultations helped to identify constraints/barriers in women's participation, their opportunities and prioritize the areas of capacity building to mainstream gender in the future activities of the project.

The UNCCD conceptual framework for Land Degradation Neutrality (LDN) highlights that land degradation in developing countries impacts men and women differently, mainly due to unequal access to land, water, credit, extension services and technology. Inequality hinders and diminishes women and girls' actual and potential roles in and contributions to avoiding, reducing and reversing land degradation, and improving their livelihoods and that of their families and communities. Empowering women by strengthening and enforcing their rights to access, use and make decisions over their land can generate incentives, security and opportunities for conservation and land management, ensuring its long- term productivity.

Based on the PPG investigations, key findings from the gender analysis are the following:

- 2 The three most frequently reported motivations for women's engagement in home-based agriculture in the three targeted areas, include production of food for household consumption (90%), and selling of products to generate income (36%). In addition to these factors, during FGDs, women also highlighted the following:

- o The ability to undertake production from home and simultaneously undertake domestic responsibilities as one of the primary motivating factors for their engagement in home-based agriculture especially for women headed households.
- o Control over income can provide insight into the extent to which women's engagement in agricultural or other homebased activities enhances their position within their household, especially in terms of their independence and decision-making capacities as it was confirmed by over 70% of the FGD participants. Meanwhile, the higher proportion of women in homebased works who stated that their husbands control the income generated could be due to women's more limited role in the commercial and marketing aspects of home-based agriculture. When asked during FGDs what women perceive to be the difference in roles between themselves and the male members of their household in home-based agriculture, one of the key differences discussed was that men have more of a supportive role during the production process but are more involved in taking the decisions with regards to the marketing of produce, while women oversee all other phases of the production process on a day-to-day basis.

? In terms of what women are producing through their engagement in home-based agriculture, vegetables, dairy products, were found to be among the most commonly produced food items across the 3 targeted areas. this was validated by the LDN survey respondents indicating that 39% of women in the three targeted areas are engaged in animal production comparing with only 2% for men. However, a few seasonal variations in production patterns can be seen. For example, fruits were more commonly produced during spring and summer, while olive oil and olive pickles were produced only during winter and autumn. For rearing, few of the FGD participants confirmed that women are involved in or undertake livestock, on the other hand FGDs, confirm that women engaging in home-based agriculture are involved throughout the agricultural production process, starting from preparing the ground, planting of seeds and rearing of livestock, to the harvesting of produce, packaging but not for transportation and marketing. The LDN survey showed that only 17% of women get training in agriculture issues. According to both male and female FGD participants, supportive roles of men in home-based agriculture include them undertaking tasks which require physically heavier labour such as ploughing of land and grazing of livestock.

? In terms of variations in perceived barriers by agricultural zone, climate-related reasons and water shortages were perceived to be a greater barrier for women, as well as lack of financial means, limited marketing and profitability, were frequently discussed by women engaging in home-based and small-scale agricultural activities, the second most frequently reported challenges were the lack of financial opportunities and lack of land ownership , the FGD stated that , only 5% women owned the land being used for home-based agriculture, while a large majority 74% stated that the land was either owned by husbands (58%) or another male family member (16%).

? FGD participants indicated that, number of people employed in agriculture and most likely reflect the withdrawal of labour from the sector rather than improvements in technology. This is consistent with the changing nature of Jordanian agriculture: over the past two decades, Jordan's agriculture has gradually transitioned from small, family-owned and rain-fed activities to larger

more commercialized operations. It should be noted that the increase in labor productivity occurred in parallel with steady output growth in the agriculture sector.

- ? Also, the FGD participants indicated that employment conditions in the agriculture sector also do little to support social development or poverty reduction for women or youth, which is why many are turning away from the sector. This finding is consistent with the UN Women estimates that 52% of rural Jordanian women work in the agriculture sector, mostly as farm laborers, representing 21% of the formal agricultural labor force. However, the majority of women who engage in paid agricultural labor (rather than home-based agriculture) tend to do so informally and seasonally, meaning they do not receive a stable salary or enjoy the protections that might come with a legal contract, such as safe working conditions and access to social security and health insurance.

- ? The participants all agreed that one of the major obstacles facing women from running enterprises is the lack of capital and funding; it is necessary to promote women economic participation. Some of the respondents said that a woman needs between more than 1500 dinars to be able to start an enterprise, while the revolving funds are around 500-700JD. Credit activities have been used as an entry-point for organizing women for broader activities related to desertification in many countries.

- ? Men control access to resources in which men own the key productive assets such as land, livestock and medium to large businesses. For interventions especially in dry lands, this means that activities which include the use of productive resources like land or livestock should include men and women in decision-making. Secondly, any proposed land-use change relating to dry land conservation should include both local men and women as key stakeholders.

- ? Some of the participants expressed that it is necessary to build partnerships with associations and active development centers present in the governorates. If these partnerships were built, it would contribute to a larger chance of success for these enterprises. Some of these associations and centers have good experience in terms of finance, business administration, and supporting small women's enterprises, for instance. Also, these associations are considered reliable sources in which women will feel confident and reassured, and thus these sites can be used as training centers and for women's support. These associations are also familiar with the local community, more aware and informed towards a meaningful collaboration aimed at success.

- ? A range of women CSOs operate in their areas, there is some focus on empowerment, such as training, they also targeting boys and men, especially in awareness activities and revolving funds. On the other hand, CBOs may enjoy a level of public trust and be considered to be safe or acceptable spaces for women to gain training and receive information. However, these organizations are not seen as a powerful tool to communicate with women and other vulnerable groups in the local communities, it was explained that they don't have a network relation with each other nor with other official or private entities in the community. Those CSOs are approached by donors, providing them with trainings such as food processing and handmade

crafts, however these trainings may not reflect or support women in enhancing their social situations because of poor marketing.

- ? Despite women's seemingly active involvement in home-based agriculture, it was not found to be common for women to own the land being used for agricultural production, with only 5% stating that they personally owned the land being used. In terms of the impact of lack of land ownership, participants stated that it limits the scope of production activities that women are able to undertake, limits their decision-making capacity vis-?-vis production and marketing, and limits their access to microcredit to start agribusinesses as land/ material assets is usually required to collateralize loans.

- ? Women's access to and control over natural resources (such as land) and agricultural support services (including credit, extension services, etc.) are often restricted. This limited access to agricultural resources and services is caused by a series of interrelated social, economic and cultural factors that force rural women into a subordinate role and hamper their productivity, as well as limiting their participation in decision-making processes and development initiatives

- ? More investment is needed to improve women's participation in alternative livelihoods, to ensure that their rights and interests are recognized and encouraging home-based farms.

- ? Increased collaboration and partnership with CSOs, NGOs and the entities working on climate change issues can help increase awareness of gender, and environmental sustainability issues in the targeted areas. This awareness raising should seek to increase women's knowledge and equal rights in particular. In addition, CSOs could support gender mainstreaming by involving whole communities, men, and local leaders, to overcome sensitivity to the traditional divisions of labour that may help to design the project better to be more socially acceptable.

- ? Awareness about the availability of appropriate technologies and financing options needs to be built, so collaboration with extension, local government, private sector suppliers, and farmers' associations is key.

- ? Need to leverage information and communication technologies to facilitate and strengthen the opportunities for women's enterprises to access information, exchange information, promote their businesses and express their needs

- ? Need to improve women's access to and control over land and water, technological inputs, extension services, information and credit, also ensure that land-use planning takes into consideration gender roles.

? Need to increase women's involvement in policies and programs in order to improve land use through participation in public decision-making, and ensure that legal frameworks for environmental conservation and the related organizational structures clearly provide for women's representation

? Need to introduce drought tolerant crop farming and/or sustainable livestock management techniques; Business models for value-added food production and land use.

The main entry points proposed for gender mainstreaming in the process of achieving land degradation neutrality targets through restoration and sustainable management of degraded land in Northern Jordan are as follows:

? Securing land tenure for women farmers to make long-term investments in land rehabilitation and maintain soil quality. Women usually have even less access to land (and control) than men.

? Providing credit through traditional mutual assistance groups, is one of the relevant ways of encouraging rural women and men to take an interest in environmentally sound activities. Smallholders, particularly women, often face difficulties in obtaining credit due to lack of collateral. There is a need to develop informal sector enterprises and alternative livelihood possibilities through making credit available to small farmers, especially to women.

? Women's access to agricultural support services (extension services, inputs, etc.) is often restricted despite their multiple roles in dryland management. Women's groups have, however, proven capable of tackling extreme livelihood conditions deriving from dryland degradation, including through rain harvesting and irrigation activities.

? Awareness raising and education concerning desertification can lead to changes in attitudes and longer-term social change. In fact, understanding the value of protecting one resource (tree species, water source, fodder crop or skill), encourages men and women to see the value of sustaining and protecting the environment in general. In the meantime, however, specifically targeted strategies to empower women are necessary.

? Smallholders in drylands face the difficulty of turning surplus products into cash income because of their lack of transport and access to markets; access to market information. Women face particular constraints as marketing infrastructure and organizations are rarely geared towards small-scale production or to crops grown by women farmers.

? SEX DISAGGREGATED data on dryland management activities collect reliable socio-economic sex- and age-disaggregated data on dryland management activities, making them available for decision-making processes. Increased gender-sensitive analysis, capitalization and

dissemination of knowledge are required with emphasis on sharing experiences and good practices to combat food insecurity and desertification.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?**

**Closing gender gaps in access to and control over natural resources;** Yes

**Improving women's participation and decision making** Yes

**Generating socio-economic benefits or services or women** Yes

**Does the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### **4. Private sector engagement**

**Elaborate on the private sector's engagement in the project, if any.**

LDN promotes a multisectoral approach to issues that go beyond the scope of LD and agricultural production. It promotes interconnectivity of landscape processes and ecosystem services and involves landusers and wider community members to consider actions within a holistic perspective. This approach is essential for achieving Jordan's 5 voluntary LDN targets by 2030 and reaching the SDG and conventions on biodiversity conservation.

Of those private sectors engaged, smallholder producers and those who depend on natural ecosystems for their livelihoods are central to project activities and processes. These producers often interact with various value chains and drive LD through inadequate land management practices.

Value chain actors in different stages of the production, processing and distribution chains will be engaged through awareness raising, participatory workshops and potential PPP initiatives to promote sustainable agricultural practices and value chains. Of those potential value chains selected, Vegetables, Dairy and Olive directly employed or covered large extensions of land that account for a significant portion of the private sector investments in agriculture. At the same time, Beekeeping is a growing industry that brings multiple socio-economic and environmental benefits.

Wider community actors and private entities who are not directly involved in agricultural production but who are affected by landscape processes, such as drought, flooding or other climatic extremes, are also to be subject of capacity building and awareness campaigns. Land planning needs to incorporate these groups who benefit from ecosystem services and can support and appropriate LDN principles in different sectors of the economy, yet may not know of how natural systems work or how they can improve ecosystem health and productivity in their area.

Within these groups will be sectors who indirectly benefit from sustainable agriculture and landscape restoration. Tourism industry and those livelihoods depends on cultural and landscape aesthetics and

gastronomies increase their economic realities when water is available, forest fires are controlled and natural areas are vibrant and conserved.

## 5. Risks to Achieving Project Objectives

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):**

**Table 12.** Risks to Project implementation and objectives.

Description of risk	Impact[1]	Probability of occurrence	Mitigation actions	Responsible party within project
Weak incentives for stakeholders, farmers and local communities to cooperate due to time lag for fruition of results, may reduce stakeholder engagement and participation	Moderate	Moderate	Pilot activities will be participatory in nature and use marginal reaction test to identify actions that yield immediate benefits for Communities in terms socio economic livelihoods and community enhancements, awareness. preparedness, skill development and income generation activities. This will be emphasized during inception phase.	Royal Scientific Society
Failure to involve adequate representation of vulnerable communities including refugees working outside of camps, particularly women, poverty pockets, and beduins resulting in failed ownership of the project at the community level at projectsites.	Low	Low	The capacity building component and value chains activities will ensure engagement of vulnerable groups and women and will adopt a gender-sensitive approach, as guided by the M&E -Gender and Social Expert. The project will adopt a two way communication approach to create community ownership and buy-in of the project intervention. The development of implementation plans will be undertaken in a participatory manner, encouraging input from all beduin tribal heads, community members, and women. Mitigation measures will also include a conflict-sensitive approach, and conflict-sensitive programming specialist consultations.	Royal Scientific Society
A significant change in the number of refugees entering the Project area, in addition to their livestock.	Low	Low	Involve refugees in capacity building and training activities, through specific FFS groups or value chain capacity building exercises.	Royal Scientific Society

Jordanian government no longer has funds for upscaling	Low	Low	The LDN conceptual framework has been created with resource scarcity to address LD in mind. Many of the activities and processes set in place through the project will not depend on GoJ funds to remain active and continue providing benefits once project funding has ceased.	Royal Scientific Society
The Government technicians trained under the Project are reassigned to different posts after the Project training.	Low	Moderate	Professional staff turnover was identified in various project final evaluations as a significant barrier to successful project outcomes. Capacity building will need to take a strategic approach to this issue and work with GoJ counterparts to ensure traction and impact through capacity building.	GoJ Ministries
Lack of close cooperation between key institutional stakeholders	Low	Moderate	Even in the PPG phase, lack of information sharing, or high associated costs of data, were barriers. This risk will be mitigated under Component 1 of the project that will strengthen the inter-sectoral coordination mechanism to enhance cooperation on LDN, as well as the LDN Platform will be public in nature and provide data on LDN and other key performance indicators online.	GoJ Ministries
Lack of political support to address key policy barriers and disincentives to SLM	Mod.	Moderate	Political support is high for SLM and LDN, which is demonstrated by the existing policies related to land and forestry. This project will provide an opportunity to strengthen the LDN framework that requires inter-sectoral coordination and to demonstrate good practices in the field, as linked to ILM planning.	MoA
Low technical capacity in operationalizing LDN at national and regional level impacting project progress	Mod.	Moderate	Capacity development for LDN will be provided under Components 1 and 2, which will mitigate the risk. Component 3 will in addition provide capacity building for replication of the LDN in other landscapes.	MoA
Lack of commitment of local stakeholders at the community level to adopt SLM/SFM to achieve LDN	Low	Moderate	Implementation will be undertaken through community-based participatory approaches that address local cultural, socio-economic and ecological concerns. The project will provide incentives to farmers to engage in various activities that target LDN, involving both capacity building, awareness, and value-chain strengthening. PPG consultations with the target districts demonstrate a strong commitment of the local population to landscape conservation and CC mitigation.	Royal Scientific Society

Climate change risks	Mod.	Moderate	<p>The mean and maximum temperatures over the full country of Jordan are expected to rise 2-4 degrees, precipitation will be 15-20 percent lower and potential evapotranspiration about 150 mm higher by the end of the century. Producers are already reporting facing extreme heat/drought, intense rainfall and sudden temperature changes, animal diseases, pest outbreaks and strong winds.</p> <p>Mitigation is realised through the described project Causal Pathways and is both an objective and outcome of project activities</p>	Royal Scientific Society
COVID-19	Mod.	Moderate	<p>?Jordan is currently facing back-to-back second and third waves of COVID-19 infections, while the country?s major economic indicators continue to deteriorate. The twin deficits have substantially widened, the debt level has increased, and unemployment is rising.[2]?</p> <p>The project-selected value chains are often utilised as refugee sectors for smallholders and rural households, and local production is becoming more important for food security. The project is well positioned therefore to be a positive factor under the current pandemic situation.</p> <p>The project will also work with growing data and information sharing networks, such as those being developed by NARC, to realise online FFS training and reduce the need for physical training sessions, large groups or unnecessary travel.</p>	Royal Scientific Society
Low participation of women/ limited benefits to women	Mod..	Low	<p>The GAP contains a full list of measures and actions to minimize risks and maximize benefits to women and men, as well as youth.</p>	Royal Scientific Society

## COVID-19 related risks

Jordan, as the rest of the world, is not immune to the COVID-19 pandemic. From 3 January 2020 to 5:09pm CEST, 23 August 2021, there have been 789,474 confirmed cases of COVID-19 with 10,293 deaths, reported to WHO.[3] As of 23 August 2021, a total of 6,135,960 vaccine doses have been administered. Impacts from 2020 include i) national GDP is estimated to have fallen by 23 percent during the lockdown period, ii) the services sector was hardest hit, seeing an estimated drop in output of almost 30 percent, iii) Food systems in Jordan are estimated to have experienced a reduction in output by almost 40 percent, iv) Employment losses during the lockdown were estimated at over 20 percent, mainly driven by job losses in services, followed by agriculture and v) household income fell on average by around one-fifth due to the lockdown, mainly driven by contraction in service sector activities, by slowdown in manufacturing activity, and by lower remittances from abroad.[4]

The full impact of the COVID-19 pandemic on Jordan's food supply is still to be assessed, especially with respect to the growing seasons of 2021 to 2022. However, food security among vulnerable Jordanian households has remained largely stable as yet with 15 percent of households showing a poor or borderline Food Consumption Score (FCS) in 2020 compared to 16 percent in 2018.[5]

The project is well positioned to reduce the negative effects of the pandemic regarding agricultural production and reduce pressure on natural resources that might come from decreasing food or economic security. While traditional training approaches have relied on physical classrooms and in-person communication, innovations in social and visual media are offering new ways of connecting with larger groups, while at the same time reducing travel times and costs in time and expense. Extension services in Jordan are taking advantage of this options, providing opportunities for collaboration and capacities to increase beneficiaries. The pandemic has also brought to light the risks and fragility of modern food systems, and the need for a basic, local food production and supply system that works in times of crisis. This holistic approach is further expanded on under this project by the means of landscape planning, where food and natural systems are interconnected, and flows of materials and energy are promoted among different land cover and land use systems.

The fact that the Covid19 crisis will continue, at least until a safe and accessible vaccine is available to everyone, will oblige the project team and partners to define alternative measures regarding: (i) the collection of information and consultations with the stakeholders involved, (ii) the organization of teamwork, working meetings, workshops, training, and visits to / from other countries involved in the program, (iii) the provision of technical assistance from national and international experts, and (iv) the community-based participation and relationships among members of local communities, and among members of producer organizations, market-based platforms, etc. In this sense, the project team and its partners should define strategies that best adapt to the conditions of Covid19 during the inception workshop.

## Summary of the Climate Risk Analysis

As for the Climate Risk Analysis, the report developed for the PPG phase of project development and design ([Annex M](#)) found that Climate-related hazards are significantly affecting Jordan, such as extreme temperatures, droughts, flash floods and storms. These hazards are increasing in frequency and intensity

due to climate change. Flooding has led to serious implications in the last years where lives have been lost, and several square kilometers of agricultural lands were destroyed in addition to sever damages to infrastructure (TNC 2014). The third national communication report (2014) indicated that consecutive dry days most likely will increase towards the end of the century (2020-2050, 2040-2070, 2070-2100), and the most change will occur at the southern region close to Aqaba, depending on climate emission scenarios RCP4.5 and RCP8.5. The report expected an increase in consecutive dry days up to 30-40 dry day in southern highlands. Regardless of the Governorates, number of dry days, intensity and frequency most likely will increase, particularly during the last period (2070-2100). Furthermore, the spatial distribution also will change depending on emission scenarios, as presented in the Climate Risk Analysis report.

On the other hand, Rajsekhar et al. (2017) concluded that the number of drought events, and the average drought duration (months) are significantly greater for less optimistic climatic projections and it increases from north to south and west to east. From north to south, the duration of meteorological drought events increases from 2 to 3 months under these scenarios, and meteorological drought severities increase from 26 to 37%. A table has been provided to outline the details of the report findings (Table 13).

**Table 13.** Summary of the Climate Projections and extreme events as per the results of the dynamic downscaling

TREND	DETAILS
A Warmer Climate	All models converge to an increase in temperature and the most in (2070-2100), average temperature increase could reach on average +2,1°C under RCP4.5 and on average +4°C under RCP 8.5.
A Drier Climate	In 2070-2100, the cumulated precipitation could decrease on average by 25% in RCP8.5, and on average ? 21% in RCP 8.5.
Warmer Summer, Drier Autumn and Winter	The warming would be more important in Summer, and the reduction of precipitation more important in autumn and winter than in Spring.
More Heat Waves	The analysis of Summer temperature, monthly values and the inter-annual variability reveals that some temperature thresholds could be exceeded. For instance, in pessimistic but possible projections, for a Summer month, the average of maximum temperature for the whole country could exceed 42- 44°C.
More Droughts	The maximum number of consecutive dry days, evaporation indicated increase. The occurrence of snow would strongly decrease. This will complicate water management
Intense Precipitations	The number of days with heavy rain (>10 mm) does not evolve significantly.

(Source: National Adaptation Plan NAP 2021)

CC mitigation is one of the principal outcomes of this project, as project activities are aimed at increasing land productivity, maintaining current land cover type, as well as increasing or at least conserving current SOC levels in soils. By increasing soil coverage, photosynthesis and soil organic moisture contents, surface temperatures are reduced and water retention is increased, thus limiting the impacts of anthropological and natural drought impacts. Recovery of riparian vegetation will also decrease temperatures and water evaporation from river and streams, providing climatic refuges for people and wildlife. The established nurseries and ecosystem restoration plans are principally focused on recovering and using native species that are best adapted to current and future CC scenarios. SLM activities and approaches chosen by stakeholders and verified by previous projects described in the baseline fall under either CCA approaches, or are specifically designed to address future climate scenarios. Grazing planning and management will be aimed at increasing distribution of manure and other animal dropping to increase the 'Carbon Pump' and microbacterial activity and soil fertility, providing for negative feedback loops for GHG. From a landscape perspective, water saving and water harvesting infrastructures, their placement in the landscape and their strength and impact or retention thresholds will be calculated with CC risks and threats in mind to ensure they withstand increased temperature, increasing intensity of flooding and drought events.

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[1] H: High; M: Moderate; L: Low.

[2] <https://www.worldbank.org/en/country/jordan/publication/economic-update-april-2021>

[3] <https://covid19.who.int/region/emro/country/jo>, viewed 24/08/2021

[4] Raouf, Mariam; Elsabbagh, Dalia; and Wiebelt, Manfred. 2020. Impact of COVID-19 on the Jordanian economy: Economic sectors, food systems, and households. MENA Policy Note 9. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.134132>

[5] Issue paper: Jordan food security update. Implications of COVID-19, May - June 2020, FAO, Policy Support and Governance Gateway, viewed 24/08/2021

## 6. Institutional Arrangement and Coordination

**Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

From an operational perspective, the project will be comprised of the following components:

- ? Project Steering Committee (PSC)
- ? Project Management Unit (PMU)
- ? Project Support Staff and Consultants
- ? Project Partners and Co-financiers

The Royal Scientific Society of Jorday (RSS)[1] will have the overall executing and technical responsibility for the project, with FAO providing oversight as GEF Agency as described below. The RSS will act as the lead executing agency and will be responsible for the day-to-day management of project results entrusted to it in full compliance with all terms and conditions of the Operational Partnership Agreement signed with FAO. As OP of the project the SFC is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, timely reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements.

The government will designate a **National Project Director (NPD)**. Located in the Royal Scientific Society, the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. S/he will also be responsible for supervising and guiding the Project Coordinator (see below) on the government policies and priorities.

The NPD (or designated person from lead national institution) will chair the Project Steering Committee (PSC) which will be the main governing body of the project. The PSC will approve Annual Work Plans and Budgets on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners. Members and roles of the PSC will be comprised as follows (Table 14).

**Table 14.** Members and roles within the PSC.

Organisation	Role
Ministry of Agriculture	Chair
RSS	National member
Ministry of Water and Irrigation	National member
MOPIC	National member
Ministry of Environment	National member
Ministry of Municipal Affairs	National member
Agricultural Credit Corporation	National member
CSO representative	Member
FAO	Member

The members of the PSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their

agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

The **National Project Coordinator** (see below) will be the Secretary to the PSC. The PSC will meet at least once per year to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the project and other ongoing projects and programmes relevant to the project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of governmental partners work under this project; vi) Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget; vii) Making by consensus, management decisions when guidance is required by the National Project Coordinator of the PMU.

The **Project Management Unit** (PMU) will be co-funded by the GEF grant and established within RSS. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a National Project Coordinator (NPC) who will work full-time for the project lifetime. In addition, the PMU will include a project coordinator, administrative/finance staff, technical specialists, and M&E specialist.

The **National Project Coordinator** (NPC) will oversee daily implementation, management, administration and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. S/he will be responsible, among others, for:

- i) Coordination with relevant initiatives;
- ii) Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels;
- iii) Ensuring compliance with all Operational Partners Agreement (OPA) provisions during the implementation, including on timely reporting and financial management;
- iv) Coordination and close monitoring of the implementation of project activities;
- v) Tracking the project's progress and ensuring timely delivery of inputs and outputs;
- vi) Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project,;
- vii) Approving and managing requests for provision of financial resources using provided format in OPA annexes;
- viii) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;

- ix) Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements;
- x) Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested;
- xi) Implementing and managing the project's monitoring and communications plans;
- xii) Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan;
- xiii) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO;
- xiv) Preparing the first draft of the Project Implementation Review (PIR);
- xv) Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED);
- xvi) Submitting the OP six-monthly technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed;
- xvii) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support;
- xviii) Ensuring implementation of the Gender Action Plan.

**A Project Finance & Administrative Assistant (full-time)** will be hired with GEF funds and will be seated in RSS. The Assistant will be responsible for the financial management, contract and day-to-day operations of the project activities implemented by the project and in project meetings, workshops and other events related to project. The position will also provide other support such as preparing/typing documents and meeting arrangements. S/he will be responsible for procurement and financial actions as well as their monitoring, documentation and preparation of financial reports. S/he will be responsible for the timely delivery of inputs needed to produce results.

The PMU will be supported by a **Gender Expert** who will work on cross-cutting issues and ensure the operationality of the GAP provided in [section 4](#). The position will also act as a resource person in workshops and for the conflict programme clinic outlined in the project activities.

FAO will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex J for details):

- ? The Budget Holder, which is usually the most decentralized FAO office, will provide oversight of day to day project execution;
- ? The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee;
- ? The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

FAO responsibilities, as GEF agency, will include:

- ? Administrate funds from GEF in accordance with the rules and procedures of FAO;
- ? Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s) and other rules and procedures of FAO;
- ? Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;
- ? Conduct at least one supervision mission per year; and
- ? Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;
- ? Financial reporting to the GEF Trustee.

The PMU is supported by a range of experts and consultants. This includes the **International LDN Expert** as well as the national **Land Tenure Policy and Land Planning Expert** and the national **LDN and LD Monitoring Expert**. Their role is to translate LDN conceptual framework theory into practical systems that provide results on the ground, within an enabling policy environment, in order to achieve the country's 5 LDN targets by 2030. They will be supported by an international and national GIS Experts who will provide support on a range of remote sensing issues, as well as update and maintain the DSS.

Supporting the project in all matters relating to agricultural best practices, technical issues on cropping and soil management, plus all technical training and capacity building relating to Component 2 are the 3 **Local Regenerative Ag. Experts** who will provide training to the FFS and other participant organisations, but also act as a resource person for workshops and development of technical manuals, WOCAT articles and inputs to the knowledge products.

These technical positions will be further supported by the **Governate Community Development Facilitator** who will be in charge of logistics for FFS, training exercises, workshops and interactions with community leaders and administrations within the project drainage basins and demonstrations landscapes. Their roles therefore are closely linked to the Local Regenerative Ag. Experts and the Gender Expert.

The Governate project staff will be supported in turn by a group of experts in their field, including VC development and other technical expert positions. They are available to support FFS training, provide inputs on marketing opportunities and value adding, as well as support the Local Regenerative Ag. Experts in cropping, rangeland management or animal husbandry questions and issues.

Farmer Field School methodology is dynamic and consistently evolving to take into account changing context. Therefore, the position of **International Farmer Field School (FFS) Master Trainer** has been included to not only provide training to project staff and stakeholders, but also be available to answer the more difficult questions and issues that come during FFS formation and implementation.

For further information on these positions, please see [Annex N](#).

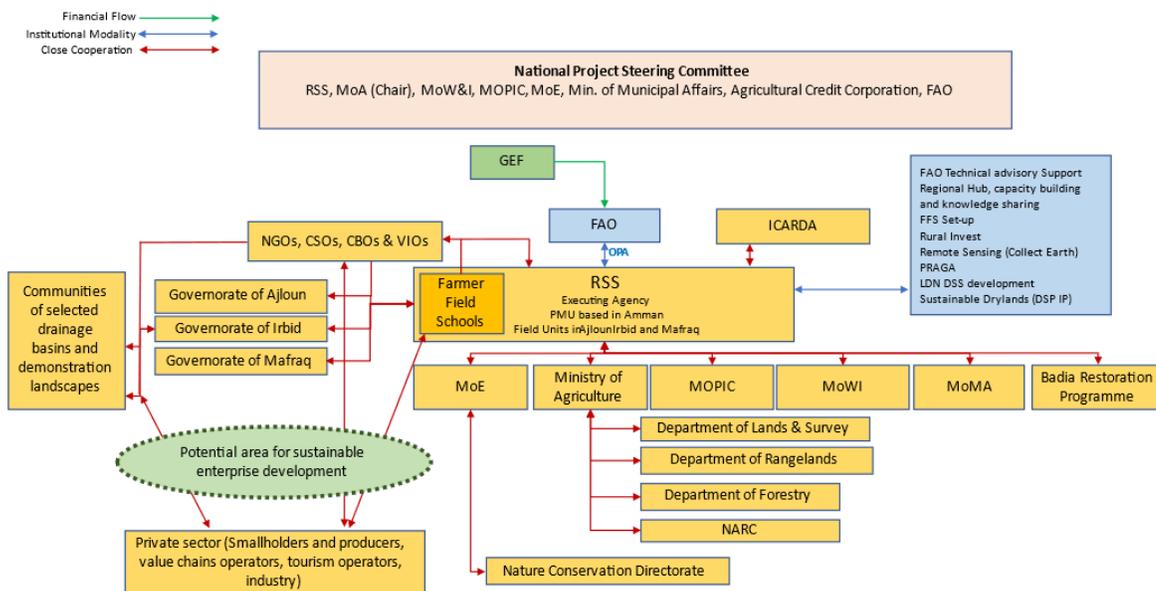
The following table outlines stakeholder roles for specific Outputs (Table 15).

**Table 15.** Responsibilities for specific project Outputs

Stakeholder	Responsible for Outputs	Support for Outputs
Royal Scientific Society	General supervision and responsibility for project development  Specific responsibility for all Outputs, with the exception of 2.1.2	--
Ministry of Agriculture		1.1.4/ 1.2.3/ 2.1.2/ 2.1.4
Dept. Lands & Irrigation		1.1.4/ 2.1.1/ 2.2.1
Dept. of Forestry + Rangeland		1.1.4/ 2.1.1/ 2.2.1
NARC		1.1.4/ 2.1.2/ 2.1.4
Ministry of Water and Irrigation		2.1.1/ 2.2.1

MOPIC		2.1.1/ 2.2.1
Ministry of Environment		1.1.4/ 1.2.3/ 1.2.4/ 2.1.1/ 2.2.1
Ministry of Municipal Affairs		1.1.2/ 1.2.1/ 2.1.1/ 2.1.2/ 2.2.1/ 2.2.2/ 2.2.3
Agricultural Credit Corporation		2.1.2/ 2.1.4/ 2.2.2/ 2.2.3
Regional Agricultural Dep. at Governorate		1.1.4/ 1.2.3/ 1.2.4/ 2.1.1/ 2.1.2/ 2.1.4/ 2.2.1/ 2.2.2/ 2.2.3
Badia Restoration Programme Coordination Unit		All
Beneficiary groups (small scale farmers)		2.1.1/ 2.1.2/ 2.1.4/ 2.2.1/ 2.2.2/ 2.2.3
Private Sector		2.1.1/ 2.1.4/ 2.2.1/ 2.2.2/ 2.2.3
NGOs / CSOs		2.1.1/ 2.1.2/ 2.1.4/ 2.2.1/ 2.2.2/ 2.2.3
Municipalities		2.1.1/ 2.1.4/ 2.2.1

The following figure below provides for a graphic overview of how the arrangements will work.



**Figure 10.** The project organization structure.

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[1] It should be noted that the identified Operational Partner(s) or OP, results to be implemented by the OP and budgets to be transferred to the OP are non-binding and may change due to FAO internal partnership and agreement procedures which have not yet been concluded at the time of submission of this funding proposal.

## 7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The GoJ has demonstrated strong political will for ecological restoration as a way to promote integrated landscape management and achieve LDN. Jordan's restoration efforts are integrated into numerous sectors' strategies and policies. The project is strongly aligned to, and consistent with the following national legislation and frameworks:

- ? *Jordan Vision 2025*: This project providing support and activities in 4 key areas: i) sustainable long-term management of food, energy and water requirement (resource security); ii) protection and empowerment of those in need by providing a decent life (poverty and social protection) and rewarding jobs for all Jordanians (employment), iii) promotion of gender equality and social inclusion and iv) good governance of natural resources.
- ? *National Action Program (NAP) under UNCCD*: Adaptation planning in Jordan has been coordinated by the Climate Change Directorate's Adaptation Section, under the Ministry of Environment, which has acted as the government's focal point and national coordinator on climate change issues. The project addresses priority areas for adaptation, including i) water, ii) biodiversity, ecosystems and protected areas, ii) Sustainable development-oriented socioeconomic adaptation, iv) Gender and v) Agriculture.
- ? *National Strategy for Agricultural Development (NSAD) 2016-2025*[1]: NSAD objectives include sustainable development and use of natural resources; public and private investment in agriculture; improved production and post-harvest technologies and practices; empowerment of rural communities ?especially women and youth; improved marketing and trade; and strengthened data, information, policy, research, extension, and related capacities among government and non-government decision-makers and service providers.

- ? *Jordan Response Plan for the Syria Crisis (JRP) 2017-2019*: The JRP is a three-year programme of high priority interventions to enable Jordan to respond to the effects of the Syria crisis without jeopardizing its development trajectory. The CPF is aligned with the JRP sector strategies on: i) livelihoods and food security, and ii) environment. Project sites are located in the north of Jordan, where most of the Syrian refugees are located.
- ? *The National Water Strategy 2016-2025*: The project has various activities aimed at water use efficiency, soil retention works, water-harvesting technologies, in addition to landscape and resource planning, which are included in this strategy.
- ? *The Draft National Food Security Strategy (2014)*: aims at enhancing production and marketing of local agricultural produce, improving family access to healthy and nutritious food, improving food monitoring systems, and supporting community economic and social security networks.

Other relevant plans, policies and strategies, which guide national development, include the [National Strategy and Action Plan to Combat Desertification \(2006, realigned for 2015-2020\)](#), the [National Biodiversity Strategy and Action Plan \(2015-2020\)](#), the [National Climate Change Policy \(2013-2020\)](#), the [National Rangeland Strategy \(2002; and updated in 2013\)](#), the [National Poverty Reduction Strategy \(2013-2020\)](#), and the [National Strategy and Action Plan for Drought Mitigation \(2007\)](#). The key common priorities across these plans and strategies relate to the need for improved and integrated ecosystem management and restoration. Jordan, being a semi-arid country with extreme scarcity of water, is facing significant challenges because of its deteriorating natural resource base and climate change threats.

The project is also in line with the FAO Regional priorities outlined in the three Regional Initiatives (RIs) in the Near East and North Africa (NENA) region: (i) Water Scarcity Initiative, (ii) Building Resilience for Food Security and Nutrition, and (iii) Small-Scale Family Farming for Inclusive Development. In addition, gender equality will be mainstreamed into all FAO's interventions within the Jordan CPF 2017-2021. Furthermore, South-South and Triangular Cooperation (SSTrC) will be pursued, with FAO facilitation, as effective instruments for catalysing agricultural development and achieve some expected CPF results through transfer, exchange and sharing of solutions, knowledge, experiences, good practices, technology and resources with countries of the Global South.

In addition, the introduction of FAO and partner agency methodologies and tools also is also in accordance with its strategies of up-scaling these DSS and frameworks. The Programme Clinic is part of FAO's official methodology to mainstream conflict-sensitivity into its programmes, projects and activities. FAO's Programme Clinic for Designing Conflict-sensitive Interventions is a structured participatory analysis designed to identify and integrate 'conflict-sensitive' strategies into the design and implementation of FAO interventions. Likewise, the PRAGA methodology described above was developed for the assessment and resulting land use planning of rangeland and steppe areas.

The project also directly addresses and provides data and information on SDG target 15. 1, 15.2 and 15.3. The SDG 15 also has target (15.1 and 15.2) on forest cover and management, therefore, project landscapes offer options for synergizing activities that can produce benefit to all of this targets with the same investment.

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[1] Available only in Arabic.

## **8. Knowledge Management**

**Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.**

The project Knowledge Management (KM) approach follows FAO's Knowledge Management Strategy[1] and relies on sound knowledge management practices throughout the project cycle. Proposed SLM measures for project implementation have been tested in similar natural and climatic conditions within the framework of various projects and were common among the various stakeholders. In addition to those cited by national and subnational stakeholders, the SLM Global Database of WOCAT[2] provides free access to the documentation of field-tested SLM data including SLM practices and maps from around the world, including techniques and approaches from Jordan.

The activities implemented under Component 3 - Effective Knowledge Management (KM) through Result Based Management (RBM), will be supported in scaling by the scaling approach described in the earlier section for nearby districts. KM system will contribute to this scaling and replication using various types of knowledge products produced including thematic case studies, evaluation and learning reports and briefs; strategic papers, educational and informational materials in printed and digital forms.

More specifically, under the Logical Framework (Annex A), the project will develop the following quantities of knowledge products:

- ? 1 knowledge product explaining and promoting LDN framework and Jordan's voluntary targets edited and developed for a public audience. Associated with this could be promotional materials to inform on project objectives and activities, or information on LD baselines, hotspots and monitoring approaches for scaling.

- ? 4 knowledge products promoting SLM production practices and techniques, 1 for each selected project value-chains (vegetables, pasture (dairy), Olive and Beekeeping), including information on Climate Change Adaptations (CCA) and links to LDN and landscape planning.
- ? 2 gender-sensitive knowledge products focusing on improving post-harvest/post-milking treatment, value-adding options and marketing of sustainably produced vegetable and dairy products.
- ? Provide a Decision support system (DSS) based on the three global LDN indicators for Jordan. This will be publicly available through the LDN Platform (in Arabic and English).
- ? Publication of at least one SLM practice or approach per Governate (minimum of 3) within the WOCAT database and sharing with potential users. These practices should be closely linked to the project selected value chains and can include post-harvest care or value adding options for smallholder producers.
- ? Series of reports, analysis, assessments and policy papers for stakeholder information and use, to build awareness on key LDN issues.
- ? Allow for other value chain associated publications to be realised based on project needs during implementation.

In addition, Component 3 and specifically the Communication Strategy will strengthen existing networks for sharing lessons with national, regional and international partners, with special links to those being established by NARC and other Jordanian institutions.

All KM products will explicitly include gender dimensions, and the Project will also produce gender-specific KM products. Key deliverables and a timeline for KM can be found in Annex H Work Plan, and relevant KM budget can be found in the project budget.

The project's broad participation process, involving relevant policy making, research, private sector, extension and education institutions, will ensure that knowledge is shared efficiently within the country. The Dept. of Lands and Irrigation and participant Ministries will be important partners for lesson sharing and knowledge management. Internationally, FAO's relevant platforms (Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes (DSL-IP), Pastoralist Hub, Global Agenda for Sustainable Livestock, Global Farmer Field School Platform and others) will be used for lessons sharing.

Finally, the project builds on the strong technical foundation incorporating lessons learnt from previous interventions supporting improved land use and implementation of SLM for combating

desertification, land degradation, and drought; climate change adaptation; water resources management; capacity development and pro-poor policy reform to improve the welfare of the population; and improving living standards and poverty reduction. These projects and initiatives were described in detail in the baseline section above, though as mentioned, one project in particular that would have the capacity to provide support and scaling of lessons learnt for dryland farming and land management would be the **Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes (DSL-IP)** as an umbrella programme for KM and distribution of knowledge products, as well as the **WOCAT Global Database**. As described, the LDN platform created under Output 1.2.2 will serve as a project communication platform.

The **Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes (DSL-IP)** will be leveraging the efforts of the FAO South-South and Triangular Cooperation Division in promoting a systematic learning approach to document and disseminate knowledge resources through the initiative called "Making every voice count for adaptive management". The initiative proposed the KM strategy based on the knowledge management cycle. It uses a variety of communication tools, focusing on a participatory video approach as an interactive platform that supports networking and knowledge generation, and in later stages documenting and disseminating knowledge assets and lessons learned ? especially those identified by the local communities and stakeholders at landscape level.[3] The baseline documentation will be produced in the form of participatory videos[4] and the project will be selecting the practical knowledge and challenges to be discussed at the regional and global level. It will also contribute, at a later stage, to disseminate these practices through different networks, including the COFO Working Group on Dryland Forests and Agrosilvopastoral Systems. The goal is to create a bridge between other initiatives.

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[1] [FAO's Knowledge Management Strategy](#) requires formulators and implementers to consider sound knowledge management practices throughout the project cycle.

[2] <https://qcat.wocat.net/en/wocat/>

[3] <https://www.fao.org/dryland-forestry/monitoring-and-assessment/mev-cam/background/en/>

[4] <https://www.youtube.com/watch?v=EO5clfNdp-A&t=11s>

## **9. Monitoring and Evaluation**

### **Describe the budgeted M and E plan**

The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Annex A). Project monitoring and the evaluation activities are budgeted at 148,880 USD (see Monitoring & Evaluation Summary Table X below in this section). Monitoring and evaluation activities will follow relevant FAO and GEF policies and guidelines. The monitoring and evaluation system will also facilitate learning and replication of the project's results and lessons in relation to the integrated management of natural resources.

### **Oversight and monitoring responsibilities**

The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table X below) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions; (ii) technical monitoring of indicators (PMU and LTU in coordination with partners); and (iii) monitoring and supervision missions (FAO).

At the beginning of the implementation of the GEF project, the PMU will establish a system to monitor the project's progress. It is recommended that each project Consultant (Annex B, Budget) present individual M&E indicators and systems that provide data to the established project M&E system. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed and realised by project staff and consultants, and be overseen by the project coordinator, or by an M&E consultant hired periodically for evaluation purposes.

During the project inception workshop, the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project's Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project.

The M&E and Communications Expert will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The M&E matrix will be a management tool for the PC and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

The **M&E Plan** will be prepared by the M&E and Communication Specialist together with local communities in the three first months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E summary (Table X) and the M&E Matrix. It will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of data collection and monitoring strategy to be included in the final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

The day-to-day monitoring of the project's implementation will be the responsibility of the PC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review workshops. These contributions will be consolidated by the PC in the draft AWP/B and the PPRs.

An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and approval. The AWP/B will be developed in a manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

Following the approval of the project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle.

## **Reporting schedule**

Specific reports that will be prepared under the monitoring and evaluation program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF-7 Core Indicator Worksheet will be completed and will be used to compare progress of project Core Indicator 3: ?Area of land restored?, Core Indicator 4: ?Area of landscapes under improved practices?, as well as Core Indicator 11: ?Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment? with the baseline established during the preparation of the project.

Guidance will be provided by the international and national consultants, in close collaboration with the Dept. of Lands and Survey, ICARDA and NARC to define ?restoration?, in addition to parameters for ?avoid, reduce and restore? actions and activities.

**Project Inception Report.** After FAO internal approval of the project, an inception workshop will be held. Immediately after the workshop, the PC and SCF will prepare a project inception report in consultation with the FAO Representation in the Kingdom of Jordan and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix. The draft inception report will be circulated to, FAO, the PSC and for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

**Annual Work Plan and Budget(s) (AWP/Bs).** The PC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project Outcomes and Outputs (including from the Gender Action Plan) and divided into monthly timeframes and targets and milestone dates for Output and Outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Representation in the Kingdom of Jordan will circulate the draft AWP/B and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PIU will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The BH will upload the AWP/Bs in FPMIS.

**Project Progress Reports (PPR).** The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework

(Annex A), AWP/B and M&E Plan. Each semester the Project Coordinator (PC) will prepare a draft PPR, and will collect and consolidate any comments from the FAO PTF. The PC will submit the final PPRs to the FAO Representation in Jordan every six months, prior to 10 June (covering the period between January and June) and before 10 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and receive no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PIU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

**Annual Project Implementation Review (PIR).** The PC, under the supervision of the LTO and BH and in coordination with the national project partners, will prepare a draft annual PIR report covering the period July (the previous year) through June (current year) no later than July 1st every year. The LTO will finalize the PIR and will submit it to the FAO-GEF Coordination Unit for review by July 10th. The FAO-GEF Coordination Unit, the LTO, and the BH will discuss the PIR and the ratings. The LTO is responsible for conducting the final review and providing the technical clearance to the PIR(s). The LTO will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat and the GEF Independent Evaluation Office as part of the Annual Monitoring Review of the FAO-GEF portfolio. The PIR will be uploaded to FPMIS by the FAO-GEF Coordination Unit

**Technical reports.** The technical reports will be prepared as part of the project outputs and will document and disseminate lessons learned. Drafts of all technical reports must be submitted by the Project Coordinator to the PSC and FAO Representation in Jordan, which in turn will be shared with the LTO for review and approval and to the FAO-GEF Coordination Unit for information and comments before finalization and publication. Copies of the technical reports will be distributed to the Liaison Committee and the PSC and other project stakeholders, as appropriate. These reports will be uploaded in FAO FPMIS by the BH.

**Co-financing reports.** The PC will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all the project co-financiers and eventual other new partners not foreseen in the Project Document. Every year, the PC will submit the report to the FAO Representation in Jordan before July 10th covering the period July (the previous year) through June (current year). This information will be used in the PIRs.

**Core Indicators worksheet.** In compliance with GEF policies and procedures, at project mid-term and completion, Agencies report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval.

A **Mid-Term Review (MTR)** will be carried out in the 1st quarter of project Year 3. The FAO BH will arrange an independent MTR in consultation with the PSC, PMU, LTO, FAO-GEF Coordination Unit. The MTR will be conducted to review progress and effectiveness of implementation in terms of achieving project outputs, outcomes and objective. The MTR will allow mid-course corrective actions, as needed. It will also provide a systematic analysis of the information on project progress in the achievement of expected results against budget expenditures by referring to the Project Budget (see Annex A2) and the approved AWP/Bs. It will highlight replicable good practices and key issues faced during project implementation and suggest mitigation actions to be discussed by the PSC, LTO, FAO-GEF Coordination Unit.

**Terminal Evaluation.** The GEF evaluation policy foresees that all medium and large size projects require a separate terminal evaluation. Such evaluation provides: i) accountability on results, processes, and performance; ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects. The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the "GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects." FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team " in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings. After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within four weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU.

**Final Report.** Within two months prior to the project's completion date, the Project Coordinator will submit to the PSC and FAO Representation in Jordan a draft final report. The main purpose of the final report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main products, results, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the

policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the three pilot sites, as well as in practical execution terms. This report will specifically include the findings of the final evaluation. A project evaluation meeting will be held to discuss the draft final report with the PSC before completion by the Project Coordinator and approval by the BH, LTO, and FAO-GEF Coordination Unit.

**Table 16.** Summary of the main monitoring and evaluation reports, parties responsible for their publication and time frames.

<b>M&amp;E Activity</b>	<b>Responsible parties</b>	<b>Time frame/ Periodicity</b>	<b>Budget</b>
Inception workshop in Amman	PC; Royal Scientific Society and MoA; FAO Representation in Jordan (with support from the LTO and FAO-GEF Coordination Unit)	Within two months of project startup	USD 5,000
Inception workshops in Aljoun, Irbid and Mafrq Governates	PC; Royal Scientific Society and MoA; FAO Representation in Jordan (with support from the LTO and FAO-GEF Coordination Unit), SCF	Within two months of project startup	USD 12,000
Project Steering Committee meetings,  Regional Project Completion Workshop,	PC; Royal Scientific Society and MoA; FAO Representation in Jordan (with support from the LTO and FAO-GEF Coordination Unit), SCF	Throughout project implementation	USD 24,000
National Project Completion Workshop	PC; Royal Scientific Society and MoA; FAO Representation in Jordan (with support from the LTO and FAO-GEF Coordination Unit), SCF	Within 3 month prior to project closure	USD 6,000
Project Inception Report	PC; Royal Scientific Society, M&E Expert, FAO Representation in Jordan	Immediately after the workshops	Royal Scientific Society (RSS) and MoA time

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Field-based impact monitoring	PC; project partners, local organizations	Continuous	Through LDN and component 1
Supervision visits and rating of progress in PPRs and PIRs	Royal Scientific Society, PC; FAO-GEF Coordination Unit may participate in the visits if needed	Annual, or as needed	FAO visits will be borne by GEF agency fees  Project Coordination visits shall be borne by the project's travel budget:
	Data Management Expert (M&E)		USD 42,000
Project Progress Reports (PPRs)	Royal Scientific Society and MoA, PC, FAO Representation in Jordan with stakeholder contributions and other participating institutions	Six-monthly	RSS and MoA and FAO staff time
Project Implementation Review (PIR)	Drafted by the PC, with the supervision of the LTO and BH. Approved and submitted to GEF by the FAO-GEF Coordination Unit	Annual	FAO staff time financed through GEF agency fees.  PC time covered by the project budget.
Co-financing reports	PC with input from other co-financiers	Annual	PC staff time
Technical reports	PC; FAO (LTO, FAO Representation in Jordan)	As needed	GEF Agency fees
Independent mid-term review	PC and PMU; FAO Representation in Jordan; FAO-GEF; FAO technical staff not participating in project implementation	Midpoint of year 3 of project	USD 30,000

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Terminal Evaluation	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED.	To be launched 6 months prior to terminal review meeting	USD 60,000
Terminal Report	PC; FAO (FAO Representation in Jordan, LTO, FAO-GEF Coordination Unit, Business Development and Resource Mobilization (PSR) Reporting Unit)	Two months prior to the end of the project.	USD 6,880
<b>Total budget</b>			<b>USD 185,880</b>

## 10. Benefits

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCE/SCCF)?**

The project promotes full and productive employment and decent work in rural areas, aiming at the progressive realization of their right to Decent Rural Employment[1]. Strengthening of key value-chains and introduction of target SLM measures will lead to improved income generation opportunities and more diversified livelihoods for around 12,500 people (50% women) in the target Governates and landscapes. Additional socio-economic benefits include the following and will be calculated during initial stages of project implementation:

- ? Number of land managers with access to advisory or extension services (total # per administrative district per region)
- ? Increased investments in SLM
- ? Increased awareness of LDN concepts, LD impacts and LDN principles
- ? Increased livelihood and economic resilience through improved market access by smallholder to climate resilient value chains
- ? Increased social resilience and human well-being (Gender equality, access to information and finance) of 12,500 beneficiaries (Women 6,250; Men 6,250)
- ? Improved access to finance for small-holder farmers

- ? Improved food security through increased productivity and delivery of ecosystem services (project contribution defined, but not monitored)

[1] Specific guidance on how FAO can promote the Four Pillars of Decent Work in rural areas is provided in the [Quick reference for addressing decent rural employment](#) (as well as in the full corresponding [Guidance document](#)). For more information on FAO's work on decent rural employment and related guidance materials please consult the FAO thematic website at: <http://www.fao.org/rural-employment/en/>.

## 11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

### Overall Project/Program Risk Classification \*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

#### Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

The project was further assessed against FAO's Environmental and Social Standards, no additional risks and associated potential adverse impacts were identified using the Environmental and Social Safeguards Matrix in addition to risks already identified at PIF. The project overall risk has been confirmed as low. The screening and analysis of environmental and social risks was informed by insights collected through field investigations and participatory processes inclusive of national and local stakeholders. The project team under the overall responsibility of the Lead technical Officer will continuously monitor environmental and social risks, update the risk logs and develop appropriate managerial responses accordingly to capture the evolving situation on the ground based on risk

dynamics across the target landscapes or responding to potential grievances to be captured by the project grievance redress mechanism.

A Risk Certification as well as a Summary of the Environmental and Social Risk Classification is provided attached.

**Supporting Documents**

Upload available ESS supporting documents.

Title	Module	Submitted
<b>JOR023GFF (LDN) Environmental and Social Risk Certification</b>	<b>CEO Endorsement ESS</b>	

**ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).**

Annex A1: Project Results Framework [1]

Notes: AFOLU = Agriculture, Forestry and other Land Uses; CSO = Civil Society Organisation; FFS = farmer field schools; GoJ = Government of Jordan; ILM = Integrated Landscape Management; LD = land degradation; LDN = land degradation neutrality; MoA = Ministry of Agriculture; MoE = Ministry of Environment; RS = Remote Sensing; RSS = Royal Scientific Society; SOC = soil organic carbon; SPM = sustainable pasture management; VC = value chain;

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<b>Objective:</b>							
<b>Component 1:</b> Enabling Environment for Land Degradation Neutrality (LDN) planning and monitoring							

<p><u>Outcome 1.1: Land use planning and monitoring frameworks strengthened at national and sub-national levels to support LDN</u></p>	<ul style="list-style-type: none"> <li>- Number of LDN baseline and monitoring system operational</li> <li>- Number of LDN hot and bright spots confirmed</li> <li>- ha under SLM that LDN are under the ?avoided? category of the hierarchy of responses</li> <li>- ha of land restored</li> <li>- Mtons CO2eq (EX ACT)</li> </ul>	<p>No LDN indicator or national LD monitoring system currently exists in Jordan.</p> <p>CC models predict a rise 2-4 degrees, precipitation will be 15-20 percent lower and potential evapotranspiration about 150 mm higher by the end of the century</p>	<ul style="list-style-type: none"> <li>- LDN monitoring system tested</li> <li>- local LDN hot and bright spots identified</li> <li>-2,000 ha under SLM that LDN are under the ?avoided? category of the hierarchy of responses (of which: 500 ha forest; 1,500 ha grasslands)</li> <li>- 300 ha of land restored (of which: 100 ha forest; 200 ha grasslands)</li> <li>- 200,000 Mtons CO2eq (EX ACT)</li> </ul>	<ul style="list-style-type: none"> <li>- LDN baseline and monitoring system operational</li> <li>- local LDN hot and bright spots confirmed</li> <li>- 10,000 ha under SLM that LDN are under the ?avoided? category of the hierarchy of responses (of which: 2,000 ha forest; 8,000 ha grasslands)</li> <li>- 750 ha of land restored (of which: 250 ha forest; 500 ha grasslands)</li> <li>- 419,006 Mtons CO2eq (EX ACT)</li> </ul>	<p>Documents , contracts and data from developed LDN monitoring system</p>	<p>As per outputs</p>	<p>-RSS</p>
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<p><u>Output.1.1.1:</u> The baseline measured by a set of three global LDN indicators (Land cover, Land productivity, SOC) and land degradation status in various land use types (e.g. forest, grassland) in demonstration landscapes verified</p>	<p>-Ha covered in baseline monitoring approach</p> <p>-Number and type of data sources</p>	<p>No LDN specific indicator data or information exists for selected demonstration landscapes and principal entity responsible for land management (Dept. Lands &amp; Irrigation) do not measure or consider LD in planning activities</p>	<p>-Draft approach incorporating remote sensing (RS), stakeholder consultations and field surveys is established and ratified by principal stakeholders</p>	<p>-Approved approach used to monitor pilot landscape areas and establish areas of growing LD trends and areas of ecological resilience</p>	<p>-Validation of results through field surveys and stakeholder inputs</p> <p>-Report outlining preliminary approach, baselines and lessons learned produced</p>	<p>-Official stakeholders will promote a participative approach and not rely strictly on RS or biophysical data</p> <p>-There will be a general consensus on definitions of LD</p>	<p>-RSS</p> <p>+Support by relevant MoA, MoE, NARC specialist</p>
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<p><u>Output 1.1.2:</u> Effective approach for monitoring three global LDN indicators (and potentially other participatory field indicators) and land degradation status identified and integrated into the existing national and sub-national monitoring systems</p>	<p>-Number of stakeholders and institutions who participate in development of LDN framework development</p> <p>-Number of existing land-based monitoring systems that integrate LDN principles and metrics into their analysis</p> <p>-Number of national indicators incorporated into the system to reinforce and contextualise d LDN monitoring</p>	<p>There is no unified landscape or national approach to LD monitoring or trends. Data is available on a ?pay for use? basis between Ministries and Governmen t institutions</p>	<p>The project has developed a stakeholder -endorsed prototype monitoring system that effectively capture and monitor three global LDN indicators, in addition to nationally identified biophysical, social and economic indicators, that provide data to the LDN conceptual framework balance sheets, thus allowing for estimates for LDN targets.</p>	<p>The LDN monitoring system has undergone rigorous testing and final version has been validated by MoA, MoE and other key State agencies and institutions</p>	<p>- Validation workshops and other event reports and financial statements</p> <p>-Raw data and analysis produced using approach</p> <p>-Products or publications stemming from M&amp;E approach</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>There is demand for such a scalable monitoring system from Governme nt stakeholder s</p> <p>Capacity exists to work and a system to freely or cost-effectively share data across ministeries and institutions at the different scales without obstacles</p> <p>The project has political support to implement policies to make LDN Monitoring system operational and utilised in decision-making institutions</p>	<p>RSS</p>
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<p>Output 1.1.3: Decision support system (DSS) based on the three global LDN indicators developed, piloted in the Irbid, Mafrq and Ajloun Governorates , calibrated, and scaled up to all of Jordan</p>	<ul style="list-style-type: none"> <li>- Number of stakeholders and institutions who participate in LDN DSS development</li> <li>-Number of data layers in DSS</li> <li>-Governates covered in DSS</li> <li>- Ha covered in DSS</li> </ul>	<p>No DSS exists that allows for contextualised decision making based on LD and SLM trends at the Governate level</p>	<p>-An initial DSS is developed that incorporates the LDN and national LDN-supporting indicators is trailed for the 3 Governates of Irbid, Mafrq and Ajloun</p>	<ul style="list-style-type: none"> <li>-Results and lessons learnt from initial trials are used to modify and improve DSS, leading to improved sectoral planning and decision-making to reduce LD</li> <li>-The DSS is promoted to other Governates by project officials</li> </ul>	<p>Technical reports on LDN-DSS adaptation and piloting/testing; LDN-DSS Technical Description</p> <ul style="list-style-type: none"> <li>-Inputs and feedback by users of DSS, to be captured in draft report</li> <li>- Event reports and financial statements</li> </ul> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<ul style="list-style-type: none"> <li>-There is a need and demand for an LD focused DSS at the Governate level</li> <li>-Upper level administrators will understand and utilise the results from DSS process</li> </ul>	<p>RSS</p>
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<p>1.1.4. Desertification, Land Degradation and Drought (DLDD) activities integrated into the LDN DSS and tested on target landscapes in the Irbid, Mafraq, and Ajloun Governorates</p>	<p>-Number of relevant DLDD programmes and activities that are incorporated and analysed within a wider landscape model based LDN framework or principles</p> <p>-Ha covered under activities</p> <p>-Ha placed under SLM / SFM practices</p>	<p>Currently most LD work takes the form of erosion control, deforestation, desertification and drought preparation activities which are realised under other management objectives (water, State Forestry lands, PA), yet are not integrated within a LDN framework context, nor are DLDD activities placed within an informed DSS with LDN indicators to guide investments at landscape scales</p>	<p>With close collaboration with MoA and MoE counterparts, DLDD activities within the pilot landscapes are located and assessed by project staff. The DSS developed under Output 1.1.3 is tested as a means to organise resource response and responsibilities for project pilot site activities.</p>	<p>?</p> <p>The project has tested the DSS for the pilot landscape activities, resulting in the restoration of 250 ha of forest and 500 ha of grassland.</p> <p>The project coordinates and support 2,000 ha of forest and 8,000 ha of grassland being placed under SFM / SLM practices</p>	<p>-LDN monitoring system developed under Outcome 1.1</p> <p>- Participatory Impact Monitoring and other project M&amp;E systems</p> <p>- Field reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>DLDD baseline indicators and LDN principles can be adapted to existing watershed management programmes and landscape planning to improve decision-making and allocation of resources</p> <p>- Demonstration sites and restoration works are managed according to recommendations by project staff for duration of project implementation</p>	<p>-RSS</p> <p>+Close support and collaboration with MoA and MoE</p>
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<p><u>Outcome 1.2:</u></p> <p>LDN mainstreamed in national policy/regulatory and institutional frameworks and land use planning processes</p>	<p>- LDN principles integrated into the national frameworks</p> <p>- Number of Inter-sectoral coordination mechanisms on SLM, DLDD and LDN</p> <p>- Number of knowledge product and training/awareness raising materials (which are gender sensitive in content and form) on LDN principles<sup>[2]</sup> and their application to land planning procedures</p>	<p>LDN principles are not yet integrated in the existing national legal and policy frameworks related to AFOLU sectors.</p> <p>No national knowledge products on LDN principles or the conceptual framework exist</p>	<p>-1 example of LDN principles integrated into the national frameworks</p> <p>- 1 Inter-sectoral coordination mechanisms on SLM, DLDD and LDN</p>	<p>-3 examples of LDN principles integrated into the national frameworks</p> <p>- 2 Inter-sectoral coordination mechanisms on SLM, DLDD and LDN</p> <p>- 1 knowledge product and training/awareness raising materials (which are gender sensitive in content and form) on LDN principles<sup>[3]</sup> and their application to land planning procedures</p>	<p>Policy documents; Draft legal laws and sub-laws/regulation; Technical reports</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>As per outputs</p>	<p>-RSS</p>
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<p>Output.1.2.1: Assessment of LDN policy gaps and development of cross-sectoral policies/legal framework supporting LDN principles at national level and improving the investment policy focusing on land management</p>	<p>-Number and sectoral profile of stakeholders interviewed/engaged in policy recommendations</p> <p>-Number and sectoral profile of stakeholders interviewed/engaged in the contextual analysis of conflictual dynamics and Programme Clinic</p> <p>-Policy proposals produced</p> <p>-Number of policies, plans and other documents that are Gender mainstreamed and conflict-sensitive in national policy/regulatory and institutional frameworks and land use planning processes</p>	<p>Gaps exists regarding policy and legislative reinforcement for adopting ecosystem approach? to combat land degradation [4]. The PPG report on LD policy and measurement found similar gaps for applying LDN principles.</p> <p>Gaps exist regarding the understanding of community conflict dynamics (tensions, disagreements, disputes) generated around land resources, forestry and agriculture, tenure rights, existing LDN practices on the ground, water management, and other project relevant sectors.</p>	<p>-Draft policy review developed and presented to key stakeholders and national experts, which includes recommendations on issues of LDN integration within existing policies, CC target synergies, Land Tenure and Market Access for smallholders</p> <p>Draft contextual analysis developed and presented to stakeholders participating in the Programme Clinic</p>	<p>-Policy workshop realised on policy recommendations for incorporation of LDN principles and conceptual framework into institutional decision-making presented, with 3 clear examples of LDN principles being incorporated into national frameworks</p> <p>Conflict sensitivity Programme Clinic implemented, conflict-sensitive programming recommendations developed and integrated into the project's upcoming activities</p>	<p>-Policy papers developed</p> <p>- Publications associated with policy paper and recommendations</p> <p>- Event reports and financial statements</p> <p>Contextual analysis report finalized with Programme Clinic input</p> <p>List of conflict-sensitive programming recommendations formulated</p>	<p>- Agreements between different Ministries and Institutions and other key entities can be brokered by project partners</p> <p>-Policy recommendations will have sufficient political support to be promoted and legislated</p> <p>-Conflict-sensitive programming recommendations will have sufficient support to shape the project activities with risk of generating negative impact</p>	<p>RSS</p>
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<p>1.2.2. LDN Platform for stakeholder engagement created at national level</p>	<p>-Number and diversity of groups and sectors represented or targeted within Platform</p> <p>-Number of total members</p> <p>-Potential audience and diversity of media formats utilised to share information and updates</p> <p>-Number of Interactive maps, data or associated products available to public to promote LD awareness and LDN principles</p>	<p>No national or governate-level platform currently exists that provides up to date data and information on LD trends and potential SLM options</p>	<p>Platform structure and objectives developed and approved by key stakeholder s. Potential means of interacting with public operational</p>	<p>Platform active and meeting targets regarding publications , materials and audience</p>	<p>-Platform activity reports, including online traffic and media trends</p> <p>Event reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>The Platform meets a real need for actualised LD data</p> <p>Funding for Platform will be provided following project closure</p>	<p>-RSS</p>
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<p>1.2.3. Intersectoral coordination mechanisms strengthened at all levels for LDN implementation, ensuring upward and downward accountability and transparency</p>	<p>-Number of participant sectors in coordination mechanisms</p> <p>-Number of GoJ agencies involved</p> <p>Number of coordination mechanisms receiving conflict-sensitive programming orientation/ capacity building</p> <p>Number of conflict-sensitive programming sessions implemented</p>	<p>No LD-specific intersectoral coordination mechanism currently exist, either at local, regional or national levels</p> <p>Upon their establishment, the members of the coordination mechanism would not have knowledge/practice in conflict-sensitive programming</p>	<p>Building on the results of Output 1.2.1, baselines for intersectoral mechanisms are established, gaps and opportunities analysed, and recommendations are developed</p> <p>Orientation/ capacity building workshop methodology and content developed.</p>	<p>At least 2 intersectoral coordination mechanisms, with special attention on data accessibility from institutions, are trialed with results being captured for local, regional and national contexts,</p> <p>Orientation/ capacity building workshop on conflict-sensitive programming is implemented</p>	<p>-Reports detailing baseline findings, analysis and recommendations</p> <p>-Reports detailing results from mechanism stress tests and final recommendations</p> <p>Orientation / capacity building workshop on conflict-sensitive programming is implemented</p>	<p>Intersectoral coordination is a need and a demand by relevant institutions</p> <p>Political motivation exists to collaborate and share information</p> <p>Motivation exist on the part of members of the coordination mechanism to take part in the orientation sessions.</p>	<p>-RSS</p> <p>+MoA, MoE and Higher Socio-Economic Council and Jordanian Meteorological Department</p>
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<p>1.2.4. Integrated land use planning and drought management using FAO Land Resources Planning Toolbox elaborated, consulted, and adopted by authorities in the Irbid, Mafraq, and Ajloun Governorates</p>	<p>-Ha covered under approach</p> <p>-Number of direct and indirect beneficiaries of plans (disaggregated by gender)</p> <p>-Number of plans developed</p> <p>-Number of private sector entities involved</p>	<p>There are no planning procedures or guidelines regarding LDN principles or application of conceptual framework for participant Governates</p>	<p>Using the preliminary results from Outputs 1.1.2 and 1.1.3, and the channels and means proposed in Outputs 1.2.2 and 1.2.3, project staff in close collaboration with key stakeholders have developed adapted landscape planning procedures, based on FAO tools and methodologies</p>	<p>Output results are presented to potential stakeholders and users and validated as a best practice approach.</p> <p>Protocols are established through a stepwise manual to facilitate data and information to MoA, MoE, Higher Socio-Economic Councils and other key policy institutions</p>	<p>-Reports produced through application of planning procedures and action plans</p> <p>Event reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>FAO tools and methodologies offer advantages over other approaches</p> <p>LDN system will be capable of producing data and trends that are of interest to described stakeholders</p>	<p>-RSS</p> <p>+MoE</p>
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<p><u>Outcome 1.3:</u> Enhanced capacity at national and sub-national levels to support the achievement of LDN in Irbid, Mafraq, and Ajloun Governorates</p>	<p>- Governorate staff (20% women) trained on Monitoring of status of land and level of land degradation</p> <p>- Number of people (50% women) with enhanced capacity in LDN and SLM at national and sub-national level</p> <p>- Number of knowledge products and training/awareness raising materials (which are gender sensitive in content and form) on SLM and LDN</p>	<p>LDN principles and capacity for its application is limited among project beneficiaries and target stakeholders</p>	<p>- At least 5 Governorate staff (20% women) trained on Monitoring of status of land and level of land degradation</p> <p>- 45 people (50% women) with enhanced capacity in LDN and SLM at national and sub-national level</p> <p>- 2 knowledge products and training/awareness raising materials (which are gender sensitive in content and form) on SLM and LDN</p>	<p>- At least 15 Governorate staff (20% women) trained on Monitoring of status of land and level of land degradation</p> <p>- 90 people (50% women) with enhanced capacity in LDN and SLM at national and sub-national level</p> <p>- 3 knowledge products and training/awareness raising materials (which are gender sensitive in content and form) on SLM and LDN</p>	<p>According to the outputs</p>	<p>Assumptions of the outputs</p>	<p>-RSS</p>
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<p>1.3.1. Knowledge products on SLM and LDN prepared and shared</p>	<p>-Number and type of Knowledge products developed which are gender sensitive in content and form on SLM and LDN</p> <p>-Number of media formats used by project to promote LDN awareness and size of potential audience</p> <p>-3rd party publications and media coverage of project-produced knowledge products</p>	<p>No contextualised knowledge products exist that are targeted at promoting awareness on LDN and integrated landscape planning among land users and local decision-makers</p>	<p>-At least 2 Knowledge products that promote LDN principles and guidelines for SLM application and decision-making are developed</p>	<p>-Following on the results and lessons learnt over the course of the project, a final Knowledge product is produced to support VCs and marketing, bringing output total to 3 knowledge products</p>	<p>-Media or publications developed by project</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>-The project will be capable of making landscape management issues, LD and ecosystem services relevant for smallholder producers</p> <p>-Lack of Knowledge on LD and SLM options is a principal barriers to change</p>	<p>Associated with this could be promotional materials to inform on project objectives and activities, or information on LD baselines, hotspots and monitoring approaches for scaling.</p>
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<p>1.3.2. Capacity development and awareness raising program in place targeting stakeholders and policy makers for LDN targets implementation and monitoring</p>	<p>-Total number of people trained/participant in LDN workshops and sessions (sex disaggregated data)</p> <p>-Number of Governate staff trained in LDN principles and framework application</p>	<p>PPG baseline and stakeholder engagements demonstrated a general awareness of the 5 voluntary LDN targets for Jordan with Government representatives and motivation to learn more about application of LDN framework</p>	<p>45 key stakeholders and policy makers (including 15 Governate staff/ 5 per Governate) are trained or participate in project workshops</p>	<p>A total of 90 people from diverse stakeholder groups participate in training or participate in project workshops</p>	<p>Event reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>Increased awareness of LDN principles and framework will facilitate intersectoral coordination and data collection and sharing</p> <p>Staff trained will have authority to introduce changes to apply LDN principals and DSS</p>	<p>4 knowledge products promoting SLM production practices and techniques, 1 for each selected project value-chains (vegetables, pasture (dairy), Olive and Beekeeping), including information on Climate Change Adaptations (CCA) and links to LDN and landscape planning.</p>
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**Component 2: Demonstrating the LDN approach and scaling out SLM practices and approaches in selected landscapes in the Irbid, Mafraq and Ajloun Governorates**

<p><u>Outcome 2.1:</u> Improved Land Cover/Management, Land Productivity, and SOC through the application of SLM/DLDD practices and approaches in selected landscapes of the Aljoun, Irbid and Mafraq Governates</p>	<p>- Number of producers trained through FFS or existing farmer organisations , 50% of which are women</p> <p>- ha under SLM that meet LDN criteria (of which 10,000 ha are croplands)</p> <p>- ha of land restored (of which 2,000 ha are croplands)</p> <p>- Mtons CO2eq (EX ACT)</p> <p>-Direct beneficiaries (of which 50% are women)</p>	<p>SLM activities and approaches have been implemented in pilot Governates but take place in outside of a structured, integral landscape approach based on LDN principles</p>	<p>- 1,250 producers trained through FFS or existing farmer organisations, 50% of which are women</p> <p>- 2,500 direct beneficiaries (of which 50% are women)</p>	<p>- 2,250 producers trained through FFS or existing farmer organisations, 50% of which are women</p> <p>- 15,000 ha under SLM that meet LDN criteria (of which 10,000 ha are croplands and 5,000 ha are under mixed land cover types)</p> <p>- 2,000 ha of land restored (of which 2,000 ha are croplands)</p> <p>- 2,120,040 Mtons CO2eq (EX ACT)</p> <p>- 10,000 direct beneficiaries (of which 50% are women)</p>	<p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>As per outputs</p>	<p>-RSS</p>
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<p>Output 2.1.1: Participatory integrated land-use plans developed and priorities identified by the DSS in the Irbid, Mafraq and Ajloun Governorates</p>	<p>-Number of stakeholders who provide inputs to land-use plan inputs</p> <p>-Ha covered under activities</p> <p>-Number of plans developed</p> <p>-Number of private sector entities involved, including farms (Land Stewardship agreements)</p>	<p>No LDN or LD DSS is operational at Governate scales</p>	<p>The project has developed a participatory approach that incorporates the DSS developed in Output 1.1.3 and has used the process to develop at least 1 plan that includes a minimum of 2,500 direct beneficiaries and covers 2,500 ha</p>	<p>Based on lessons learnt, the project has developed at least 3 plans that directly benefit a total of 10,000 people and has led to the restoration of 2000 ha of cropland and introduction and practice of SLM / SFM on 10,000 ha of cropland and 5,000 of mixed land cover types</p>	<p>Sex disaggregated data on beneficiaries</p> <p>Sex disaggregated data on stakeholders who participated in the development of land-use plans</p> <p>Event reports and financial statements</p>	<p>Plan development will be transparent and inclusive</p> <p>Decisions will be adopted and prioritised by Governate agencies and policy-makers</p>	<p>-RSS</p>
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<p><u>Output 2.1.2:</u> Innovative and integrated Sustainable Land/Water Management practices and technologies adopted in farmer field schools (FFS) to enhance land productivity, restore degraded land and reduce pressure on NR (e.g. agro-forestry, afforestation integrated crop/livestock production systems, water harvesting, grazing of riparian zones, grazing crop residues to allow vegetation recovery, pasture and crop rotation, organic manure, soil moisture harvesting, drip irrigation)</p>	<p>-Number of MoU signed with participant organisations and/or FFS created</p> <p>-Number of FFS operational and meeting minimum standard protocols by project end</p> <p>-Number of total training participants and/or subscribers to virtual tutorials</p> <p>-Number of ha influenced by FFS</p> <p>-Number of ha influenced by FFS</p>	<p>The first FFS were introduced in Jordan in 2004 in collaboration with NARC. A NARC spokesman put the figure at 153 FFS with over 2000 farmers (20% women) trained in 2016. The approach is still promoted by FAO staff in the country and training and improvements are ongoing. They have not and do not include LDN curriculum or practices.</p>	<p>Through a mix of partnerships with existing organisations and the creation of FFS in areas of strategic value, 1,250 people receive training in SLM practices and integrated landscape management.</p>	<p>The mixed organisational approach and FFS developed are operational, having provided training to a total of 2,250 people through a range of innovative approaches has led to the restoration of 2000 ha and introduction and practice of SLM / SFM on 10,000 ha</p>	<p>Mou signed with participant organisations</p> <p>-Course curriculum and attendance sheets</p> <p>-Course facilitator or trainer records and reports</p> <p>-Sex disaggregated data of participants and beneficiaries</p> <p>-Event financial statements</p> <p>Project M&amp;E, which includes minimum standards for FFS operation and monitoring, applicable to participant organisations</p> <p>Participatory Impact Monitoring (PIM)</p> <p>FFS status reports and</p>	<p>There are sufficient numbers of existing organisational structures and producer groups to meet core beneficiary targets, and/or the project will be capable of creating and operating those needed</p> <p>Project will be able to increase FFS outreach and membership above historic baseline through adapted and multimedia approaches</p> <p>Working in close collaboration with existing FFS and other organisations is more efficient and is preferred to the project creating and operating new ones</p>	<p>-RSS</p>
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<p>Output 2.1.3. Measures and approaches for reducing the impacts of drought integrated into SLM practices and tested/demonstrated in the context of FFS, APFS or participant organisations</p>	<p>-Number SLM / SFM techniques demonstrated</p> <p>-Number of SLM techniques/ approaches uploaded into global WOCAT database</p> <p>-Number of participant organisations/ FFS involved in demonstrations or study</p> <p>-Number of people and organisations trained in SLM techniques (sex disaggregated data)</p> <p>-Number of training led by women trainers</p> <p>-Ha covered in activities</p>	<p>There are no SLM or SFM practices being developed under participatory learning and decision-making processes being applied from integrated landscape perspective to reduce LD and increase ecosystem services</p>	<p>2 SFM practices have been demonstrated, documented and replicated in at least 2 sites for forestry land conditions</p> <p>2 SLM practices have been demonstrated, documented and replicated in at least 2 demonstration sites for pasture/grazing areas</p> <p>2 SLM practice practices have demonstrated, documented and replicated in at least 2 demonstration sites for cropping land conditions</p>	<p>Results of demonstrations from participants/organisations/FFS are documented and analysed, resulting in publication of knowledge product and addition of at least 1 WOCAT publication per Governate</p> <p>At least 250 producers (50% women) receive training in developed techniques allowing for testing and finetuning of an output based knowledge product</p>	<p>Event reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>Lack of knowledge is a principal barrier to SLM uptake</p> <p>Project staff have developed a network of partner organisations and FFS that are enabling environments for learning and cultural change</p> <p>Demonstration sites are well maintained and receive proper funding and attention</p>	<p>-RSS</p>
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<p>Output 2.1.4. Introduction of gender sensitive sustainable livelihood strategies</p>	<p>-Number of direct / indirect beneficiaries of output activities</p> <p>-Number of project led or supported events and exchanges</p> <p>-Number of gender sensitive business models developed or showcased within FFS and other project networks</p> <p>-Number and type of collaborative activities realised with CSOs to promote entrepreneurial activities and investments in project VCs.</p>	<p>Innovative, women-led initiatives that rely on SLM practices exist and can influence and mainstream approaches to production and marketing</p>	<p>-At least 100 members of different participant organisations/FFS realise field days and visits to innovative, sustainable business initiatives.</p>	<p>-Awareness and recognition for those entities and producers utilising LDN and SLM practices that provide for innovations in gender sensitive livelihoods are showcased through events and other forms of recognition, including virtual media, awards and promotion.</p>	<p>Associated publications or knowledge products</p> <p>Media coverage of events</p> <p>Event reports and financial statements</p>	<p>Project partnerships and networks will act as an enabling environment for business creation and partnerships</p> <p>Project activities will create private sector development opportunities and enterprises</p>	<p>-RSS</p>
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<p>Outcome 2.2: Increased investments in sustainable land management to achieve LDN</p>	<p>-Number of LDN Action Plans developed</p> <p>- Number of value-chains strengthened, resulting in increased revenue of local population (at least two target gender sensitive value chains)</p> <p>- Number of small-holders (50% women) with strengthened livelihoods and sources of income</p> <p>-Number of people that receive Value Chain training and support</p>	<p>Selected VCs are those most represented among smallholders (vegetable, cover the largest extent of land for their subsector (Olive, Beekeeping) or employ large sections of vulnerable social groups</p>	<p>-1 LDN Action Plans developed</p> <p>- 2 Value chain strengthening activity programmes are conducted</p> <p>- 1,250 small-holders (50% women) with strengthened livelihoods and sources of income</p> <p>- 50 people (50%) receive Value Chain training and support (50% women)</p>	<p>-3 LDN Action Plans developed</p> <p>- 4 Value chain strengthening activity programmes are conducted</p> <p>- 2,500 small-holders (50% women) with strengthened livelihoods and sources of income</p> <p>- 125 people (50%) receive Value Chain training and support (50% women)</p>	<p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>As per outputs</p>	<p>RSS</p>
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<p><u>Output.2.2.1:</u> LDN Action Plan with voluntary targets defined in the landscapes of Irbid, Mafraq, and Ajloun Governorates</p>	<p>-Number of action plans created to support land plans resulting from Output 2.1.2</p> <p>-Number of stakeholder and institutions that provide inputs to action plan</p> <p>-Number of private sector entities that support plans with in kind activities or materials</p>	<p>No LDN or participatory land action plans exist for the proposed landscape pilot sites.</p>	<p>A LDN Action Plan is developed to support the land use plan created through Output 2.1.1</p>	<p>Lessons learnt through development of 1<sup>st</sup> LDN Action Plan are used to support following Output 2.1.1 plans, with a minimum of 3 realised.</p>	<p>LDN Action Plan documents and reports</p> <p>Associated documents and map products</p>	<p>The project will be capable of bringing diverse stakeholders together to set targets and move towards a common goal of LDN</p> <p>Realising action plan priorities will to encourage further use and development</p>	<p>-RSS</p>
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<p><u>Output 2.2.2:</u> Market access mechanism identified and key value chains (i.e. vegetables, olives, dairy, Beekeeping) strengthened to achieve LDN in the landscapes of Irbid, Mafraq, and Ajloun Governorates</p>	<p>-Number of marketing strategies and initiatives developed</p> <p>-Number and type of marketing support activities realised</p> <p>-Number of VC intervened</p> <p>-Number and type of marketing support activities realised</p> <p>-Increase in investments in VCs over project baseline</p>	<p>Market access difficulties were listed by diverse stakeholder groups as a key barrier to rural development</p>	<p>2 essential Value Chain components are strengthened through project support that results in increased market access for project beneficiaries (1 gender sensitive), directly impacting 1,250 beneficiaries</p>	<p>4 essential Value Chain components are strengthened through project support that results in increased market access for project beneficiaries (2 are gender sensitive) directly impacting 2,500 beneficiaries</p>	<p>Event reports and financial statements</p>	<p>Pandemic has cast light on importance of local production and value chains for food security</p>	<p>-RSS</p>
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<p>2.2.3. Training programs on value-chains management (e.g. marketing, processing, certification) for local communities, extension services, farmers, women groups, and youth</p>	<p>-Total number of people trained/participant in VC workshops and sessions (data disaggregated by gender)</p> <p>- Number of participants in events and exchanges</p> <p>-Number of project led or supported events and exchanges</p> <p>-Number of gender business models developed or showcased within FFS and other project contexts</p> <p>-Number of direct / indirect beneficiaries of output activities</p>	<p>Market access and value-adding activities were identified by stakeholders are barriers to improved land management and livelihood income</p>	<p>50 people (50%) receive Value Chain training and support (50% women)</p>	<p>125 people (50%) receive Value Chain training and support (50% women)</p>	<p>Event reports and financial statements</p> <p>PIRs, PPRs</p> <p>Midterm Review and Final Evaluation</p>	<p>Training approach will be well targeted within a holistic approach to support local value chains</p>	<p>-RSS</p>
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**Component 3: Project Monitoring, Evaluation and lesson learned**

<p><u>Outcome 3.1:</u> Knowledge management, M&amp;E and lessons learned disseminated</p>	<ul style="list-style-type: none"> <li>- Number of M&amp;E systems and GEBs and co-benefits established</li>   <li>- Number of LDN reporting options to the UNCCD</li>   <li>- Lessons learned on SLM and LDN mainstreamed into Governorate plans;</li>   <li>- Number of lessons learned on SLM and LDN mainstreamed in the national development plans;</li>   <li>- Number of practices and lessons learned summarized and organized in a framework for scaling-up in other regions.</li> </ul>			<ul style="list-style-type: none"> <li>- Operational M&amp;E system and GEBs and co-benefits established</li>   <li>- Operational LDN reporting to the UNCCD</li>   <li>- Lessons learned on SLM and LDN mainstreamed in 3 Governorate plans;</li>   <li>- Lessons learned on SLM and LDN mainstreamed in the national development plans;</li>   <li>- Best practices and lessons learned summarized and organized in a framework for scaling-up in other regions.</li> </ul>	As per output	As per output	RSS
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<u>Output.3.1.1:</u> Project mid-term and final evaluation conducted	-Mid-term and final evaluation reports	0	Mid-project review recommendations implemented	Final evaluation	Evaluation reports (FAO evaluation office)	Adequate funding allocated to evaluations	-RSS
<u>Output 3.1.2:</u> Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed.	-M&E system ensuring timely delivery of project benefits and adaptive results-based management	0	Project M&E system delivers expected reports and informs project management	Project M&E system delivers expected reports and informs project management	GEF LD Tracking Tool PIRs PPRs, Midterm Review and Final Evaluation	PMU functioning and adequate funding allocated to M&E	-RSS
<u>Output 3.2.1:</u> Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets	-Number of appearances in local media, partners/regions and partner websites  -Number of awareness raising activities  -Number of gender, youth or vulnerable people and LDN stories edited for press release	0	Draft prepared and agreed with the stakeholders	Gender-focused communication strategy is fully operational  # Awareness raising activities ? to be determined during initial stages of project implementation	Articles in local media, appearances in TV, website and social media statistics	National lead agencies and other stakeholders support M&E processes, and are committed to continuous learning and exchange of knowledge on LDN	-RSS

[1] Please note that output based indicators are not mandatory as long as the targets for each output are well defined.

[2] <https://knowledge.unccd.int/knowledge-products-and-pillars/guide-scientific-conceptual-framework-ldn/principles-land>

[3] <https://knowledge.unccd.int/knowledge-products-and-pillars/guide-scientific-conceptual-framework-ldn/principles-land>

[4] LDN-TSP 2018, Final Country Report of the Land Degradation Neutrality Target Setting Programme. Jordan; Karadsheh et al, 2012, Land degradation in Jordan. Review of knowledge resources. ICARDA.

**ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).**

Part I: Project Information		STAP Comments	Agency Response (FAO & GoJ)
GEF ID		10158	-----
Project Title		Achieving land degradation neutrality targets through restoration and sustainable management of degraded land in Northern Jordan	-----
Date of Screening		May 12, 2020	-----
STAP member Screener		Graciela Metternicht	-----
STAP secretariat screener		Guadalupe Duron	-----

STAP Overall Assessment

Minor issues to be considered during the project design.

STAP acknowledges FAO's project 'Achieving land degradation neutrality (LDN) targets through restoration and sustainable management of degraded land in Northern Jordan'. The project will support Jordan's efforts to implement its LDN targets through integrated land use planning, including the strengthening of the enabling environment for planning and monitoring. As a result of improved land management practices, the project aims to rehabilitate and strengthen the productivity of rangelands and bare land in Ajloun, Mafraq, and Irbid Governorates. STAP is pleased the project team will apply the LDN response hierarchy of avoid, reduce, and reverse land degradation to achieve global environmental outcomes on land management and carbon sequestration. As the project is designed, STAP welcomes the team plans to apply the technical guidelines on LDN (released in April 2020), which are on the STAP website. Applying the guidelines will facilitate establishing the LDN baseline; complement the earth observation estimates of the area of expected losses that must be counterbalanced to achieve neutrality; as well as assist with defining a monitoring plan. Additionally, the guidelines cover how to lay the foundations necessary to achieve LDN through a preparatory land assessment. STAP highly encourages the project developers to assess the potential of the land to be able to sustain the planned land uses, generate, and maintain the expected ecosystem services (e.g. soil formation and retention, water regulation). To reduce the risk of land degradation, land uses need to be consistent with the land potential. STAP welcomes the project's initiative to achieve multiple benefits resulting from LDN. During the project design and implementation, STAP recommends acknowledging that trade-offs will occur when the project targets its multiple objectives on: reducing land degradation, improving rangeland management; sequestering carbon; and, contributing to climate adaptation and biodiversity conservation. The technical LDN guidelines offer practical advice on how to manage trade-offs between benefits. Additionally, STAP recommends developing a systems-based theory of change that explores options for addressing uncertainty brought on by unforeseen changes, and risks to the project (e.g. climate change, limited interest in land and water technologies, limited policy capacity, possible environment conflict due to increased pressure on natural resources from population growth and refugee inflow). The theory of change can assist with monitoring short-term outcomes, and to anticipate external factors that may impact on them, all necessary to achieve the project's LDN outcomes. STAP encourages the project team to contribute to the evidence base on integrating water harvesting practices in Jordanian agricultural systems. There appears to be gaps in the literature on water harvesting innovations to transition Jordanian agriculture towards more sustainable water usage. In this regard, STAP welcomes FAO's idea (included in the climate risk screening section) to 'consider future studies on the relationship between irrigation water

These comments are well-received, understood and incorporated where needed into the project design.

As can be seen in the document, the LDN guidelines were paramount in designing the project. Likewise, a variety of tools and support mechanisms have been included to provide information and data that allows for landscape processes and trends to be understood and management to transition towards achieving Land Potential of the selected pilot sites, landscapes and water basins for project activities. The information also allows for potential trade-offs and sacrifice areas to be considered as other areas move towards improved Land Potential, and

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Part I: Project Information		-----	
B. Indicative Project Description Summary		-----	
Project Objective	Is the objective clearly defined, and consistently related to the problem diagnosis?	Yes, the objective is defined clearly, and consistently linked to the problem statement.	Noted.
Project components	A brief description of the planned activities. Do these support the project's objectives?	Yes, the activities support the project objective. For output 2.1.1 STAP recommends that tools beyond LADA (which is not a tool), and WOCAT are explored. More to the point, LADA/WOCAT are not the tools that will enable to undertake participatory integrated land use plans with involvement of local community (as said in pg 34).	The statement that LADA and WOCAT are not equipped to provide a land planning framework for decision making is correct. For this output, the project is recommending the use of the interactive mapping tool developed specifically for this project to outline the extent of the LD Hotspots and for the subsequent land planning needs and objectives to be tested and agreed upon by stakeholders through the DSS created under Output 1.1.3.

Outcomes	A description of the expected short-term and medium-term effects of an intervention.	-----	
	Do the planned outcomes encompass important global environmental benefits/adaptation benefits?	Yes, the outcomes focus on global environmental outcomes.	Noted.
	Are the global environmental benefits/adaptation benefits likely to be generated?	The benefits are likely to be generated with careful monitoring.	Monitoring is an essential component of land planning and policy, as it is the basis on which plans are modified or improved to achieve their objectives and goals. Monitoring at various levels are contemplated within the project, from the lowest recognised LDN unit (land management unit) to the Governate and potentially National scale once the LDN monitoring system is upscaled to remaining Governates.

<p>Outputs</p>	<p>A description of the products and services which are expected to result from the project.</p> <p>Is the sum of the outputs likely to contribute to the outcomes?</p>	<p>Yes, outputs are likely to contribute to outcomes. STAP recommends that tools beyond the usual WOCAT / LADA are considered, and that innovative tools for capacity building are 4 considered. A list of relevant bibliography that reports on how ICT is being used in Africa to develop capacity efficiently and at low cost is included at the end of this screening. STAP suggest revising the current outputs and against the named targets. It is not clear how some targets will be achieved with the outputs and current components</p>	<p>The recommended literature was reviewed at an early stage and was appreciated. Contacts with other projects and their suggestions were also highly valued, with the Badia Restoration Programme and the HERD project which is applying the PRAGA methodology to areas to the south of this project being an especially relevant source of information and lessons learnt.</p> <p>A range of tools and approaches are therefore recommended and commented on within the document, though to a certain extent some flexibility is incorporated into the Logical Framework (Annex A1) in terms of indicators or how issues are to be approached.</p>
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Part II: Project justification	A simple narrative explaining the project's logic, i.e. a theory of change.	-----	-----
1. Project description. Briefly describe:	-----	-----	-----
1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)	Is the problem statement well-defined?	Yes, the problem is well defined. The drivers of degradation are identified for each of the agroecological zones where the project will be implemented. The problem analysis also includes a description of the underlying drivers (e.g. population pressure, inflow of refugees, land tenure, climate change) and their effects on land degradation	This has also been consolidated and confirmed by stakeholders at national and subnational scales.
	Are the barriers and threats well described, and substantiated by data and references?	Yes, the PIF describes the barriers. STAP recommends identifying and validating the assumptions in a theory of change, which includes an analysis of the barriers, and enablers, to achieve the short-term outcomes.	Barriers and ToC have been incorporated into the project design and validated through numerous PPG activities.

	<p>For multiple focal area projects: does the problem statement</p> <p>and analysis identify the drivers of environmental degradation</p> <p>which need to be addressed through multiple focal areas; and is</p> <p>the objective well-defined, and can it only be supported by</p> <p>integrating two, or more focal areas objectives or programs?</p>	Does not apply.	-----
2) the baseline scenario or any associated baseline projects	Is the baseline identified clearly?	Yes, the PIF includes a narrative baseline, describing on-going, future, and past initiatives on land management, rangeland management, ecosystem and climate resilience, which this project will build on.	Baselines have been further developed and described in detail in the project document. This will guide project developers and informs the project ToC.
	Does it provide a feasible basis for quantifying the project's benefits?	Core indicators will be assigned during the project design.	Accepting that activities are conducted according to the ToC, the project should meet the core indicator targets.

	<p>Is the baseline sufficiently robust to support the additional cost reasoning for the project?</p>	<p>Yes, the baseline is sufficiently robust at this stage</p>	<p>The baseline has been expanded and consolidated during the PPG phase</p>
	<p>For multiple focal area projects:</p>	<p>-----</p>	<p>-----</p>
	<p>are the multiple baseline analyses presented (supported by data and references), and the multiple benefits specified, including the proposed indicators;</p>	<p>Does not apply.</p>	<p>-----</p>
	<p>are the lessons learned from similar or related past GEF and non-GEF interventions described; and</p>	<p>Yes, several lessons are identified in the baseline projects, which will inform the design of this project. This includes lessons from sustainable land and water management practices and technologies to enhance land productivity and restoration</p>	<p>As described above, a number of programmes and projects were vital sources of information on what has and hasn't worked over the last decades.</p>

	<p>how did these lessons inform the design of this project?</p>	<p>The PIF identifies one project that will serve particularly as a strong baseline for this project: ?Enhancing resilient livelihoods and food security of host communities and Syrian refugees in Jordan and Lebanon through the promotion of sustainable agricultural development? The PIF describes lessons that resulted from this project on agri-food enterprises and improved land management, which will serve in the design of this project.</p>	<p>Lessons learnt informed policy approaches, SLM options and strategies, gaps and challenges, value chain options and opportunities and provided an established network of contacts and resources.</p>
<p>3) the proposed alternative scenario with a brief description of expected outcomes and components of the project</p>	<p>What is the theory of change?</p>	<p>A preliminary theory of change for the project is: ?The project will support the national efforts to implement LDN national targets (1, 2, 3, and 5) through SLM and contribute to implementation of SDGs 15.2 and 15.3. Under the LDN framework, land degradation can be avoided, reduced, and reversed at scales from individual farms to entire watersheds; it provides cost effective, immediate, and long-term benefits to communities and support several SDGs with co-benefits for climate change adaptation and mitigation, and biodiversity conservation. The project will therefore promote SLM and landscapes restoration for achieving LDN commitments of Jordan. Moreover, using the landscape approach to integration across sectors and scales increases the chance of maximizing co-benefits and minimizing trade-offs. The project 6 will follow STAP?s guidelines for the application of the Scientific Conceptual Framework for LDN and take a phased approach through the proposed three components.?</p>	<p>Not only were the STAP?s guidelines for the application of the Scientific Conceptual Framework for LDN integrated, their work on ToC and causal pathways influenced how this was developed under this project.</p>
	<p>What is the sequence of events (required or expected) that will lead to the desired outcomes?</p>	<p>STAP recommends developing a theory of change that describes the causal links between outputs and outcomes.</p>	<p>Please see project ToC</p>

	<p>What is the set of linked activities, outputs, and outcomes</p> <p>to address the project's objectives?</p>	See above	See above
	<p>? Are the mechanisms of change plausible, and is there a well-informed identification of the underlying assumptions?</p>	<p>STAP recommends for the final project document to include a theory of change narrative and figure, explaining the causal link between the outputs and outcomes. STAP also recommends defining the assumptions, which includes a barrier analysis (and identifying enablers of change). STAP's theory of change primer: <a href="https://www.stapgef.org/theory-change-primer">https://www.stapgef.org/theory-change-primer</a></p>	<p>The STAP primer was used and its influence can be clearly seen in the project design.</p>
	<p>? Is there a recognition of what adaptations may be required during project implementation to respond to changing conditions in pursuit of the targeted outcomes?</p>	<p>Yes. The project acknowledges that adaptive management may be needed to reach the project objective. Component 3 on monitoring, evaluation and learning will focus on adaptations. However, STAP also encourages the development of a theory of change to assist with this task.</p>	<p>Not only has a ToC been developed and integrated, project design has allowed a certain degree of flexibility regarding how the outcome and output targets are acquired.</p>

<p>5) incremental/additional cost reasoning and expected contributions from the baseline, the GEF trust fund, LDCF, SCCF, and co-financing</p>	<p>GEF trust fund: will the proposed incremental activities lead to the delivery of global environmental benefits?</p>	<p>Yes, with careful monitoring and a good theory of change.</p>	<p>The project has fail-safe measures incorporated, but principally is based on the concept that increasing livelihood opportunities and knowledge of ecological systems leads to informed management that then leads to achieving Land Potential.</p>
	<p>LDCF/SCCF: will the proposed incremental activities lead to adaptation which reduces vulnerability, builds adaptive capacity, and increases resilience to climate change?</p>	<p>Does not apply.</p>	<p>-----</p>

<p>6) global environmental benefits (GEF trust fund) and/or adaptation benefits (LDCF/SCCF)</p>	<p>Are the benefits truly global environmental benefits, and are they measurable?</p>	<p>Yes, the global environmental benefits are articulated clearly. Indicators will be provided in the final project document. When designing the project, assessing for suitable land management and restoration practices, and managing trade-offs between benefits, STAP 7 recommends applying its LDN technical guidelines released in April 2020, which are more detailed than earlier versions of the guidelines. The technical guidelines can be found at:  <a href="https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.pdf">https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.p df</a>  The project will pursue adaptive management through component 3. In addition to the monitoring and knowledge management activities described in the PIF, STAP recommends developing a theory of change, and linking it to component 3. A theory of change will test whether changes in short-term outcomes lead to the proposed long-term outcomes, which component 3 will primarily focus on. When developing the project, STAP also recommends paying close attention to the barriers, and enablers, of adopting water conservation approaches, or technologies. The PIF described lack of policies, uncertainty over land tenure, and lack of institutional frameworks, as significant barriers ? all of which can diminish the intended impact of transitioning towards water harvesting, water conservation, and other land management practices. STAP also encourages the project team to contribute to the evidence base on integrating water harvesting practices in Jordanian agricultural systems. There appears to be gaps in the literature on: i) ?water harvesting innovation systems to transition Jordanian agriculture towards more sustainable water usage; and 2) on the broader debate on sustainability transitions in developing countries.? Refer to Sixt, Gregory N., Laurens Klerkx, and Timothy S. Griffin. "Transitions in water harvesting practices in 8 Jordan?s rainfed agricultural systems: Systemic problems and blocking mechanisms in an emerging technological innovation system." <i>Environmental Science &amp; Policy</i> 84 (2018): 235- 249.  <a href="http://dx.doi.org/10.1016/j.envsci.2017.08.010">http://dx.doi.org/10.1016/j.envsci.2017.08.010</a></p>	<p>Technical guidelines were used and their influence can be seen in the resulting project design.</p>
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	<p>Is the scale of projected benefits both plausible and compelling in relation to the proposed investment?</p>	<p>Unclear. Suggest identifying the barriers and enablers to scaling in the theory of change.</p>	<p>Those elements that were found to be implausible (e.g. over 100 FFS) were addressed.</p> <p>The current project proposal is believed to be both plausible and needed at national and subnational scales.</p>
	<p>Are the adaptation benefits explicitly defined?</p>	<p>Yes, global environmental benefits are defined.</p>	<p>Noted</p>
	<p>Are indicators, or methodologies, provided to demonstrate how the adaptation benefits will be measured and monitored during project implementation?</p>	<p>In addition to listing the GEF core indicators related to sustainable land management (hectares of land restored, hectares of production land under improved practices), and carbon sequestration benefits, STAP suggests identifying indicators to monitor and track progress of the causal links in the theory of change. These indicators will test the validity of the causal pathway, which requires the theory of change to be explicit about assumptions (e.g. indicators that validate the multidimensionality of forest restoration), barriers, and enablers of change.</p>	<p>Other national LDN and supporting indicators were proposed during the stakeholder interventions and ratified during the project design validation workshop. They are available in the project ToC, as well as in other sections of the document.</p>

	<p>What activities will be implemented to increase the project's resilience to climate change?</p>	<p>The climate risk analysis identified several options to increase the project's resilience to climate change. These included: soil water conservation to increase available water to crop; selection of drought tolerant genotypes with shorter growing seasons; consider future studies on the relationship between irrigation water supply (including treated wastewater), net irrigation water requirements (considering climate change scenarios), and soil sensitivity towards the irrigation with treated wastewater.</p>	<p>There are various ways the project addresses this. On the one hand, it is addressed at the land management unit scale, by training and addressing value chain gaps for smallholders. On another hand, it is looking at landscape scale options that have a wider benefit and effect on ecological processes and capacities to adapt and reduce CC impact. At the same time, it is working within communities to increase awareness and responses to CC. Lastly, it provides data and information for informed policy decisions and targets LD hotspot areas in order to increase efficiency of economic and human resources.</p>
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<p>7) innovative, sustainability and potential for scaling-up</p>	<p>Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning?</p>	<p>The project is innovative in applying land degradation neutrality practices in Northern Jordan. The project is potentially innovative in generating learning from the application of LDN, and pursuing integrated land and water management in the target sites. STAP recommends to explore innovative ways to develop capacity, beyond the traditional FFS widely adopted within FAO projects. STAP is pleased its primer on LDN was referenced in the PIF, and recommends for the project team to apply its technical LDN guidelines developed in April 2020, which is closely aligned with UNCCD's Scientific Conceptual Framework for LDN: <a href="https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.pdf">https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.p df</a> As mentioned above, the assumption is that applying LDN, and integrating water harvesting technologies in agricultural systems, will generate the knowledge and institutional conditions to scale deep (i.e. influence social systems) across temporal and spatial scales. STAP would like to see these assumptions identified and tested in a theory of change, and for the necessary adaptive management to take place based on this learning. STAP recommends its paper on durability and theory of change - where it lists principles that need attention to achieve scaling: <a href="https://www.stapgef.org/achieving-enduringoutcomes-gef-investment">https://www.stapgef.org/achieving-enduringoutcomes-gef-investment</a>; <a href="https://www.stapgef.org/theory-change-primer">https://www.stapgef.org/theory-change-primer</a></p>	<p>Project innovation is describe in detail in section 1.7</p>
	<p>Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors?</p>	<p>The project states it will focus on scaling out, scaling up, and scaling deep. To facilitate these actions, STAP recommends its theory of change primer, and RAPTA: <a href="https://research.csiro.au/eap/rapta/">https://research.csiro.au/eap/rapta/</a></p>	<p>Options for different levels of scaling, of SLM practices, lessons learnt and land monitoring tools and systems, in section 1.7 of the document.</p>

Will incremental adaptation be required, or more fundamental

transformational change to achieve long term sustainability?

It is possible that both adaptation and transformational change will be required due to the arid conditions and irregular rainfall experienced in the target sites. STAP encourages the project team to consider uncertainty to cope with the level of change (desired and un-desired) that may take place. This requires considering systematically time scales and spatial scales when planning the interventions. A systems-based theory of change can do this as it targets how a social-ecological systems functions across scales. Refer to STAP's theory of change primer, which is a good resource for developing a theory of change based on systems analysis: <https://www.stagef.org/theory-change-primer>

For this very reason the project has provided suggestions and options for tools and methodologies to be used, but has not stipulated that they must be used. Often the unique contexts found in the project water basins will require a mixture of approaches and tools to be effective.

Lastly, tools and approaches rarely have the holistic planning and decision making framework structures that are needed to not only properly collect data, but interpret it in a participatory manner to increase impact and resource efficiency. For this reason, the LDN conceptual framework provides a whole under which tools and approaches can be integrated or discarded as needed.

<p>1b. Project Map and Coordinates. Please provide georeferenced information and map where the project interventions will take place.</p>		<p>A map of the target sites is provided, depicting land productivity, and the presence of soil organic carbon,. When designing the project, STAP recommends its guidance on earth observation systems, which provides advice on how to provide high-quality georeferenced information (see page 64):  <a href="https://stapgef.org/sites/default/files/publications/GEF%20EO%20Mainstreaming%20March2020%20Final%2020200331-v3.0.pdf">https://stapgef.org/sites/default/files/publications/GEF%20EO%20Mainstreaming%20March2020%20Final%2020200331-v3.0.pdf</a></p>	<p>Mapping is now interactive and consultations can be tailored to needs and objectives at a wide range of scales.</p> <p>It is believed this tool will greatly aid the project development process.</p>
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<p>2. Stakeholders. Select the stakeholders that have participated in consultations during the project identification phase:</p> <p>Indigenous people and local communities; Civil society organizations; Private sector entities. If none of the above, please explain why. In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.</p>	<p>Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers?</p>	<p>Yes, the PIF lists a variety of stakeholders which are essential to addressing the barriers and solving the problem. The role of stakeholders in the project is specified vaguely</p>	<p>Stakeholder inputs and feedback on the proposals has been systematically collected at all project scales, with local to national collectives and groups participating in the design process.</p> <p>Stakeholder roles and responsibilities are now clearly described and were validated by representatives in the project document validation workshop.</p>
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	<p>What are the stakeholders? roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge?</p>	<p>Preparing the PIF involved consultations with key stakeholders. STAP encourages the project team to achieve global environmental outcomes, and to lessons learned and knowledge? to develop a stakeholder engagement plan, and identify who will be affected by the interventions; and who needs to be involved in the design and implementation of the project. Who is involved may change depending on the learning and adaptation, or transformations, that take place during project implementation. Attention to stakeholders? values, governance arrangements (formal and informal), agents of change (individuals who can catalyze change), and other issues that enable social innovation and drive action towards the project objective.</p>	<p>This is clearly described in Section 1.2 and in Section 2, and Section 6 and the workplan outline both executing entity and supporting entities.</p>
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<p>3. Gender Equality and Women's Empowerment. Please briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis). Does the project expect to include any genderresponsive measures to address gender gaps or promote gender equality and women empowerment? Yes/no/ tbd. If possible, indicate in which results area(s) the project is expected to contribute to gender equality: access to and control over resources; participation and decision-making; and/or economic benefits or services. Will the project's results framework or logical framework include gender-sensitive indicators? yes/no /tbd</p>	<p>Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences?</p>	<p>The project will develop interventions based on a gender analysis (e.g. component 2 and 3). The project will reflect gender differentiated components in the logical framework, and will include gender indicators. Additionally, STAP recommends considering whether the full participation of an important stakeholder group is hindered as a result of the gender analysis, and describing how will the project address these obstacles. STAP recommends consulting recent literature of the UNCCD and UN Women on genderresponsive LDN: UN WOMEN, GLOBAL MECHANISM OF THE UNCCD AND IUCN (2019). A Manual for Gender-Responsive Land Degradation Neutrality Transformative Projects and Programmes <a href="http://catalogue.unccd.int/1223_Gender_Manual.pdf">http://catalogue.unccd.int/1223_Gender_Manual.p df</a> Global Mechanism of the UNCCD. 2019. Land Degradation Neutrality Interventions to Foster Gender Equality. Bonn, Germany <a href="http://catalogue.unccd.int/1222_UNCCD_gender_briefing_note.pdf">http://catalogue.unccd.int/1222_UNCCD_gender_briefing_note.pdf</a></p>	<p>GAP and the Gender Report are provided in Section 3 of the project. Gender was also addressed and incorporated throughout the project design and activities.</p>
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	<p>Do gender considerations hinder full participation of an important stakeholder group (or groups)? If so, how will these obstacles be addressed?</p>	<p>Unsure as the gender analysis will be done during the project design. STAP recommended (above) to give due consideration of how a gender analysis may hinder the full participation of an important stakeholder group.</p>	<p>Gender empowerment and sensitivities are addressed and the GAP provides clear indicators and mechanisms for increasing women's participation in both activities and project benefits.</p>
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<p>5. Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design</p>	<p>Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project's control?</p> <p>Are there social and environmental risks which could affect the project?</p> <p>For climate risk, and climate resilience measures:</p> <p>? How will the project's objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately?</p> <p>? Has the sensitivity to climate change, and its impacts, been assessed?</p> <p>? Have resilience practices and measures to address projected climate risks and impacts been considered? How will these be dealt with?</p>	<p>The PIF summarizes the risks the project may face, including climate risks, limited interest in land and water technologies, limited policy capacity, possible environment conflict due to increased pressure on natural resources from population growth and refugee inflow, among other risks. STAP recommends detailing the assumptions that underlie the casual links, and these risks, into the theory of change. These risks relate to the project's ability to innovate and achieve LDN. In addition to the climate risks identified in the PIF, STAP recommends addressing the climate resilience measures described to the left. STAP also encourages the project developers to continually test causal links, assumptions, and risks in the theory of change. This process will enable the project team to assess for the resilience of the system ? identify how, and where, the system is weak, or strong, in its capacity to deal with disturbances. Additionally, the project team may find it useful to look at the following resources: STAP's screening guidelines: <a href="https://www.stapgef.org/sites/default/files/documents/GEF%20AGENCY%20RETREAT%20MarApr%202020.pdf">https://www.stapgef.org/sites/default/files/documents/GEF%20AGENCY%20RETREAT%20MarApr%202020.pdf</a> World Bank Climate Change 13 Knowledge Portal: <a href="https://climateknowledgeportal.worldbank.org/">https://climateknowledgeportal.worldbank.org/</a> U.S. Agency for International Development Climate Risk Screening and Management Tools: <a href="https://www.climatelinks.org/resources/climaterisk-screening-management-tool">https://www.climatelinks.org/resources/climaterisk-screening-management-tool</a> STAP also recommends reviewing relevant reports of the SPI UNCCD and the GM-UNCCD: Global Mechanism of the UNCCD. 2019. Land Degradation Neutrality Target Setting: Initial findings and lessons learned. Bonn, Germany. A. Reichhuber, N. Gerber, A. Mirzabaev, M. Svoboda, A. Lopez Santos, V. Graw, R. Stefanski, J. Davies, A. Vukovi?, M.A. Fernandez Garc?a, C. Fiati and X. Jia. 2019. The Land-Drought Nexus: Enhancing the Role of Land-Based Interventions in Drought Mitigation and Risk Management. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany</p>	<p>Potential risks to the project are described in Section 5 of the document, and include narrative sections on COVID19, CC and increasing numbers of refugees arriving in project water basins.</p>
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<p>6. Coordination. Outline the coordination with other relevant GEF-financed and other related initiatives</p>	<p>Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects?</p>	<p>Yes, the project will build on the knowledge of other projects based on the baseline projects listed in the PIF, and described in the coordination section</p>	<p>The project was systematic in its engagement with former projects and initiatives</p>
	<p>Is there adequate recognition of previous projects and the learning derived from them?</p>	<p>See above.</p>	<p>See above</p>
	<p>Have specific lessons learned from previous projects been cited?</p>	<p>Yes, lessons from other projects will be used to develop this proposal.</p>	<p>Yes, Section 1.2 is where they are specified and described.</p>
	<p>How have these lessons informed the project's formulation?</p>	<p>See above.</p>	<p>Immensely</p>
	<p>Is there an adequate mechanism to feed the lessons learned from earlier projects into this project, and to share lessons learned from it into future projects?</p>	<p>Yes, the project includes a component on monitoring (component 3). STAP recommends linking the theory of change (i.e. monitoring of short-term outcomes) to the monitoring component (i.e. monitoring of long-term outcomes)</p>	<p>It is established but could be further consolidated once project implementation begins, through further agreements and co-financing</p>

<p>8. Knowledge management. Outline the ?Knowledge Management Approach? for the project, and how it will contribute to the project?s overall impact, including plans to learn from relevant projects, initiatives and evaluations.</p>	<p>What overall approach will be taken, and what knowledge management indicators and metrics will be used?</p>	<p>The knowledge strategy aims to share the results of the project through regional and global platforms on pastoral and agricultural systems. It also will invest in learning and scaling up lessons during the project implementation. STAP recommends building this iterative learning into the theory of change, and linking this process to component 3 on monitoring. STAP recommends considering knowledge management metrics, and specifying further how the knowledge generated will influence scaling of results.</p>	<p>Section 8 of the document clearly defines the strategy and outputs/products of this process.</p>
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	<p>What plans are proposed for sharing, disseminating and scaling up results, lessons and experience?</p>	<p>The project describes several methods to disseminate results and lessons on LDN and sustainable land management. A communication strategy will be developed to support monitoring and learning. STAP recommends the use of platforms other than those of FAO for dissemination of results and sharing of lessons; for instance, much could be gained from reaching out to the UNCCD Secretariat and coordinate that lessons and best practice are also uploaded in the UNCCD Knowledge Hub.</p>	<p>The project has various routes to undertake this task. Firstly, there is the development of the project online platform that will host the interactive mapping tools and provide information and results on project processes.</p> <p>Secondly, the project has identified a range of knowledge products that will use different formats to reach their intended audiences.</p> <p>Other FAO platforms and the DSL IP described in the project document also provide mechanisms for information sharing.</p>
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**COUNTRY COMMENTS AND RESPONSES:**

COUNTRY	COMMENTS	AGENCY RESPONSE
United States	This thoughtfully prepared proposal does an excellent job of linking together the work conducted under the UNCCD and this project, and it appears to be well positioned to leverage those linkages to maximize the potential for the success of the project and bolster implementation of the UNCCD.	Well noted with thanks. These linkages have been strengthened in the final project proposal.
Germany	Germany welcomes the proposed project with the aim of achieving land degradation neutrality through restoration and sustainable land management. Germany requests that the following requirements are taken into account during the design of the final project proposal:	Well noted.
	Germany suggests revisiting the ambitious timeline/targets to make sure that all targets can realistically be achieved	Revisiting was conducted and targets were verified and ratified through participatory means
	Germany recommends integrating Jordan's climate policy framework, specifically to link the project to NDC implementation and to highlight its contribution to climate mitigation and adaptation targets.	This has been done to a reasonable extent, though principal focus remains on using LDN to achieve CC mitigation and adaptation targets.

	<p>The project's main focus is on agriculture. Germany recommends to also partner with entities that have experience with nature conservation and biodiversity and suggests elaborating on the nexus between land management, water resource management, and energy use. The concept of ecosystem services (ESS) could be introduced to ensure targeting the core natural functions of ecosystems and habitats in the proposal</p>	<p>This has been carried out and the project has taken a wider landscape perspective that include water basins and other landscape investments that include other stakeholder groups and productive sectors.</p>
	<p>Germany would like to highlight the "Improvement of Green Infrastructure in Jordan through Labor-Intensive Measures" (CfW-GI, PN 2017.4052.1) project that is currently working with the Jordanian National Agricultural Research Center (NARC) on very similar issues and suggests exploring potential synergies. Germany further recommends incorporating findings of the GIZ MoEnv project Ecosystem Services (EKF ESS PN 2013.9753.8). This BMZ funded ESS project has developed tools for sustainable ecosystem services management for rangelands and highlands.</p>	<p>These projects have been cited in the project document and NARC is a key project stakeholder.</p>

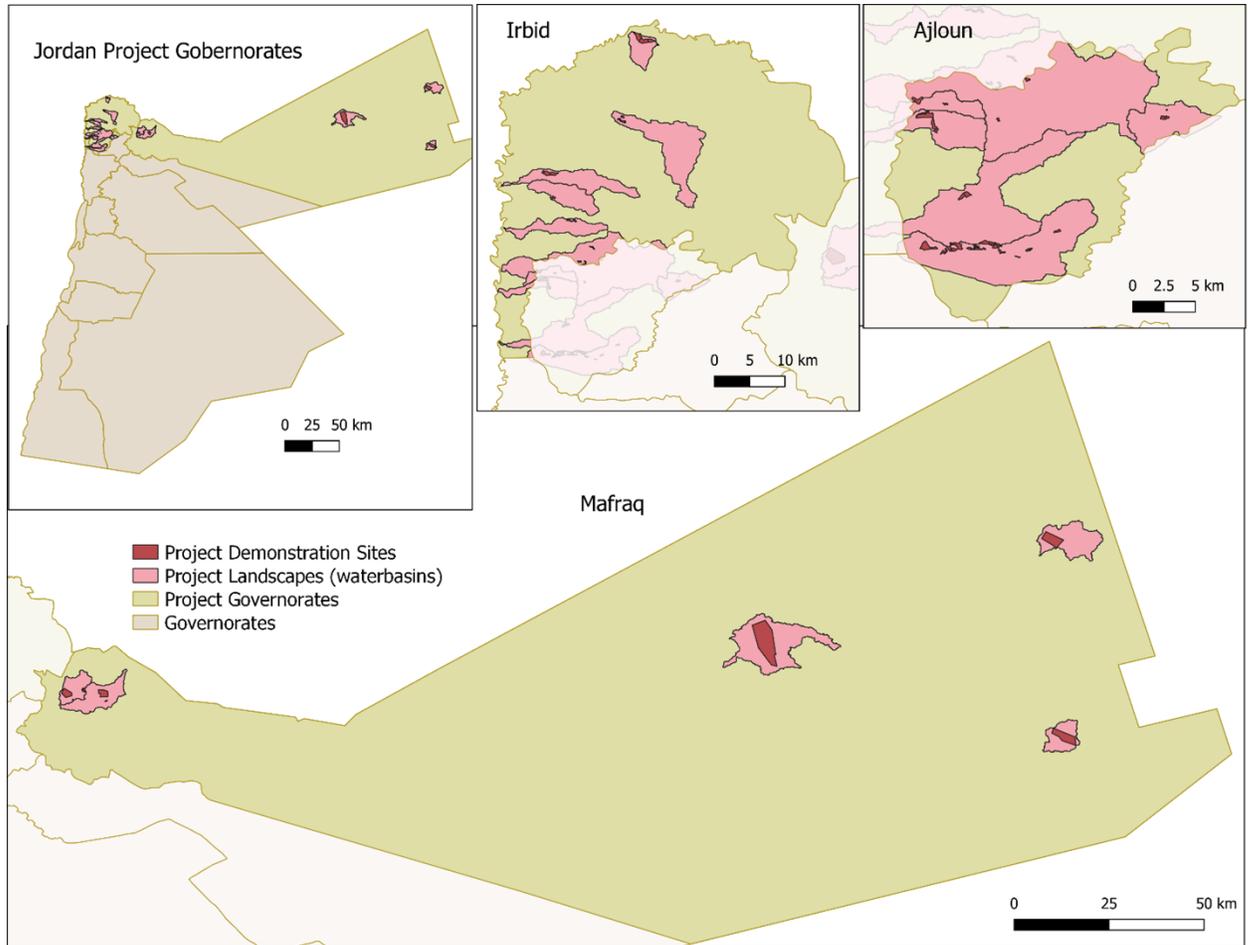
**ANNEX C: Status of Utilization of Project Preparation Grant (PPG).  
(Provide detailed funding amount of the PPG activities financing status  
in the table below:**

PPG Grant Approved at PIF: <b>USD 150,000</b>			
PROJECT SYMBOL: <b>JOR/024/GFF</b>			
<b>Project Preparation Activities Implemented</b>	<b>GETF Amount (\$)</b>		
	<b>Budgeted Amount</b>	<b>Amount Spent To date</b>	<b>Amount Committed</b>
(5011) Salaries Professional	2,500	0	0

(5013) Consultants	116,950	102,421	14,529
(5014) Contracts	10,000	4,250	5,750
(5020) Locally Contracted Labour	0	3,051	0
(5021) Travel	9,550	0	8,999
(5023) Training	11,000	7,815	3,185
(5024) Expendable Procurement	0	0	0
(5028) General Operating Expenses	0	0	0
<b>Total</b>	<b>150,000</b>	<b>117,537</b>	<b>32,463</b>

#### **ANNEX D: Project Map(s) and Coordinates**

**Please attach the geographical location of the project area, if possible.**



For all information regarding the project demonstration sites, project waterbasins and Governorate boundaries, please follow the provided link:

<https://projectgeffao.users.earthengine.app/view/jordan-ldn>

## ANNEX E: Project Budget Table

Please attach a project budget table.

FAO Cost Categories	Unit	No. of units	Unit cost	Component 1 Total	Component 2 Total	Component 3 Total	M&E	PMC	RSS executed	FAO Support Services	Total GEF
<b>5011 Salaries professionals</b>				0	0	0					0
<b>5011 Sub-total salaries professionals</b>				0	0	0		0			0
<b>5012 GS Salaries</b>				0	0	0					0
<b>5012 Sub-total GS salaries</b>				0	0	0		0			0
<b>5013 Consultants</b>											
International LDN Expert - DSS design based on the LDN indicators	days	70	450	28350	3150	0		0	31500		31500
International Farmer Field School (FFS) Master Trainer	days	45	400	0	18000	0		0	18000		18000
Intl. GIS specialist (LDN DSS)	days	60	350	18900	2100	0		0	21000		21000
<b>Sub-total international Consultants</b>				47250	23250	0		0	70500	0	70500
Core team of permanent and semi-permanent staff											
Project Coordinator (full-time)	months	47	1,850.00	0	0	0		86,950.00	86,950.00		86,950
Project Finance & Administrative Assistant (full-time)	months	45	1,050.00	0	0	0		47,250.00	47,250.00		47,250
Local Regenerative Ag. Experts	months	80	2,000.00	24,000	128,000	8,000			160,000.00		160,000
Land Tenure Policy and Land Planning Expert	days	140	300.00	21,000	18,900	2,100			42,000.00		42,000
Gender Expert	days	100	300.00	12,000	16,500	1,500			30,000.00		30,000
LDN and LD Monitoring Expert	days	150	300.00	24,750	18,000	2,250			45,000.00		45,000
Data Management Expert (M&E)	days	120	350.00	0	0	0	42000		42,000.00		42,000
Ajoun Governate community development facilitator	months	30	2,000.00	18,000	36,000	6,000			60,000.00		60,000
Irbid Governate community development facilitator	months	30	2,000.00	18,000	36,000	6,000			60,000.00		60,000
Mafraq Governate community development facilitator	months	30	2,000.00	18,000	36,000	6,000			60,000.00		60,000
Communications specialist	days	80	300.00	10,800.00	10,800	2,400			24,000.00		24,000
Translator	days	80	300.00	13,200.00	8,400	2,400			24,000.00		24,000
National GIS Expert	days	110	300.00	24,750.00	8,250	0			33,000.00		33,000
Governate level VC development Experts	days	120	300.00	10,800.00	21,600	3,600			36,000.00		36,000
Olive Management Expert	days	40	300.00	0.00	11,400	600			12,000.00		12,000
Horticulture Expert	days	50	300.00	0.00	13,500	1,500			15,000.00		15,000
Apiculture Expert	days	55	300.00	0.00	14,850	1,650			16,500.00		16,500
Regenerative Grazing Expert	days	25	300.00	750.00	6,000	750			7,500.00		7,500
<b>Sub-total national Consultants</b>				196,050	384,200	44,750	42,000	134,200	801,200		801,200
<b>5013 Sub-total consultants</b>				243,300	407,450	44,750	42,000	134,200	871,700	0	871,700
<b>5650 Contracts</b>											
Knowledge Products	Each	7	10,000	52,500	0	17,500			70,000.00		70,000
Online LDN Platform creation and maintenance	Contract	1	17,500	16,625	0	875			17,500.00		17,500
Renewable Energy installation for VC support	Contract	15	10,000	37,500	112,500	0			150,000.00		150,000
Livestock watering point improvement works	Contract	3	120,000	270,000	90,000	0			360,000.00		360,000
Forestry restoration and improvement activities	Contract	3	120,000	270,000	90,000	0			360,000.00		360,000
Water-Harvesting infrastructure and support activities	Contract	3	100,000	225,000	75,000	0			300,000.00		300,000
Rangeland / Community grazing land infrastructure, earthworks and soil amendments	Contract	3	117,000	87,750	263,250	0			351,000.00		351,000
SoC and soil testing for Monitoring	Contract	3	5,000	3,750	11,250	0			15,000.00		15,000
Project Awareness raising events	Contract	3	15,000	0	45,000	0			45,000.00		45,000
Mid Term review	Contract	1	30,000	0	0	0	30,000			30,000	30,000
Final Evaluation	Contract	1	60,000	0	0	0	60,000			60,000	60,000
Terminal report	Contract	1	6,880	0	0	0	6,880			6,880	6,880
OPIM Spot checks	Contract	4	4,000	0	0	0		16,000		16,000	16,000
OPIM Audit	Contract	4	7,000	0	0	0		28,000		28,000	28,000
<b>5650 Sub-total Contracts</b>				963,125	687,000	18,375	96,880	44,000	1,668,500	140,880	1,809,380
<b>5021 Travel</b>											
(Lump sum) International travel	Lumpsum	1	24,570	12285	9,828	2,457			24,570.00		24,570
(Lump sum) National travel	Lumpsum	1	39,474	21710.7	13,816	3947.4			39,474.00		39,474
<b>5021 Sub-total travel</b>				33995.7	23,644	6404.4	0	0	64,044	0	64,044
<b>5023 Training &amp; Workshops</b>											
National Inception workshop	Each	1	5000	0	0	0	5,000		5,000.00		5,000
Regional Inception workshops	Each	3	4000	0	0	0	12,000		12,000.00		12,000
National level training on LDN conceptual framework, CRA and other project objectives and outcomes	Each	3	10000	30,000	0	0			30,000.00		30,000
ToT FFS training on methodology and practical experiences	Each	1	15000	0	15,000	0			15,000.00		15,000
Governate level ToT on SLM, SFM and sustainable livestock and range management	Each	3	7500	0	22,500	0			22,500.00		22,500
Governate level ToT on Ecosystem restoration techniques, Water harvesting, CC and Climate Smart Landscape modeling	Each	3	7500	0	22,500	0			22,500.00		22,500
Regional FFS introduction workshops	Each	6	3500	0	21,000	0			21,000.00		21,000
Participatory LDN & ILM plan formulation workshops	Each	3	3000	4,500	4,500	0			9,000.00		9,000
Participatory ILM plan validation workshops	Each	9	3000	8,100	18,900	0			27,000.00		27,000
Participatory LD indicator monitoring and assessment workshops	Each	9	3000	18,900	8,100	0			27,000.00		27,000
Value Chains Trainings and Workshops	Each	9	4000	0	36,000	0			36,000.00		36,000
LDN indicator validation Workshops (GIS and SDG 15.3.1 indicator capacity building)	Each	9	3000	27,000	0	0			27,000.00		27,000
LDN Policy workshops	Each	2	4000	8,000	0	0			8,000.00		8,000
District/FFS exchange visits	Each	20	2000	0	40,000	0			40,000.00		40,000
Demonstration site open field days	Each	6	3500	10,500	10,500	0			21,000.00		21,000
Project Steering Committee meetings	Each	3	4000	0	0	0	12,000		12,000.00		12,000
Regional Project Completion Workshop	Each	3	4000	0	0	0	12,000		12,000.00		12,000
National Project Completion Workshop	Each	1	6000	0	0	0	6,000		6,000.00		6,000
<b>5023 Sub-total training</b>				107,000	199,000	0	47,000	0	353,000	0	353,000
<b>5024 Expendable procurement</b>											
*FFS, APFS and Training tools, equipment and water storage and distribution materials	lumpsum	20	15,000	0	300,000	0			300,000.00		300,000
*Native forest and forage nursery materials	lumpsum	3	69,000	0	207,000	0			207,000.00		207,000
*Livestock infrastructure and excursion materials, including fencing, shade, livestock watering and feeding materials, sheds, yards, etc.	lumpsum	6	32,500	0	195,000	0			195,000.00		195,000
*Soil measurement and monitoring equipment	lumpsum	3	8,200	24,600	0	0			24,600.00		24,600
*LDN Monitoring site materials	lumpsum	3	5,000	15,000	0	0			15,000.00		15,000
*Material support to vegetables, dairy, olives, beekeeping VC	lumpsum	10	4,000	0	40,000	0			40,000.00		40,000
<b>5024 Sub-total expendable procurement</b>				39,600	742,000	0	0	0	781,600	0	781,600
<b>6100 Non-expendable procurement</b>											
Vehicles (to implement project interventions on site including 2 vehicles @USD45k/each)	Lumpsum	2	45,000	45,000	30,000	15,000	0	0	90,000		90,000
*GPS and spatial data collection equipment, including tablets, cameras, etc.	lumpsum	6	3,000	18,000	0	0			18,000.00		18,000
<b>6100 Sub-total non-expendable procurement</b>				63,000	30,000	15,000	0	0	108,000		108,000
<b>5028 GOE budget</b>											
Communication expenses (internet/phone subscriptions)	Lumpsum	1	12,276	0	0	0	0	12,276	12,276		12,276
<b>6300 Sub-total GOE budget</b>				0	0	0	0	12,276	12,276		12,276
<b>TOTAL</b>				1,450,021	2,089,094	84,529	185,880	190,476	3,859,120	140,880	4,000,000

	PPG	PIF
<b>SUBTOTAL Comp 1</b>	1,450,021	1,000,000
<b>SUBTOTAL Comp 2</b>	2,089,094	2,500,000
<b>SUBTOTAL Comp 3</b>	84,529	309,524
<b>M&amp;E</b>	185,880	4.65%
<b>Subtotal</b>	3,809,524	3,809,524
<b>Project Management Cost (PMC)</b>	190,476	5.00%
<b>TOTAL GEF</b>	4,000,000	4,000,000

**ANNEX F: (For NGI only) Termsheet**

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

**ANNEX G: (For NGI only) Reflows**

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

**ANNEX H: (For NGI only) Agency Capacity to generate reflows**

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).