Concept Note

Building Resilience to Cope with Climate Change in Jordan Using the Water-Agriculture-Energy Nexus Approach

Hashemite Kingdom of Jordan | United Nations Development Programme (UNDP) & United Nations Food and Agricultural Organisation (FAO)

16 May 2018



Concept Note

Project Title:	the Water-Agriculture-Energy Nexus Approach
Country(ies):	Hashemite Kingdom of Jordan
National Designated Authority(ies) (NDA):	Ministry of Environment
Accredited Entity(ies) (AE):	United Nations Development Programme (UNDP) & United Nations Food and Agricultural Organisation (FAO)
Date of first submission/ version number:	[2018-05-13] [V.4]
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A. Project/Programme Summary (max. 1 page)									
A 1 Project or programme	☑ Project	A.2. Public or	☑ Public sector						
	Programme	private sector	Private sector						
A.3. Is the CN submitted in response to an RFP?	Yes □ No ⊠ If yes, specify the RFP:	A.4. Confidentiality ¹	 □ Confidential ⊠ Not confidential 						
	Mitigation: Reduced emissions from:								
	Energy access and power generation								
	Low emission transport								
	Buildings, cities and industries and appliances								
A.5. Indicate the result	☑ Forestry and land use								
project/programme	Adaptation: Increased resilience of:								
	Most vulnerable people and communities								
	\square Health and well-being, and f	ood and water security							
	□ Infrastructure and built environment								
	Ecosystem and ecosystem s	services							
A.6. Estimated mitigation impact (tCO2eq over lifespan)	Not yet quantified	A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	540,000; 16% of target population						
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 245 million	A.9. Indicative GCF funding requested	Amount: USD 50 million						
A.10. Mark the type of financial instrument requested for the GCF funding	⊠ Grant □ Reimbursable grant □ Subordinated Ioan □ Senior Lo	□ Guarantees □ Equ an □ Other: specify	uity						
A.11. Estimated duration of project/ programme:	a) 1 January 2019 to 31 December 2023: b) not applicable:	A.12. Estimated project/ Programme lifespan	25 years ² .						
A.13. Is funding from the	Yes 🖂 No 🗆		□ A or I-1						
Project Preparation	Other support received \Box If so, by	A.14. ESS category ⁴	B or I-2						
A 15 Is the CN aligned	who:								
with your accreditation standard?	Yes 🛛 No 🗆	A.16. Has the CN been shared with the NDA?	Yes 🛛 No 🗆						
A.17. AMA signed (if submitted by AE)	Yes ⊠ No □ If no, specify the status of AMA negotiations and expected date of signing:	A.18. Is the CN included in the Entity Work Programme?	Yes 🛛 No 🗆						
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Jordan is one of the most water scarce countries in the world. The availability of water is recognised as a major impediment to its socio-economic development and restoration of natural resources base. The water challenge is exacerbated by climate change and climate variability, and compounded by the Syrian refugee crisis. The availability of water, both in quantity and quality, impacts on agriculture and food security. There is also a high embodied energy in water supplied in Jordan. The project will enhance the								

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy (<u>Decision B.12/35</u>) and the Review of the Initial Proposal Approval Process (<u>Decision B.17/18</u>).

² The technologies and best practices to be introduced by the proposed Project are projected to yield benefits long after the implementation phase is completed. The period of 25 years is a conservative estimate of the lifespan of the benefits of the proposed Project.

³ See <u>here</u> for access to project preparation support request template and guidelines

⁴ Refer to the Fund's environmental and social safeguards (<u>Decision B.07/02</u>)



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resilience of Jordan's development using a systemic approach rooted in the wateragriculture-energy-climate change nexus. The executing entities will be the Ministries of Water and Irrigation, and Agriculture.



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B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

- A. Climate Change Hazards, Impacts, and Vulnerabilities
- 1. The climate change impacts and vulnerabilities in Jordan are detailed in sections 2.2 and 2.3 in the Pre-feasibility Study (PfS) that accompanies the project concept. Climate models for Jordan indicate that annual precipitation tends to decrease with time at a rate of 1.2 mm per year. In parallel, mean, maximum, and minimum air temperature tend to increase significantly by 0.02, 0.01, and 0.03 Degree Celsius per year. Future projections indicate that warmer summers relative to other seasons are extremely likely to occur including heat waves. The maximum number of dry days is likely to increase per year. An increase in overall humidity levels is predicted. The quantity of days of dust storms is projected to decrease significantly (Third National Communication of Jordan, 2014).
- 2. According to a downscaling exercise conducted in the context of the Third National Communication of Jordan (TNC), published in 2014:
 - a. Freshwater resources in Jordan are exposed to climatic hazards such as temperature increase, precipitation decrease, increased incidents of drought, and increased evaporation. Identified sensitivity factors in the water sector include inter alia reduced groundwater recharge, stream flow reduction, and increased water demand;
 - b. Agriculture in Jordan is exposed to the same climate hazards such as the water sector plus the anticipated shift in rainy season. Most sensitive sectors exposed to these hazards are cropping systems, livestock production, natural resources (forests and rangelands) and food security and livelihoods directly and indirectly dependent on agriculture production;
- 3. Rural poor across Jordan are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to the climate hazards and sensitivities outlined in 2. Rural communities with diversified income sources and a high level of experiences in resilient agriculture practices will be less vulnerable relative to communities with fewer practical experience and livelihood options (TNC, 2014).

B. Socio-Economic Challenges

- 4. In addition to the climate challenges, Jordan is facing several socio-economic challenges that have been considered in the design of the proposed project concept. These socio-economic challenges (detailed analysis is given in section 2.1 of the PfS) will be compounded by the aforementioned climate impacts and vulnerabilities.
- 5. Economic and fiscal challenges: Jordan's economy has remained sluggish. Growth slowed down in 2016 for the second year in a row to 2.0% from 2.4% in 2015, and this was attributed to a weaker mining and quarrying sector. Growth was also affected by a confluence of factors related to repercussions from the Syrian crisis, notably the closure of export routes to Iraq and Syria and lower tourism amid regional instability. Both GDP at current prices and GDP at constant prices declined between 2014 and 2016.
- 6. With sluggish economic performance, both fiscal and current account deficits remain preoccupying concerns for Jordan. The fiscal deficit narrowed in 2016 and further into 2017 (excluding grants), yet debt remains elevated. Of great concern is the elevated level of debt at 95.4% of adjusted GDP as of end-March 2017, with further pressures stemming from the financing needs of the Water Authority of Jordan (WAJ)⁵ whose debt is government-guaranteed. Financing needs in the water sector continue to pressure the debt situation as operation and maintenance cost recovery is not expected until 2021. The unsustainability of debt is revealed by the chronic and generally increasing current account deficit. Jordan's economic growth prospects are expected to remain tepid over the medium-term.
- 7. Demographic challenge: In 2016, the total population was 9,798,000. Jordan current population profile shows that the population of Jordan has doubled more than 10 times during 55 years. The largest increase has been during the last decade especially since 2011 coinciding with the Syrian Crisis. The annual total population growth rate has reached 5.3 % during the period 2004 to 2015, and its relatively higher growth rate (compared to previous periods) is due to the influx of refugees (please see next section for more details). The relatively high population growth rate puts pressure on government spending to make investments in infrastructure for delivering basic public services, and for stimulating economic development to provide among others job opportunities.
- 8. <u>Unemployment</u>: The labour market faces significant stress, with worsening unemployment, employment and labour force participation (section 2.1.4.4 in PfS). Unemployment reached a high of averaging 15.3% in 2016, with persisting gender-heterogeneity revealed by a much higher female unemployment rate of 24.1% compared to 13.3% among male. The decrease in labour force participation rate and employment rate was due to worse labour dynamics for males (with the dynamics for females showing no change). Youth remain the most vulnerable fraction of the labour force with youth unemployment rising to 35.6% in 2016 a historical high. All governorates witnessed increasing unemployment rates except for Tafila and Madaba where unemployment rates dropped marginally. The influx of refugees is a principal driver of unemployment.
- 9. <u>Refugee crisis</u>: Jordan has a long history of accommodating refugees. The sheer scale of the current refugee crisis compounds the existing socio-economic and environmental pressures in Jordan. There has been an increased

⁵ WAJ's higher financing needs stem from the impact of higher electricity tariffs and increased demand for water from Syrian refugees. NEPCO which had posed debt pressures since 2013, due to importation of oil versus cheaper gas supply from Egypt with unchanged tariffs, achieved cost recovery in 2015.



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competition for access to public utilities (water and electricity), schooling, health services, infrastructure, and employment, as well as pressure on natural resources, and the already limited carrying capacity of Jordan's natural environment. Of the 707,830 registered refugees, ~19.7% (139,516) is hosted in three refugee camps and the remaining ~80.3% is hosted in local communities in the different cities across Jordan. Four northern Governorates (Amman, Irbid, Mafraq and Zarqa) host ~90.5% of all refugees.

10. The Jordan Response Plan (JRP) 2016-2018 takes stock that five years into the crisis the prospects for a prompt return of the millions of Syrian refugees to their home country are remote. The JRP 2016-2018 also notes that funding has not been proportional to response requirements, and that while needs are increasing in some sectors, trends in contributions suggest that overall international support has not kept pace with the needs. There is a funding gap of ~US\$696 for 2017. With no sign that the regional political situation is likely to improve in the near-future, Jordan will continue to face considerable economic pressure.

C. Alignment with National Priorities & National Ownership

11. The National Climate Change Policy (2013) provides guidance regarding the relative priority to mitigation and adaptation stating that "(t)he national priorities and the pillars of the Climate Change Policy are adaptation to climate change and mitigation of greenhouse emissions, with an emphasis on adaptation as the imperative track". The NDC mentions that the priority sectors for adaptation are: water, health, biodiversity and agriculture and food security. Water is critically linked to all of the other sectors, and the nexus water-agriculture-food security is predominant. The recently completed Technology Needs Assessment (TNA) project has also identified water and agriculture as priority sectors for adaptation. Alignment with national policies, strategies and action plans are given in section 3 in the PfS. National stakeholders have been engaged in the process of developing the concept note, which is accompanied by a Letter of No Objection from the NDA.

D. Barriers and Root Causes

- 12. Jordan is constrained in its capacity to enhance its resilience in the face of above climate vulnerabilities and socioeconomic challenges because of prevailing barriers and root causes. The main barriers are:
 - ✓ Financial and economic barriers
 - ✓ Policy, legal and regulatory barriers
 - Network failures
 - \checkmark Institutional and organisation capacity barriers
 - Social, cultural and behavioural barriers
 - ✓ Information and awareness barriers
 - ✓ Technical and technology barriers
 - ✓ Human capacity barriers

These barriers and their root causes are detailed in section 5.2.2 of the PfS. Examples have been given to illustrate barriers and root causes.

B.2. Project/Programme description (max. 3 pages)

A. Developmental Objective

13. The overall objective of the proposed project is to build resilience of both human and environmental systems in Jordan to cope with and address climate change impacts using a systemic integrated approach rooted in the water-agriculture-energy-climate change nexus. Adopting innovative practices, the approach will focus on adoption of ecosystem based management, increasing and diversifying water supply and enhancing its efficient utilisation in agriculture in terms of farm productivity, agriculture diversification and renewable energy application. The architecture of building resilience focuses on enhancing ability of the country to adapt to climate change.

B. Specific Objectives

- 14. The project specific objectives are
 - 1) To strengthen social resilience to climate change through investments in social development programs;
 - 2) To strengthen ecological resilience of agricultural systems through ecosystem-based management, adoption of agro-ecology and sustainable land management; and

3) To enhance the enabling environment of policy, regulatory and institutional setup in support of mitigation and adaptation to climate change.

Strengthening the human and ecological resilience of agricultural systems improves the country's capacity to respond to potential changing environmental and social stresses resulting from climate change.

C. Project Locations

- 15. The project targets three different regions of significant importance in Jordan, namely: 1) Northern Highlands; 2) Central Badia; and 3) Southern Highlands. Figure 18 in the PfS shows the geographical sites of the three locations. These locations were chosen based on the confluence of the following project design parameters:
- \rightarrow The first set of parameters concern the climate and non-climate challenges discussed in section 2 of the PfS;
- → Suggestions and proposals received from stakeholders that address: (1) priority areas for intervention based on institutional demand; (2) alignment with national and regional adaptation priorities; (3) site-specific adaptation that will strengthen human and institutional capacity; and (4) interventions that promote existing knowledge;



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→ Adoption of a territorial approach that brings in the elements of flexibility, diversity and redundancy in the design of the concept, including complementarity with the Adaptation Fund project (see TOC discussed below).

D. Project Components and activities

- 16. The concept has been designed in order to retain the water-agriculture-energy-climate change nexus as the building block of the project's architecture. Component 1 focuses on strengthening the social resilience of target farming communities across the three locations, components 2, 3 and 4 focus on improving the resilience of agricultural productivity for each selected location, component 5 address the issue of integration of renewable energy in water supply and irrigation systems, components 6 and 7 focus on climate-smart agriculture (CSA) and resilience of agricultural resources, component 8 deals with capacity-building of relevant institution and stakeholders key to climate change adaptation efforts, and component 9 highlights the issue of knowledge management. Section 5.3.2.1 of the PfS provides detailed data underlying the activities. It is pointed out that the proposed concept is fully aligned with another programmatic GCF project that is being developed by the MWI.
- 17. Component 1: Building the social resilience of communities (farming communities across the three locations). This component will be carried in coordination between UNDP and FAO.
 - Activity 1.1: Promote self-organizing of targeted communities through empowerment of exiting entities or establishment of new structured mechanisms (e.g. associations, cooperatives,...).
 - Activity 1.2: Develop and implement capacity-building programs for civil and governmental personnel at the local level.
 - Activity 1.3: Support existing social services to enhance education and health of local communities in support of social resilience to climate change.
 - Activity 1.4: Support community-driven development approach and recognize communities as valued partners rather than beneficiaries.
 - Activity 1.5: Develop and implement a flexible land tenure strategy for natural resource use in rural areas for farmers and pastoralists.
- 18. Component 2: Improved supply and quality of treated wastewater for agricultural purposes (Location 1)
- Activity 2.1: Rehabilitation of wastewater treatment plants to provide adequate quality treated water for agroforestry and rangeland restoration (UNDP Lead).
- Activity 2.2: Using treated wastewater for rangeland restoration (2,112 ha) applying established international guidelines with particular focus on level of treatment of wastewater in each location, and using an agro-forestry approach, and integrated crop/livestock production to improve livestock production and biodiversity enhancement (FAO Lead).
- 19. Component 3: Diversifying water supply for a more resilient agriculture and livestock production in the Central Badia region (Location 2)
- Activity 3.1: Restoring the water balance of the Al Azraq aquifer through managed surface recharge (UNDP Lead).
 Activity 3.2: Water harvesting through rehabilitation of earth dams using novel and traditional knowledge (FAO Lead).
- Activity 3.3: Developing efficient systems for distributing harvested water for agricultural purposes (FAO Lead)
- Activity 3.4: Adapting cropping strategies specifically to the Badia to the increasing risk of drought and decreasing freshwater availability (FAO and UNDP).
- 20. Component 4: Improving agricultural productivity through irrigation in the Southern Highlands (Location 3)
 Activity 4.1: Enhancing water conservation system through building of dams to capture and store flood water for irrigation (e.g. Wadi Meddain Dam in Karak or Wadi Tlah Dam in Tafilah) (UNDP Lead).
- Activity 4.2: Developing a water supply network for irrigated farming over an area of 50 ha (FAO Lead).
- Activity 4.3: Application of best farm practices for the plantation of location-specific fruit trees over 50 ha (FAO Lead).
- Activity 4.4: Restoration of watershed in the Al Mujeb Basin through a biodiversity-sensitive forest protection and enhancement Programme (FAO Lead)
- Activity 4.5: Renovation of naturally-occurring underground water wells using traditional knowledge (UNDP Lead).
- 21. Component 5: Integration of solar PV pumps for water supply and irrigation in accordance with international guidelines and corresponding country policies
- Activity 5.1: Sizing and installation of solar pumps for sustainable water pumping and supply from wells and dams (implemented in all 3 locations) (UNDP Lead).
- Activity 5.2: Para-professionals trained for the operation and maintenance of solar pumping systems (UNDP Lead).
- Activity 5.3: MRV system put in place for reporting on energy savings and emissions reductions (UNDP Lead).
- **22.** Component 6: Scaling up good practices for a more water efficient agriculture (climate-smart agriculture) Activity 6.1: Improving cropping practices and livestock husbandry using weather information and seasonal
- forecasts. (FAO Lead)
 Activity 6.2: Introduction and field trials of heat and drought tolerant crops & livestock species, and salinity tolerant crop species (FAO Lead)
- Activity 6.3: Dissemination of soil and water management good agricultural practices based on farm trial (FAO Lead)s



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- Activity 6.4: Developing a water allocation mechanism based on type of crop production and good agricultural practices (UNDP Lead).
- Activity 6.5: Enhancing the role of Water Users Associations (WUAs) for managing agricultural water resources at the collective level (UNDP Lead).
- Activity 6.6: Develop and enhance capacity of the agricultural extension system in the three selected areas and provide the necessary tools and materials (FAO Lead)
- Activity 6.7: Introduce the FAO approach of Farmers Field School (FFS) to enhance the communication of good CSA practices with and among farmers (FAO Lead).
- 23. Component 7: Improving the long-term resilience of water and agricultural resources
- Activity 7.1: Integrated modelling tool such as FAO's MOSAICC institutionalised at NCARE (FAO Lead)
- Activity 7.2: Water Quality and dynamic ground water modelling tool developed for enhanced management of water resources (UNDP Lead).
- Activity 7.3: Establish effective monitoring and warning systems for drought, floods and water management, including seasonal forecasts that can be used to support component 6 (UNDP Lead).
- Activity 7.4: Develop mechanism for disseminating weather and climate information to farmers and water managers (UNDP Lead).
- Activity 7.5: Index crop insurance scheme developed and implemented based on Activities 7.3 and 7.4 (UNDP Lead)
- Activity 7.6: Review and develop national legislation and regulatory frameworks for the water sector that will
 address: (1) the roles and mandates of all bodies regulating the water sector; (2) enhanced capacity of WUAs to
 manage water productively at the local levels; (3) policy instruments to promote water efficiency in all sectors,
 including agriculture (UNDP Lead).
- 24. Component 8: Human and institutional capacity building
- Activity 8.1: Training of selected national stakeholders (e.g. Jordan Meteorological Department, NCARE, MoA, MWI) for improved interpretation of best available regional and national climate scenarios and climate information that can be used in decision- and policy-making (UNDP Lead).
- Activity 8.2: Para-professionals trained for the operation and maintenance of solar pumping systems (UNDP Lead).
- Activity 8.3: Technicians trained for the O&M of wastewater treatment plants (UNDP Lead).
- Activity 8.4: Training provided to farmers on climate-smart agricultural practices (FAO Lead).
- Activity 8.5: Technical support provided to NCARE for establishing and operationalizing new Environment and Climate Change Department, and enhancing its R&D and outreach capabilities as an advisory body at all levels in the agricultural value chain (FAO Lead).
- Activity 8.6: Capacity building of WUAs to enhance their operational and servicers delivery skills (UNDP Lead).
- Activity 8.7: Training of farmers on diversification of income strategies and adoption of crop-livestock systems based on a market-demand approach (FAO Lead).
- Activity 8.8: Training provided to national and governorate institutions to mainstream adaptation into the budgetary process (e.g. CPEIR and climate tagging institutionalised) (UNDP Lead).
- 25. Component 9: Knowledge management: learning, best practices and replication (although this is presented as a stand-alone component, in practice it will be integrated across all the previous components. Some of the cross-cutting activities are listed below)
- Activity 9.1: Establishing a systematic knowledge and innovation platform on water-agriculture-energy-climate change nexus that creates an interface of science with public and private stakeholders from the country and aims at demand driven knowledge generation, knowledge sharing, capacity development, innovation design and marketing (FAO Lead).
- Activity 9.2: Promote exchange and promote participation of scientific experts, practitioners and policy-decision makers in order to support an evidence-based approach to resilience planning (developing communities of learning through practice) (UNDP Lead).
- Activity 9.3: Establishing demonstration sites and education/training centres (can replication what has been achieved under the Badia Development Programme discussed in section 4.2 of the PfS) (UNDP Lead).
- Activity 9.4: Empowering both men and women (and youth) to participate meaningfully in demonstration and training activities and the roll out of CC adaptation practices (UNDP Lead).
- Activity 9.5: Capturing and disseminating in-field results and experiences on application of the water-agricultureenergy-climate change nexus for resilience building (UNDP Lead).
- Activity 9.6: Replicating and upscaling results of project to widen resilience impacts across the country (UNDP and FAO)
- Activity 9.7: Enhance cooperation and coordination processes between the Ministries of agricultural, water and environment at the planning and implementation levels (UNDP Lead).
- 26. Component 10: Project management (this will be composed of standard project management activities)
- E. Elements of Theory of Change
- 27. The detailed Theory of Change (TOC) will be completed during the feasibility study that will be carried out to inform the final design of the proposed concept. It is anticipated that the project developers will seek funding from GCF's



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Project Preparation Facility (PPF) to support the project preparation. Section 5.1 of the Pre-feasibility Study (PfS) provides insights into the systemic approach and resilience framework that will underpin the paradigm shift, innovation and sustainability comprising the TOC. The first point to note here is that the TOC will be underpinned by a systemic view of the developmental process that will lead to resilience across the water, agriculture and energy sectors, while generating jobs and protecting livelihoods. The systemic approach of the nexus is further supported by a spatially-differentiated, territorial approach as discussed in section 5.2 of the PfS. The interconnections shown in the Causal Loop Diagram (CLD, Figure 16 in the PfS) reveal that changes brought in one part of the system has cascading effects on other parts of the system. The systems view of the nexus allows interventions to be identified so that their total effects on the system can be optimized. A better understanding of the nexus through the causal relationships in the CLD also minimizes the likelihood of maladapted measures. The integrated view of the nexus also affords a paradigm shift at the systemic level and hence cross-sectorally. The Climate Resilience Framework (CRF) shown in Figure 17 in the PfS has been used as both an analytical framework designed to encourage insights across system-agent-institutional boundaries, and as an iterative planning process where shared learning would build understanding and encourage adaptive responses using the nexus approach. The CRF will be applied in detail during the project preparation phase to structure the proposed project as a social-ecological system (SES) composed of the interaction of its physical elements (e.g. physical interventions/adaptation measures), the human individuals and organisations that manage or use them, and the institutional "rules in use" that structure behavior. Nevertheless a preliminary assessment using the CRF has been adopted in the preliminary design of the project components and activities, and their geographical locations discussed above, and further detailed in section 5.2 of the PfS.

F. Risks and mitigation measures

- 28. There are a number of <u>financial risks</u>, namely: (1) the prospects that proper budgets are allocated by the Government of Jordan at the national and governorate levels to meet the co-financing commitment for the proposed project; and (2) the amount of co-financing is not forthcoming.
- 29. There are also a number of <u>operational risks</u>. Many of these risks are focused on local state governments and whether they will be supportive and constructively engaged throughout the implementation process. Additional operational risks exist relative to whether there is sufficient local technical capacity and available information to train extension workers, farmers, pastoralists and others on best practices for integrating and addressing climate risks into livelihood activities associated with the agricultural value chain.
- **30.** All the risks have been accounted for in the project design and the mitigation measures are provided in section 5.2.4 of the PfS. Further, a preliminary assessment of social and environmental risks have been identified using UNDP's Social and Environmental Screening Procedure (SESP). All the risks will be validated during the development of the full project proposal.

G. Comparative advantages of UNDP and FAO

31. The project draws on the comparative advantages of UNDP in terms of its success in accessing GCF financing and its strength in implementing national projects through the National Implementation Modality (NIM). Likewise, FAO will support all activities related to its specific strengths in agriculture and water management. Both UNDP and FAO have in-country presence and have established extended networks and working relationships with national stakeholders. Furthermore, UNDP and FAO have the added advantage of being in a position to tap expertise from other UN agencies under the UN Joint Programme. All contracts will be issued by the Government following UNDP rules and regulations. UNDP will maintain the role of overall quality assurance and oversight on using the project resources to ensure effective and efficient implementation as per the project document. The project modality will be 'assisted NIM'; where UNDP will be the Accredited Entity and FAO will be Implementing Partner.

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

A. Climate impact potential

- **32.** Specific values for the GCF's investment criteria for climate impact potential are indicated below. The descriptions below are based on the formats described in the GCF's <u>Performance Measurement Frameworks</u>.
- **33.** <u>GHG emission reductions:</u> This criterion is focused on the total tonnes of CO_{2e} to be avoided or reduced per annum by the proposed project. Although the main impact of the project will be on adaptation using the water-agriculture-energy-climate change nexus, the proposed project will deliver emission reductions from: (1) avoidance of fossil fuel needed for water pumping through the use of solar water pumping; (2) reduced emissions through improved water efficiency at the farm level (due to high energy embodied in water in Jordan as discussed in section 2.1.4.2.4 of the PfS); and (3) forest rehabilitation in the Al Mujeb Basin and rangeland restoration in Jordan Badia. The project proposes to develop a MRV system for tracking these emission reductions under activity 4.2. The architecture of the MRV system will be detailed in the full project proposal, and accompanied by a detailed calculation of expected GHG emission reductions over the project lifetime that has not been possible in the PfS.
- 34. <u>Beneficiaries</u>: The project will benefit approximately 540,000 persons (47% women) (both directly and indirectly) living in the three targeted locations directly (most of the rural areas in the five governorates of Irbid, Mafraq, Zarka, Tafila, and Karak). The beneficiaries constitute about 16% of the target population in the three locations (section 5.3.2 in PfS) or ~5.5% of the total population. These persons are farmers/pastoralists who will benefit directly from the project support through enhanced climate-resilient agricultural practices and protection of



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livelihoods. The poverty rate within these governorates ranges from 13.4% in Karak to 19.2% in Mafraq. In addition, the project will create jobs in three ways: (1) job created for youth in infrastructure development as discussed below under Sustainable Development; (2) new jobs in farming activities through availability of additional water and restored rangelands; and (3) indirect jobs in the agriculture value chain. The jobs created from these three sources have been estimated at 447,946, 43,807, and 69,097, respectively.

- 35. <u>Gender consideration</u>: The project will have focus on gender sensitive planning and implementation to ensure the highest gains in the fight for gender equity. Since women are responsible for subsistence farming tasks such as planting and weeding, household chores such as collection of water and firewood fetching, women and female children are more exposed to climate risks such as late rains and flooding. The project focuses on gender-differentiated outreach and engagement. At least 47% of the project beneficiaries will be women, especially within the agriculture sector where they often make up the majority of smallholder farmers and are most vulnerable to climate shocks and variability. In vulnerable communities, women are often more affected by climate impacts and disrupted livelihoods. By providing climate information, the project will ensure that women are empowered to benefit from the information and can cope with climate change impacts.
- **36.** A summary of the adaptation impact potential is summarised in the bullets below: <u>Fund-Level Impact 1.0</u>: Increased resilience and enhanced livelihoods of the most vulnerable people, communities, and regions
- Indicator: Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options
- Targets: Ultimately, males and females will benefit from diversified, climate resilient livelihood options <u>Fund-Level Impact 2.0</u>: Increased resilience of health and wellbeing, and food and water security
- Indicator: Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options
- Targets: Ultimately, 286,200 males and 253,800 females with year-round access to reliable and safe water supply despite climate shocks and stresses.
- Fund-Level Impact 2.0: Improved resilience of ecosystems and ecosystem services
- Indicator: Coverage/scale of ecosystems protected and strengthened in response to climate variability and change
- Targets: Approximately 2,112 ha of rangeland restored using agro-forestry, and 3,500 ha of forest rehabilitated in Al Mujeb Basin to restore watershed functioning
- B. Paradigm shift
- 37. <u>The proposed programme introduces an innovative approach of strengthening the human and ecological resilience of agricultural systems to enhance the country's capacity to respond to the changing environmental and social stresses resulting from climate change.</u>
- 38. Enabling framework: A systemic approach is used to inform policy-decision making for resilience building by connecting actors across different levels and scales. In particular, resilience is built using a systemic approach through the water-agriculture-energy-climate change nexus, with emphasis on job creation and protection of livelihoods in a gender-differentiated manner. A resilience framework, that spurs the human and ecological strengths of agricultural systems, is adopted that provides coverage of adaptation and mitigation interventions at the territorial level, implying that the three locations of interventions cover the multitude of climate and non-climate challenges that Jordan in currently facing, and which are expected to linger or even become more pronounced in increasing climate change and climate variability. A quantitative measure of resilience as a decision making criteria will be used in selecting adaptation measures.
 - **39.** The entry point in the nexus is water supply diversification to first improve the overall water balance across the entire country, and increasing water productivity in agriculture (more crop per drop) utilizing solar energy while at the same time improving overall agriculture returns for the vulnerable population.. Agricultural development in Jordan is constrained by water availability both in quantity and quality. Using a spatially differentiated approach, different technologies (novel and traditional) will be used to make more water available for agriculture purposes coupled with enhancing the resilience of the agricultural value chain using strategies that increase farm productivity, apply solar energy for irrigation, and enhance water productivity along the chain through climate-smart practices, on-farm income diversification, and protection of the asset base of farmers, among others, are brought together to address resilience of farmers holistically, and at scale.
- **40.** <u>Knowledge generation</u>: The potential for knowledge generation is high due to several factors. Stakeholder engagement and network building is a central feature of the proposed project through the building of farmers cooperatives, WUAs, networks/communities of learning and practice for linking practitioners, advisory service provider and policy makers. Real-time results from the project will be disseminated within and beyond the intervention zones through the activities proposed under Component 8 dedicated to enhancing learning, sharing of best practices and replication. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the broader adaptation community in the country and region. It will also identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects.
- 41. <u>Regulatory frameworks</u>: This criterion is focused on the potential for the Proposed Project to contribute to the development of regulatory framework and policies that effectively address mitigation and adaptation to climate



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change. The potential for the development of these regulatory frameworks is high due to one major factor. That is, the proposed project targets seek to institutionalise the successful aspects of the proposed adaptation interventions through the implementation of existing policies, strategies and action plans (see section 3 in PfS), and by overcoming prevailing policy, regulatory and legal barriers that are discussed in B1. Using iterative planning and adaptive learning the lessons learned from the project's interventions will feedback into policy, legislative, and regulatory initiatives at both the national and governorate levels.

42. <u>Scaling-up</u>: Potential for replication and scale (number of beneficiaries reached as well as geographical coverage) is made possible by enhancing an integrated approach to climate risk management across sectors and sub-basins by supporting climate-risk informed planning and implementation and region-wide knowledge management and coordinated service delivery (through farmers' cooperatives, WUAs and communities of learning and practice).

C. Sustainable development

- **43.** Anticipated co-benefits from project activities that are associated with environmental, demographic, and gendersensitive national development priorities are:
- Diversified employment and representation for women: As discussed in section 5.3.2 in the PfS at least 47% of all jobs created will be for women. All capacity building exercises will also target at least 47% of women. The activities supported by the Farmer Cooperatives will target opportunities for women by generating income within the framework of adaptation including by exploiting the value chain of farming and pastoralism. Also, the project will support women-based groups to diversify their livelihoods and income services by creating businesses to promote adaptation technologies and/or sharing of local knowledge;
- Support for Micro and Small Enterprises (MSEs): Farmer Cooperatives will be supported to establish new businesses that are climate-resilient (e.g., nurseries growing drought-tolerant tree seedlings, solar powered pumps, collective farm-level rainwater harvesting equipment, establishment of WUAs to manage water supply and distribution at the local level);
- *Employment opportunities for youth:* Adaptation interventions such as canal rehabilitation, managed aquifer recharge, installation of water piping equipment and solar pumps, rehabilitation of underground wells, construction of earth dams, rangeland and forest restoration, among others, will support local employment for youth using schemes such as Cash for Work⁶;
- The proposed project will also provide the following benefits: *improved land quality, improved ecosystem services, resources efficiency,* and *legitimisation of land use* that are discussed in section 5.3.5 in the PfS.

D. Needs of recipients

- 44. <u>Climate vulnerabilities</u>: Rural poor across Jordan are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to the climate hazards and sensitivities outlined in B1 above (section 2.2 in the PfS). Rural communities with diversified income sources and a high level of experiences in resilient agriculture practices will be less vulnerable relative to communities with fewer practical experience and livelihood options.
- **45.** <u>Capacity for addressing climate change adaptation</u>: As discussed in section B1 above, there exists a host of human and institutional capacity deficiencies that hamper efforts to address some of the urgent adaptation needs that are proposed in the Climate Change Policy, NDC, TNA and sectoral adaptation strategies and action plans. Capacity to address climate change is further compounded by the existence of other key barriers that are underpinned by socio-economic and environmental challenges, and which are exacerbated by climate change. There remains an urgent need to improve the link between adaptation and national policymaking, as well as for policies to be supportive of cooperation and inclusiveness of the special needs of small-scale farming/pastoralist communities who are the most vulnerable and having the least adaptive capacity. There is weakness of capacity in areas including strategic development planning and coordination across national ministries and governorates, and among national institutions that underscore the critical importance of further mobilising institutional capacity to address effective pro-poor, pro-adaptation expenditures at the local levels of governance.</u>
- **46.** <u>Financial resources constraints</u>: As discussed in B1 above and section 2.1.1 in the PfS, Jordan is facing severe economic and fiscal challenges that have been worsened because of the ongoing Syrian refugee crisis. The situation is so critical that Jordan has witnessed declining GDP per capita over the past few years. Jordan is classified as a Middle Income Country in the UN System of Classification. Roughly 33% of its population lives below the national poverty line during at least one quarter in any year.⁷ When combined with high population growth, refugee crisis, erratic GDP growth, unsustainable public debt and negative balance of trade, adaptation to climate change poses just one more urgent national development priority to address with limited financial resources.</u>

E. Country ownership

47. <u>Alignment with national priorities, policies, strategies and action plans</u>: The proposed project is squarely aligned with Jordan's climate change adaptation commitments and priorities. The National Climate Change Policy (2013)

⁶ Such an approach has been piloted by GIZ to support the livelihood of refugees related to green infrastructure development in Amman. Lessons learned from this programme can be scaled up using GCF funds.



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provides guidance regarding the relative priority to mitigation and adaptation stating that "(t)he national priorities and the pillars of the Climate Change Policy are adaptation to climate change and mitigation of greenhouse emissions, with an emphasis on adaptation as the imperative track". The NDC mentions that water and agriculture are priority sectors for adaptation through the water-agriculture-food security nexus. Alignment with national policies, strategies and action plans are given in section 3 in the PfS. National stakeholders have been engaged in the process of developing the concept note (section 5.3.1 in PfS). The concept note is accompanied by a Letter of No Objection from the NDA showing country ownership. Stakeholder engagements will be strengthened during the development of the full project proposal.

- **48.** <u>Executing entities</u>: At the planning level, there are several entities that will work collaboratively in the implementation of the proposed project. The Executing Entities will be the Ministry of Water and Irrigation (MWI) and the Ministry of Agriculture (MOA) based on their respective mandates for adaptation to climate change in the water and agriculture sectors. Institutional coordination will be carried out by the Ministry of Environment (MOE) that is the focal point for climate change and is the NDA. MOE is responsible for formulating national climate change policy and strategic planning. The Accredited Entity is the United Nations Development Programme (UNDP). The UNDP has a long and respected history in promoting sustainable development in Jordan and has been closely involved in nearly all climate change activities since the development of the Initial Communication to the UNFCCC in 1997. FAO will act as a Delivery Partner on all interventions related resilience-building in the agricultural value chain.
- **49.** <u>Stakeholder entities</u>: The main project stakeholders who were engaged during the design of the concept note are identified in section 5.3.1 in the PfS. The dialogues with stakeholders, including targeted beneficiaries, will be deepened during the development of the full project proposal. An appropriate project management structure will provide for clear roles and responsibilities of all stakeholders at implementation, including on steering committees, stakeholder committees at the operational level, and thematic technical working groups.
- F. Efficiency and effectiveness
- **50.** The proposed GCF project is fully aligned with national priorities and builds on existing government programmes, resulting in a co-financing ratio of approximately 4:1. The project covers the main governorates and the Central Badia, which provides for a balanced territorial representation of the challenges in Jordan. This approach will be instrumental in catalysing co-financing at the national level and governorates. Moreover, the project has a strong complementarity with ongoing government programmes/initiatives (section 4.2 in the PfS) that will be able to provide co-financing. The main sources of co-financing will be MWI, MOA, MOE, MOPIC and Governorates (Amman, Zarqa, Maan, Karak, Tafilah).
- 51. The public goods nature of this project's activities does not entail revenue generation or cost recovery from the project's direct and indirect beneficiaries during the project duration. Hence, a financial analysis of this project is not deemed pertinent. To estimate the economic soundness of the proposed project, a full economic analysis of the projects will be carried out during proposal development in accordance with the Guidelines for the Economic Analysis of Projects of United Nations Development Program (UNDP 2015). The main benefits, and where available, the results of existing economic analyses are given in section 5.3.3 in the PfS.

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max 1/2 page)

52. Three stakeholder engagements processes were carried out to inform the preliminary design of the proposed project concept. Followed by a National Workshop and Brainstorming on 14 August 2017, the national stakeholder coordination workshop was jointly organised by FAO and UNDP on 12 September 2017. Then the third one was a set of bilateral meetings with key national and regional stakeholders that was supported by the UNDP between 8 and 12 October 2017. The latter culminated into a half-day stakeholder coordination meeting that proposed the outline of a preliminary project concept. Since both the UNDP and FAO tracks proposed resilience building using the nexus approach, inputs from the two processes were integrated to develop this concept note. The list of stakeholders consulted, their concerns and views are given in section 5.4.1 in the Pre-feasibility Study. During the finalisation of the concept note, a number of experts' mission both HQs and Regional Offices as well as multiple bilateral meetings have been carried out between UNDP and FAO and the main project stakeholders and the NDA. Following feedback from the GCF, a detailed stakeholder analysis will be carried and the identified stakeholders will be engaged in focus discussion groups so that their priorities are reflected in the full funding proposal.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max $\frac{1}{2}$ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

	Component	Indicativ	GCF financing		Co-financing		
		e cost (million USD)	Amount (million USD)	Financi al Instrum ent	Amount (million USD)	Financial Instrument	Name of Institutions



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Component 1: Building the social resilience of communities	~30			~30	75% Grant; 25% in-kind	Ministry of Education, Ministry of Finance (Department of Lands and Survey), Ministry of Municipal Affairs, Governorates and Municipalities, NGOs/CSOs,
Component 2: Improved supply and quality of treated wastewater for agricultural purposes (Location 1)	~29	~7	Grant	~22	25% Grant; 75% in-kind	MWI, MOA, NCARE, MOE
Component 3 : Diversifying water supply for a more resilient agriculture and livestock production in the Central Badia region (Location 2)	~34	~9	Grant	~25	60% - Grant; 40% in-kind	MWI, MOA, NCARE
Component 4: Improving agricultural productivity through irrigation in the Southern Highlands (Location 3)	~82	~17	Grant	~65	80% - Grant; 20% in-kind	MWI, MOA, NCARE
Component 5: Integration of solar pumps for water supply and irrigation	~14	~4	Grant	~10	Grant	Jordan Renewable Energy and Energy Efficiency Fund (JREEEF); MOE
Component 6: Scaling up good practices for a more water efficient agriculture (climate-smart agriculture)	~15.5	~3.5	Grant	~12	15% - Grant; 85% in-kind	MOA; NCARE
Component 7: Improving the long- term resilience of water and agricultural resources	~15	~3	Grant	~12	80% Grant; 20% in-kind	MOA; NCARE; Dept of Meteorology; MWI; Governorates, JCC
Component 8: Human and institutional capacity building	~12.5	~2.5	Grant	~10	50% Grant; 50% in-kind	MOA; NCARE; Dept of Meteorology; MWI; Ministry of Finance; Governorates; MOE
Component 9: Knowledge management	~6.5	~1.5	Grant	~5	100% in- kind	MOA; NCARE; Dept of Meteorology; MWI; MOPIC; Governorates; MOE
Component 10: Project management	~6.5	~2.5	Grant	~4	25% grant – 75% in-kind	
Indicative total cost (USD)	~245	~50		~195		

C.2. Justification of GCF funding request (max. 1 page)

53. As discussed in the previous sections, the proposed project, and its approach to creating impact at scale through the water-agriculture-energy-climate change nexus, and using a systemic, gender-sensitive, pro-poor and spatially-differentiated approach while connecting the national level policy-decision making to on the ground interventions, brings a truly innovative way to resilience building in Jordan. Despite its innovative and paradigm shifting capability, the proposed project will reply mainly on public funding – national or international – for its implementation because the proposed adaptation measures are inherently for protecting the public good and for which there do not ne cessarily exist the private markets. Nevertheless, it is expected that private financing can be catalyzed at the individual, household and community levels through the public investments in terms of de-risking strategies proposed by the project. An important point to note is that many of the climate impacts across the nexus discussed above can be classified as 'collective action problems' that cannot be addressed by private markets, and requiring government int erventions.

54. In section 5.1.1 of the PfS, it is explained that the entry point in the nexus is the water sector, and in particular to diversify its supply for the twin objectives of increasing the volume and quality of water available for agriculture. The end beneficiaries being in the agricultural value chain, also implies the involvement of the MOA. Consequently, the MWI is identified as the main public institution (together with the MOA) that would in threory be the alternative source of funding in the absence of GCF financing. The MWI has developed a Capital Investment Plan (CIP) for sup porting its objectives of securing the water resilience of Jordan, and the CIP is discussed in section 2.1.4.2.3 of the PfS. The CIP will require JD⁸ 3,505.49 million for water projects and JD 1,902.63 million for wastewater projects. The total amount of additional water supplied based on the Water Sources Projects is around 187.5 MCM, not includin g the Red Sea Dead Sea Project amount of water, which is 230 MCM for the both phases, I & II. The total amount of



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f additional treated wastewater is around 94 MCM. It is clear that WAJ is not in a financial position to fund most of th e projects proposed in the CIP from its balance sheet given its already high level of indebtedness (B1 above).

- 55. The CIP mentions the public-private partnership (PPP) as a possible means of implementing projects in the CIP. However, the CIP also cautions that "PPPs also involve significant risks, and they are not right for all projects. G overnments therefore needs to know how PPPs can deliver Value for Money; how to structure projects so they de liver these benefits; how to avoid common risks; and in what kind of projects are PPPs most likely to add value". As example, and looking at the financial and economic analyses given in 5.3.3 of the PfS, it is clear that Wadi Meddain dam proposed in the project (and most probably other water supply diversification projects proposed in the concept note) deal with DRR and making water available for agricultural irrigation is unlikely to receive private support.
- **56.** Moreover, as discussed in section B1 above and section 2.1.1 in the PfS, Jordan is at a cross-road regarding its adv erse economic and fiscal situation, which coupled with the unique problem it faces concerning the Syrian refugee cri sis, severely constrains the ability of the Government of Jordan (GoJ) to invest more in climate change adaptation. I t is timely to point out here that the GoJ already has large trade deficit, unsustainable debt, and unmet financing to d eal with the ongoing refugee crisis. Without GCF involvement to complement ongoing efforts and address barriers to build resilience in the face a changing climate, the Government of Jordan cannot take adequate steps to help div ersify water supply, enhance water productivity, and support vulnerable farmers, mostly smallholders with the least adaptive capacity, adapt to climate-related risks and impacts. GCF support enables additional investments that allo w scaling up existing efforts for transformative reach and impact across the country.
- **57.** Given the difficult socio-economic environment, and the introduction of fiscal adjustment measures to rein in deficit and control debt (exacerbated by the other socio-economic and climate change challenges), GoJ is constrained to seek the highest level of concessionality on GCF funding in the form of grant financing.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

- **58.** The proposed project has been designed in close consultation with and involvement of relevant government agencies and technical line departments, development partners, local institutions, academia, farmer organisations in the target river basins. These consultations and discussions (section 5.3.1 in the PfS), combined with the nexus supported by national policies and strategies provide the proposed project with a sound approach and suite of interventions which are implemented with strong community participation and country ownership. Building on this foundation, the project ensures that the investments as well as the results of the interventions are sustained beyond the project period and in the longer-term through the following elements of project design and implementation:
- **59.** Policy and legal frameworks: Land-use and water sector policy will be reinforced in order to promote closer institutional cooperation and effectiveness in the land-use and water sectors. In particular, efficient use of water in agriculture will promoted, as well as setting standards for the quality of treated waste water used for agriculture. The proposed enhancements in policy, regulatory and legal frameworks will support both MWI and MOA to implement their respective sector strategies more productively, while delivering on resilience to a changing climate. As discussed in section 5.3.4, the adaptation measures will be integrated with the implementation of Agenda 2030 and the Sendai Framework for Disaster Risk Reduction.
- **60.** <u>Capacity building</u>: The project builds in a strong element of human and institutional capacity building using a learning-by-doing approach that is expected to generate a virtuous feedback of learning that will continue beyond the project duration. Activities have been designed to ensure there is knowledge and skills transfer as well as peer-to-peer learning.
- 61. Combining traditional knowledge and practices with climate-resilient technologies and innovative practices: Building on traditional systems and mechanisms of water capture and storage, water supply for irrigation, maintenance models, and community organizational structures, such as the farmers' cooperatives and WUAs that have buy-in and ownership amongst the smallholder farmers, provides a strong basis to integrate climateresilient design and practices thereby enabling adoption for the long-term. Capacity building and training on climate-risk informed planning, design, and implementation of climate-resilient practices will be more effective through these locally suited and community-owned systems. Interventions in upgrading the systems through modern structural elements, increasing water capture and yield through partial de-silting and multi-use watersheds, field testing new crops and water-efficient irrigation conveyance, and improved early warning of rainfall and water level monitoring to manage water wells are among selected interventions that will be crossfertilized with traditional knowledge to ensure resilience building over time.
- 62. Ex-post plan for Operations and Maintenance of observing equipment: Since the project's investments will be in infrastructure development, attention will be paid to developing O&M plans (project and for post-project O&M) for these infrastructures in order to ensure that same are operational to required standards after project completion. Further, the plans will include budgeting for human and financial resources required for O&M for the project investments. The plan reflects local ownership and commitment for the long-term sustainability of the project activities and outcomes.
- 63. <u>Co-investments by government institutions and communities</u>: The project leverages domestic co-financing in the form of government financing that supports baseline funding of the proposed interventions as well as co-blending of resources to support project implementation. The project will also support national government and governorates to track budgetary flows in climate adaptation actions that will be a useful tool for mainstreaming climate adaptation in budgetary processes, and linking planning to on-the-ground actions.



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No 🗆

64. <u>Learning, knowledge management and replication</u>: Through extension support, awareness-raising and community level engagement the proposed project will catalyse knowledge sharing. It is pointed out that the proposed project has a component dedicated to knowledge management, learning, best practices and replication. Best practices and lessons learned will enable replication for adaptation and risk reduction so that they can be scaled-up across communities and governorates.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- □ Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- □ Evaluation report of previous project
- □ Results of environmental and social risk screening

Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous
 people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a <u>funding proposal</u> from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes \boxtimes No \square