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AFRICAN DEVELOPMENT BANK GROUP

PROJECT: TECHNICAL ASSISTANCE STUDY ON EVALUATION OF IRRIGATION INFRASTRUCTURE, CROP MAPPING AND ESTIMATION OF AGRICULTURAL WATER USE (ICAWU)

COUNTRY: LIBYA

MIC TAF REQUEST FOR APPROVAL MEMORANDUM

FEBURARY 2021

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ACRONYMS AND ABBREVIATIONS

ADF	African Development Fund
AfDB	African Development Bank
FPA	Fiduciary Principles Agreement
FAO	Food and Agriculture Organization of the UN
FCS	Fragile and Conflict affect Situation FCS
ET	Evapotranspiration
GDP	Gross Domestic Product
PGCL	General Counsel and Legal Services Department
GIS	Geographic Information System
GoL	Government of Libya
GWRA	General Water Resources Authority
LPA	Libya Political Agreement
LoA	Letter of Agreement
LTO	FAO-Libya Technical Officer
MENA	Middle East and North Africa
Mm^3	Million Cubic meters
MoU	Memorandum of Understanding
MENA TF	Middle East and North Africa Transition Fund (Deauville Partnership)
NGO	Non-government organization
OPM	Operations Procurement Manual
RDGN	Regional Department North Africa
RDVP	Regional Development, Integration and Business Delivery Complex
RfP	Request for Proposal
RS	Remote Sensing
PGCL	General Counsel and Legal Services Department
ToR	Terms of Reference
UA	Unit of Account
UN	United Nations
UN-Water	Coordinating the UN's work on water and sanitation
USD	United States Dollar

RESULTS-BASED LOGICAL FRAMEWORK

Country:	Libya
Project name:	**Technical Assistance study on Evaluation of irrigation infrastructure, crop mapping and estimation of agricultural water use (ICAWU)**
SAP Code:	P-LY-AAO-001
Purpose of the project:	The overall goal of the proposed project is to contribute to food security, poverty reduction and resilience to climate change through improved performance of water use in agriculture sector in Libya.

RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicator (including CSI)	**Baseline (2021)**	**Target (2025)**		
Impact	Improved food security through more efficient use of agricultural water	Percent of agricultural land equipped with efficient irrigation systems	26%	100%	National Statistics Office and General Water Resources Authority Reports.	
Outcomes	1) Improved knowledge on the irrigation infrastructure damages and the impact on water efficiency lead to fund raising and investment for the upgrading of irrigation system	Percent of investment on water & agriculture sectors dedicated for irrigation system maintenance, operation and upgrading	0%	At least 20% by 2022	Statistics of General Water Resources Authority and Project reports	Risk: Study fails to show full or precise figures on the status of irrigation systems because field survey is not feasible in part of the country due to the special context of instability and COVID19 travel restrictions. Mitigation: Local institutions and civil society will be involved at early stage and alternative data collection; field information feedback mechanism will be proposed.
	2) Cropland mapping developed, and water consumption estimated using remote sensing data	Percent area covered by the cropland mapping	0%	100% by 2022	Monthly progress reports	Risk: Remote sensing approach and tools are not assimilated by respective national institutions. Mitigation: Ambitious capacity development program with focus on active national institutions involved in agricultural water sector.

RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicator (including CSI)	**Baseline (2021)**	**Target (2025)**		
Outputs	1) Baseline study on agricultural water uses conducted and field survey area identified.	Baseline study report approved by stakeholders	None	Baseline study report approved by 2022	Baseline study report	Risk: Special country instability context stop up the conduct of the baseline study and the field survey. Mitigation: Baseline study and field survey include local civil society and stakeholder consultations and sharing of mitigation measures resulting from environmental and social context.
	2) The use of water by the agricultural sector assessed.	Water use assessment report	None	Water use assessment report approved by 2022	Water use assessment report	
	3) The damage to irrigation infrastructure evaluated.	Infrastructure damage status report	None	Infrastructure damage status report approved by 2022	Infrastructure damage status report	
	4) The expertise and capacity of agencies responsible for water management reinforced.	Number of beneficiaries of capacity building activities	None	Total of 90 persons with at least 20%women	Monthly progress reports	
	5) The optimal Remote Sensing (RS) information and practices for agricultural water use efficiency introduced.	The Geographic Information System (GIS) and Remote Sensing (RS) data and tools gathered and being used	None	100% of all water resources management agencies adopted use of GIS and RS technologies adopted 100%	Monthly progress reports	
	6) Cropland mapping developed, and the amount of water consumption estimated.	-Percent of cropland mapped -Volume of water consumption estimated	None	100% of cropland mapped	Monthly progress reports	
Key activities	Components				TOTAL: **237,500 (MIC** 200,000)	
	Component 1: Baseline study and assessment of the damage to the national irrigation systems				52,083	
	Component 2: Cropland mapping and water consumption estimates using remote sensing data				99,653	
	Component 3: Capacity development program				54,167	
	Project coordination				31,597	

1. INTRODUCTION

1.1 Background Information

1.1.1 Twenty-two percent of Libyans are engaged in some form of agricultural production – a large proportion despite agriculture's small contribution to the national GDP (3 percent in 2011) and it made up less than 1 percent in 2018. Crop and livestock production are a significant source of food security for many Libyan households, who tend to be smallholder producers. Most Libyan households are engaged in agriculture to produce food for their own consumption. According to an assessment conducted by FAO in 2018, households are engaged in agriculture to produce food for their own consumption. Accordingly, most households (92 percent) consume what they produce, and only 8 percent rely on agriculture exclusively as a source of income. Nearly half (49 percent) of households both consume and sell what they produce, Moreover, participation in agriculture may have been considerably higher before the current crisis, with approximately 7.5% of the population abandoning agricultural activities since 2014. The stagnation or the slowdown of the sector development made the country highly dependent on food imports. Prior to 2011 conflict, about 10% of cereals and 62% of fruit and vegetable needs were met from local agricultural production. However, the 2011 conflict has worsened the agriculture production's situation, and Libya remains reliant on imports to satisfy its basic food requirement.

1.1.2 Libya Vision 2020 envisions efficient, advanced agriculture, livestock, and fisheries sectors that ensure food security and plays a central role in rural economic development. Current agricultural policy in Libya aims to achieve a reasonable degree of food self-sufficiency, where most of the products consumed in the country will be country-produced. This option is not only very costly in economic and environmental terms, but also exceeds the available current water resources. Nonetheless, the sector still has the potential to expand and increase its efficiency as food security will remain a top priority to reduce agricultural imports, ensure food security, and create economic opportunities.

1.1.3 The available renewable water per capita is estimated at 126 Mm^3 in 2020, almost ten times lower than the water scarcity threshold and almost five times lower than the absolute scarcity threshold, set by the UN. Yet, water consumption is very high, above 900 Mm3 per capita per year. Agriculture is the largest user of water (around 79% of total water consumed), followed by the domestic sector (17%) and industries (4%). To meet these high rates of water demand, Libya relies heavily (95% of total water demand estimated in 2020) on groundwater resources, mostly non-renewable transboundary fossil aquifers. Non-renewable water accounts for about 80% of total water supply. The high rates of water demand are the result of multiple factors: (i) high rates of leakage and degradation of irrigation and water infrastructure (water losses are up to 45% in irrigation and 35% in domestic networks), (ii) unrealistic water pricing where energy and water are heavily subsidized, (iii) high water-demanding agricultural production, (iv) a weak regulatory framework, weak workforce capacities and a water-demand driven strategy with little concern for water availability, among others.

1.1.4 The *Water resources policy* in Libya is partly driven by the agricultural needs with focus on basic food self-sufficiency. In the irrigation sector alone, a potential of 1,700 to 1,800 Mm^3/year could be recovered in the long-term by the year 2040. Agricultural water demand is somewhat distorted by low irrigation efficiency, as water use for certain crops, mainly wheat and barley, is reported to be much higher than the standards in other countries having similar climatic conditions. For instance, irrigation is three times the water needed in the North. Agriculture land planning (added to efficiency) plays an important role in water security. Thus, increasing water usage efficiency and enhancing productivity of water used in irrigation through improved seeds varieties or value chain development, for example- are critical.

1.1.5 Currently, functionality and water services availability face serious damages caused by aging facilities, incessant armed conflict, political, economic and institutional instability, as well as continuous cuts in the power and fuel supply. Therefore, the country, in addition to production challenges, faces significant access, distribution and usage problems. The irrigation infrastructures may have been deeply impacted by the civil unrest and the lack of maintenance. Agriculture being the prime user of water resources, there is an urgent need to assess the current level of water use and spillage by the irrigation systems to prepare for the refurbishing of the irrigation systems and improve water use efficiency.

1.1.6 It is important to point out that "3 out of 4 jobs that make up the entire global workforce are water-dependent" (UNWater, 2016) and that "Investments in water-related infrastructure can be highly cost-effective and generate positive returns across different sectors of the economy. "Considering the nexus Energy-Water-Agriculture in Libya, strengthening those sectors' infrastructure is a high priority for the Libyan Government in order to ensure a quick economic recovery and pave the way for a sustainable economic development of the country.

1.1.7 The Bank is therefore seeking to support the Ministry of Water Resources and the Ministry of Agriculture in developing a baseline study to assess the current irrigation system and to define the optimum quantity of water to apply to the crop, as well as the time of irrigation, the frequency, and adequate duration to avoid the appearance of water stress during the crop cycle. The main objective of the study is to assess the status and efficiency of critical irrigation infrastructures and afflicted damages from the civil unrest and develop a baseline for an irrigation strategy for the country.

1.1.8 The targeted operation has been identified as a result of the continued close dialogue between the Bank and the Libyan authorities. It was confirmed in the meeting that was convened with the Ministry of Water Resources and the Ministry of Agriculture, livestock and marine resources as part of the consultation mission held in October 2020, for the preparation of the 2021-2022 Libya Country Brief.

1.1.9 This activity aims at responding to the pressing needs of the Government and providing adequate support to address a major challenge that the country is facing during this critical phase and will help prepare the reconstruction of the county's infrastructures. It is aligned with the approved priority area for the Bank's support to Libya, under the Country Brief. This operation is also reaffirming the Bank's leading role among other partners and development institutions in the water sector and related activities.

1.2 Project Objective

1.2.1 The overall goal of the proposed project is to contribute to food security, poverty reduction and resilience to climate change through improved performance of water harvesting, conveyance and use for agriculture sector in Libya.

- **The specific objectives of the intervention are to**:

1) Conduct a baseline study on water use in the agriculture sector in Libya, focusing on assessment of the damage to the national irrigation systems with a view to mobilize and direct investments for upgrading irrigation infrastructure.

2) Develop updated cropland maps and water consumption estimates to evaluate the water demand and water use efficiency in main crop systems and identify opportunity for improved water use.

3) Undertake training for the national stakeholder institutions in technical fields including use of geospatial data and field data collection and processing

1.4 Sector/Regional Department/Country Office responsible for preparing the Request

1.4.1 **The Agriculture and Agro-industry Department & the Regional Directorate General North Region (RDGN) of the Bank are responsible for preparing the proposal.**

1.5 Request Form

1.5.1 **The request was sent by the Minister of Finance to the President by a letter dated October 11, 2020** (Annex I). The President approved the request and strongly recommended its execution. The Bank has favorably responded to the request through a letter addressed to the Minister of Finance on November 19, 2020, signed by the Director General (RDGN), on behalf of the President (Annex I shows the correspondences).

1.6 Justification for the use of resources

1.6.1 The Bank is committed to supporting Libya with technical assistance and analytical services, provided by Trust Fund resources and grant financing through actions that will concretely improve lives, with the Bank developing its knowledge base for longer-term engagement with Libya. The Libyan Government has requested the Bank's assistance in order to address the pressing country needs for capacity building and institutional support. The proposed feasibility study is consistent with the Bank's 2013-2022 Strategy and its five priority areas (the High 5s), particularly Feed Africa and Improve the Quality of life of the people of Africa. The operation will contribute to the implementation of the High 5s and the attainment of the Bank's overarching inclusive growth agenda and transitioning to green growth. The proposed intervention is also in line with the Bank's short-term programming framework for Libya "Country Brief 2021-2022", which identifies *strengthening capacity for effective institutions and improved economic infrastructures* as its main pillar and priority aera of intervention in the country. The study is equally aligned to the Bank's Strategy for Agricultural Transformation in Africa (2016 – 2025), which prioritizes large-scale dissemination of productivity enhancing technologies and identifies several enablers, including increased investment into enabling infrastructure as well as inclusivity, sustainability and effective nutrition. Lastly, the intervention will contribute to the implementation of the Bank's Gender Strategy, especially under the women's economic empowerment pillar through the design of infrastructure to support rural irrigation and livelihoods, which benefit women.

1.6.2 The Study will enable the preparation of an agriculture infrastructure investment project and the mobilization of financing from the Bank and other investors and Development Partners. As such, the technical assistance to be funded by MIC grant will allow the structuring of bankable projects that will ultimately leverage private investments and deliver a sustainable water resources management solution with strong economic, environmental and social returns.

2. PROJECT DESCRIPTION

The proposed assessment of the agricultural water use efficiency is intended to provide a baseline which can be used to monitor, evaluate and rationalize the system. Based on this analysis, interventions will be identified to enhance agricultural water management performance, particularly water consumption and productivity. Taking advantage of latest development in space technology, largely based on remote sensing, this project will use geographic information system (GIS) and remote sensing to analyze and provide an initial baseline for cropland mapping and the amount of water consumed. Field surveys will then be implemented for ground truth data collection that is necessary to refine and validate the information and analysis derived from remote sensing. This will allow the General Water Resources Authority (GWRA) to enhance its capacity to rapidly and accurately map crops and

analyze water consumption to identify opportunities to rationalize water use and subsequently more effectively develop an irrigation investment plan.

2.1 Description of project components

The project consists of three components as described below:

Component 1: ***Baseline study and assessment of the damage to the national irrigation systems:***

This component involves the preparation of the detailed questionnaire that will be used for the field surveys and the damage assessment to the infrastructure of irrigation systems and their operational efficiency at national level. The project team will be set up with the identification of national active institutions from the General Water Resources Authority, the Ministry of Agriculture, livestock and marine resources as well as civil society that will perform the field work. The baseline study will be elaborated based on the desk review and field survey and will serve as water use platform reinforced by the outputs of component 2.

Component 2: ***Cropland mapping and water consumption estimates using remote sensing data:***

This component will use remote sensing and satellite systems to analyze water use efficiency by different cropping systems and mapping information to provide an initial baseline that measures the size and type of croplands vs. no croplands, extent areas, irrigated versus rainfed croplands, crop productivity, crop dominant types and the amount of water consumed.

Acquisition of images, of appropriate resolution, to be used for the interpretation, followed by preliminary interpretation of the images to initiate crop mapping that will be developed using combination of field data and remote sensing data Evapotranspiration (ET) at 250 m ground resolution is derived from FAO WaPOR database and compared with other data sources, including ground observations. Depending on the intended use, higher resolution ET data could be developed for selected areas. Estimates of ET derived from remote sensing will be compared with energy balance measurements collected on the field where available. FAO as a qualified service provider will be recruited to execute this component.

Component 3: ***Capacity development program:***

National stakeholders from civil society (90 engineers or technicians, 30% of which women) with relevant background on water, agronomy, remote sensing will be involved in the process and benefit from trainings and on the job learning. Specific service provider for the delivering of trainings, and remote sensing collection and processing will be involved. Capacity building program will focus on:

- Field surveys questionnaire and methodologies
- Assessment of water use by the agricultural sector
- Remote sensing data collection, processing, analysis and validation
- Crop classification using spectral matching technique and software, land cover and crops mapping
- ET-assessment models and water consumption estimation techniques

2.2 Description of the expected outputs

The expected outputs are outlined hereunder:

- Baseline study report with recommendations irrigation infrastructure rehabilitation / construction as well as on efficient agricultural water use practices.

- The irrigation practices and their efficiency are assessed, and efficient practices identified
- The damage to irrigation infrastructure evaluated and corrective measures identified.
- The expertise and capacity of the institutions involved in Agriculture and water resources management improved enhanced.
- The optimal remote sensing information and practices for agricultural water use efficiency introduced.
- Cropland mapping developed, and the agricultural water consumption estimated.
- Potential investment projects identified.

3. COST ESTIMATES OF THE PROJECT

The total estimated cost of the project is UA 237,500 (equivalent to USD 342 000) funded through a MIC TA Grant and the Government. The Government contribution which is in kind an equivalent to UA 37,500.

3.1 Cost estimates by components and expenditure categories

The cost estimates by components and expenditure categories are shown in Table 1 and 2 hereunder:

Table 1 : Project Cost Estimates by Components:

Component	Estimated Cost (UA)	Estimated Cost (USD)
Component 1: Baseline study and assessment of the damage to the national irrigation systems	52,083	75,000
Component 2: Cropland mapping and water consumption estimates using remote sensing data	99,653	143,500
Component 3: Capacity development program	54,167	78,000
Coordination and technical supervision	31,597	45,500
TOTAL	**237,500**	**342,000**

Table 2: Summary of Estimated Costs by Expenditure Categories

Account	Item	Unit	Quantity	Total Cost UA	Unit Cost (USD)	Total Cost (USD)
5013	**Consultants**			**25,000**		**36,000**
	International Consultant					
	National expert on project management (part-time)	Month	12	25,000	3,000	36,000
5014	**Contracts**			**120,139**		**173,000**
	Contracts with Service Providers: LoA with RS company		LS	120,139		173,000
5021	**Travel**			**4,167**		**6,000**
	Project Staff consultants travel to field	Round Trip	3	4,167	2,000	6,000
5023	**Training**			**20,833**		**30,000**
		Each	2	20,833	15,000	30,000
5024	**Goods**			**4,232**		**6,094**
	Supply of visibility materials & stationery	LS		1,736		2500
	Supply of IT equipment	LS		1,736		2500
	Supply of Office furniture	LS		760		1094
5027	**Technical Support Services**			**8,424**		**12,130**
	Reporting	LS	1	3,472	5000	5,000
	Project evaluation costs	LS	1	1,389	2000	2,000
	Supervisory technical services	No.	5	3,563	1,026	5,130
5028	**General Operating expenses**			**4,122**		**5,935**
	Various Operation costs			4,122		5,935
	Sub-Total			**186,916**		**269,159**
5029	**Indirect Support Costs**			**13,084**		**18,841**
	FAO Standard cost (7% of the sub-total)			13,084		18,841
	Grant Total amount			**200,000**		**288,000**
	Government Contribution (in Kind)			**37,500**		**54,000**
	Office Facilities	Lumpsum		12,500		18,000
	Staff supporting the project	Each	12	25,000	3000	36,000
	Grand Total			**237,500**		**342,000**

4. MODE OF PROCURÈRENT

4.1 Procurement Arrangement

4.1.1 All procurement foreseen under this grant will be done in accordance with the Bank's Procurement Policy Framework, dated October 2015, with specific guidance relating to Procurement under fragile and conflict affect situation (FCS) as explained in Part 'A' Volume 2 (chapter I) of Operations Procurement Manual (OPM). However, entities under the Bank' sanctions list or entities sanctioned by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, shall not be eligible to participate in tenders under this grant. More specifically, procurement would be carried out using Third Party Procurement Methods and Procedures (PMPs. (Ref. Bank Guidelines OPM Part A Vol.1 A11.2.6 to A11.2.9)

4.1.2 The Procurement of the goods, works and services required for the Program and to be financed out of the proceeds of the Grant will be effected in accordance with the FAO's applicable regulations, rules and procedures in accordance with Section 5.3(e) of the Procurement Policy for Bank Group Funded Operations approved in October 2015. The procurement process should guarantee competitive procedures for the procurement of the goods & services. FAO shall maintain and record all relevant information concerning the procurement activities undertaken for the Project and shall include the said information in each Project Report to be submitted to the Bank.

4.1.3 FAO, the project executing agency, is a specialized Agency of the United Nations on Food & agriculture -related issues. The collaboration between the AfDB and FAO began in 1968. Since then, FAO has provided technical assistance to the formulation of 161 AfDB financed projects, valued at over $3.7 billion representing about 21 percent of AfDB's support to the agricultural sector, in this respect , FAO has been the executing Agency for several operations financed by the Bank in Regional Member Countries like Recent collaboration between the Bank and the FAO include project formulation support in Tanzania and Equatorial Guinea; technical assistance for the development of blue economy programmers in Côte d'Ivoire, Morocco and Cape Verde, feasibility studies for agricultural transformation centers in Zambia, Tanzania and Côte d'Ivoire; and participation in the African Leaders for Nutrition initiative.. FAO is familiar with Bank's rules and procedures.

4.1.4 On 25 January 2017, the Bank's Board of Directors approved the Fiduciary Principle of Agreement (FPA) to facilitate cooperation between the AfDB, ADF and certain organizations of the United Nations System for implementation of emergency operations and relief assistance. The FPA provides use of the UN agency's FM and procurement rules, including its eligibility criteria , and regulations for investigating allegations of fraud and corruption. An FPA was signed between the Bank and FAO in 18th March 2018. FAO will undertake due diligence and efficiency when conducting procurements to facilitate successful implementation of this operation.

4.1.5 Under the FPA, FAO has given the Fund the undertaking that "should it become aware of information that indicates the need for further scrutiny of its use of funds to which this Agreement applies (including allegations of corrupt, fraudulent, coercive, collusive or obstructive practices in connection with use of such funds), it will (i) notify and inform the Fund of the actions being taken as a result, and (ii) give additional assurances to the Fund, through senior-level consultations, that its oversight and accountability mechanisms have been and are being fully applied in connection with such information, as is more fully set out in the standard tri-partite grant agreement" .The Bank will not have the right for independent audit of projects.

5. FINANCING ARRANGEMENTS

5.1 Disbursement modalities

5.1.1 **It is recommended that the funds be disbursed in a single tranche, through direct payment into an FAO project dedicated special bank account, upon submission by FAO to the Bank of the bank account details to receive the proceeds of the grant**. Disbursements will also be subject to the signing of the tripartite Agreement by the Bank, the State of Libya and FAO.

5.2 Financial Management and Disbursement Arrangements

5.2.1 **Financial Management**: FAO will execute the Project using its financial management in line with the Fiduciary Principles Agreement (FPA) signed amongst the African Development Bank, the African Development Fund and Food and Agriculture Organization of the United Nations signed on 8th March 2018. FAO maintains sound financial management systems and arrangements to ensure that funds are used for the intended purposes with due attention to considerations of economy and efficiency and value for money. Its financial management systems and arrangements which include, budgeting, accounting, internal controls, funds flow, financial reporting and internal and external auditing arrangements, and related policies, procedures and practices; facilitate the preparation of regular, timely and reliable financial statements; support the provision of a complete, true and fair record of all transactions and balances, including those relating to funds to which the FPA applies; safeguard assets, including assets financed by funds to which FPA applies; and are subject to internal and external auditing arrangements in line with internationally accepted standards. FAO will implement the project using its Office in Libya.

5.2.2 **Financial reports**: In line with the FPA and in order to meet fiduciary requirements, FAO shall submit to the Bank a semi-annual un-certified interim financial reports (IFRs) within forty-five (45) days after the end of every six (6) months in line with the FPA. A single financial reports shall also be prepared in accordance with International Public Sector Accounting Standards (IPSAS) accrual basis and certified by the authorized FAO financial officer on the use of the funds before submission to the Bank no later than six months after the project closing date.

5.2.3 **Disbursement**: The Bank shall disburse project funds to FAO's designated special account in a single tranche for the implementation of eligible activities. As part of the semi-annual un-certified interim financial reports to be submitted to the Bank, FAO should include a fund utilization report or schedule, indicating the flow of funds and period fund balance.

5.2.4 **Audits** – **Internal and External Audits**: The FAO's use of the grant and management of the project shall be subject exclusively to its internal and external audit procedures. FAO shall make available to the Libyan Government and the Bank a copy of its Audited Financial Statements and the reports of its External Auditors on the financial statements in respect of the years which FAO manages the Grant, within 30 days of such Financial Statements are presented to the UN General Assembly by the FAO Independent External Auditors.

The information concerning all observations of the External Auditors concerning the project and or financial management of the project shall be made available to the Bank and the Government of Libya in consistency with the FAO regulations and rules, policies and procedures, and relevant decisions of the UN.

Without limitation to the first paragraph of this section (5.2.4), upon request by the Government of Libya and the Bank for the purpose of conducting their own respective internal and external audits related to the Project and the Grant, FAO shall make available the information in a manner consistent with its regulations and rules, policies and procedures, and relevant decisions of the UN.

6. IMPLEMENTING MODALITIES AND PROJECT SCHEDULE

6.1 Implementing modalities

6.1.1 The Government requested that the Food and Agriculture Organization of the UN (FAO) implement the project on its behalf. After several years of conflict, the country needs to modernize and strengthen the staff skills to implement development projects. FAO is a global leader in creating more efficient, equitable and environmentally sustainable use of water in agriculture. FAO maintains a broad network of Libyan farmer association and collaborates with the Libyan General Water Authority. The collaboration between the AfDB and FAO began in 1968. Since then, FAO has provided technical assistance to the formulation of 161 AfDB financed projects, valued at over $3.7 billion representing about 21 percent of AfDB's support to the agricultural sector. FAO also implemented several Bank's projects.

6.1.2 The General Water Resources Authority (GWRA) under the Ministry of Water Resources will be the project implementing agency and will signed a letter of Agreement with the Executing agency FAO. The Bank will support and monitor the progress of implementation of the proposed technical study operation through the Bank's Regional Office in Tunisia, Tunis, RDGN. FAO will submit end of the project report of the project outcomes drawing from the analysis supported under the project. The report should include an analysis to inform preparation of irrigation strategy and future proposed investment projects. FAO also with share with the Bank its quarterly progress report.

6.2 Timing of activities planned

6.2.1 The project will be implemented over a period of **18 Months** following its approval by the Bank and the signing of the Tripartite Agreement between the different parties. The indicative timeframe is presented in the following table that shows the three components of the project and the indicative dates for their completion.

Table 3: indicative implementation plan

Activities	Year 1												Year 2					
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Component 1: Baseline study and assessment of the damage to the national irrigation systems	■	■	■	■	■	■	■	■	■	■	■	■						
Loa signing with GWRA		■																
Component 2: Cropland mapping and water consumption using remote sensing data				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Signing Contract with Remote sensing service provider				■														
Component 3: Capacity development	■	■				■	■				■	■	■	■	■			
Training sessions		■				■	■				■	■						
Project Coordination	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Recruitment of Project coordinator	■																	

7. ENVIRONMENT AND SOCIAL IMPACT

7.1 **The project is classified as category 3 as has no environmental and social risks**. The project is basically study and assessment of national irrigation system and there is no targeted field activity investment from the Bank envisaged at the moment. The institutional and technical capacities to manage E&S risks are weak in general in the Libyan public structures. Therefore, the terms of reference of the baseline study will integrate the assessment of E&S risk management capacity in of institutions responsible for water resources management in Libya. The capacity building program of the project will then contribute to the reinforcement of this capacity in order to enable the ministry to promote the E&S risks management in the decision-making frameworks as well as planned activities in agricultural and water sector nationwide in Libya. (ESCON is attached in annex)

8. CLIMATE CHANGE & GREEN GROWTH

8.1 **The study is not relevant for the climate risk assessment using the Climate Safeguard System.** However, Libya faces considerable obstacles related to global climate change. Over 85 percent of the population living in urban areas with limited resources to adapt to projected increases in temperature and extreme weather events. Projected changes include increase of the mean annual temperature by 2°C by 2050, resulting in more frequent heat waves and more evaporation. In addition to increases in frequency of droughts, dust storms, and flash floods, along with increased desertification. To address water scarcity the Government created the Great Man-Made River project, which taps into non-renewable fossil aquifers in the Sahara Desert. These aquifers are now responsible for nearly 80 percent of the country's water use. Increased temperatures, more frequent and extreme events like droughts and floods, rainfall variability, and sea level rise all affect freshwater resources for drinking and sanitation, agriculture and irrigation, and industry. Increasing incidence and severity of droughts and floods can also contaminate drinking water, damage water systems, cause sewage overflows, reduce freshwater availability, and exacerbate intrusion of saltwater to aquifers. Libya has coordinated its climate change projects through its National Committee for Climate Change, which is headed by the Energy Secretary. The country has no climate legislation as of 2016 and hasn't yet developed their Nationally Determined Contribution (NDC).

9. GENDER APPROACH

9.1 **Libya has made progress in improving the state of gender equality, especially in the social sector (health and education).** According to the African Gender Index (AfDB,2019), the social dimension (education and health), Libya scores 1,038, which indicates a situation without gender inequalities (average for all African countries 96,6%). In economic (labour market participation and outcomes, access to resources and management), Libya scores 0,450. In political representation and women's empowerment (national parliament, ministerial positions, land & house ownership and management), Libya scores 0,154 (among the lowest). The Law provides women with the same ownership rights as men regarding both land and nonland assets. The project will integrate gender in the planned activities. The terms of reference of the baseline study will integrate gender and the assessment to be conducted will be gender sensitive. The capacity development program will benefit equally men and women depending on available personnel in the targeted institutions& organizations. The project is under category 3 of the gender marker.

10. LEGAL PROVISIONS

The financing instrument to be used for this operation is a tripartite funding and implementation agreement (the "Agreement") amongst the Bank, The Government, and FAO.

10.1 Conditions associated with Bank's intervention

10.1.1 **Entry into Force**: The Agreement shall enter into force on the date of signature by the parties.

10.1 .2 **Conditions Precedent to Disbursement**: The Grant will be disbursed in a single tranche to FAO upon the entry into force of the Agreement and submission by FAO of its bank special account details.

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

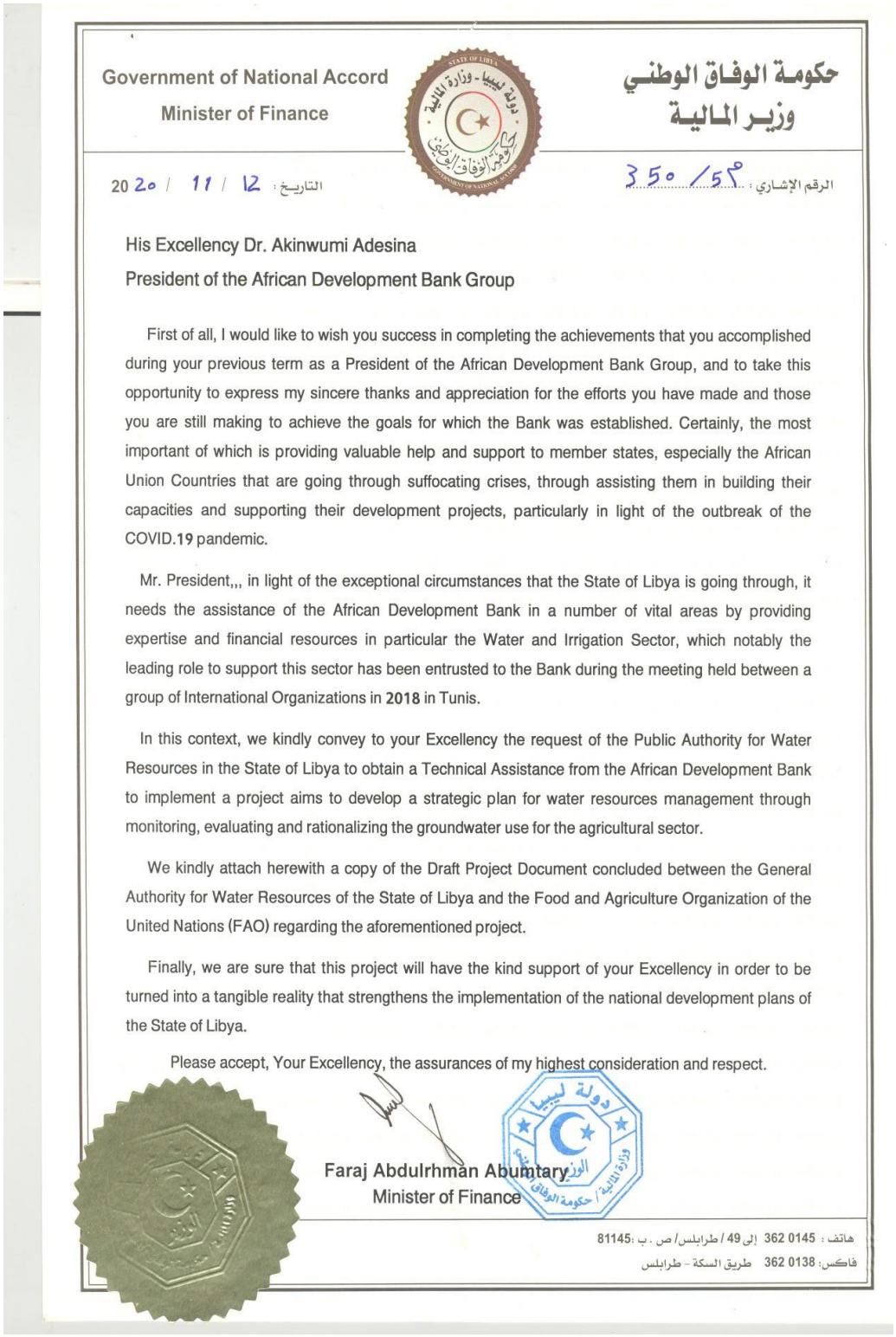
11.1.1 Given the key role of the agriculture and water development in supporting inclusive growth, job creation and food security, the Government has prioritized, the development of the water and irrigation infrastructure as an essential tool for attaining the goals of the Vision 2020 that ensure food security play a central role in rural economic development. Libya faces water and environmental constraints that place limitations on the development of agriculture. However, the sector still has the potential to expand and increase its efficiency.

11.1.2 **In this regard, the State of Libya endorsed the Ministry of Water Resources and the Ministry of Agriculture Livestock and Marine Resources MIC Grant Request towards agricultural development as one of the major areas of strategic thrust in the country.** The Ministry of agriculture coordinates with GWRA for future projects and their water needs. The intervention will in particular, enable the Ministry of Agriculture to support the Government's efforts in improving water resource management through improved irrigation management which is critical to Food Security and Livelihoods. The study will lead to bankable investment projects in the agriculture and agroindustry sectors of the country.

11.2 Recommendations

11.2.1 **The Bank is committed to accompanying Libya during its transition period and maintain close dialogue and consultations with the Government and several development partners that are active in Libya to advance on its projects in Libya despite the challenging context.** Considering the expected great impact of this first intervention in this sector in Libya, and being one of the main priorities of the Government, , we recommend to approve the proposal for a grant not exceeding Two Hundred Thousand Units of Account (UA 200,000) to the State of Libya from the resources of the Middle-Income Country Technical Assistance Fund for the defined purposes and subject to the conditions stipulated in this Project Report.

ANNEX I - REQUEST



Government of National Accord
Minister of Finance

حكومة الوفاق الوطني
وزير المالية

التاريخ: 2020 / 11 / 12

الرقم الإشاري: 350/52

His Excellency Dr. Akinwumi Adesina
President of the African Development Bank Group

First of all, I would like to wish you success in completing the achievements that you accomplished during your previous term as a President of the African Development Bank Group, and to take this opportunity to express my sincere thanks and appreciation for the efforts you have made and those you are still making to achieve the goals for which the Bank was established. Certainly, the most important of which is providing valuable help and support to member states, especially the African Union Countries that are going through suffocating crises, through assisting them in building their capacities and supporting their development projects, particularly in light of the outbreak of the COVID.19 pandemic.

Mr. President,,, in light of the exceptional circumstances that the State of Libya is going through, it needs the assistance of the African Development Bank in a number of vital areas by providing expertise and financial resources in particular the Water and Irrigation Sector, which notably the leading role to support this sector has been entrusted to the Bank during the meeting held between a group of International Organizations in **2018** in Tunis.

In this context, we kindly convey to your Excellency the request of the Public Authority for Water Resources in the State of Libya to obtain a Technical Assistance from the African Development Bank to implement a project aims to develop a strategic plan for water resources management through monitoring, evaluating and rationalizing the groundwater use for the agricultural sector.

We kindly attach herewith a copy of the Draft Project Document concluded between the General Authority for Water Resources of the State of Libya and the Food and Agriculture Organization of the United Nations (FAO) regarding the aforementioned project.

Finally, we are sure that this project will have the kind support of your Excellency in order to be turned into a tangible reality that strengthens the implementation of the national development plans of the State of Libya.

Please accept, Your Excellency, the assurances of my highest consideration and respect.

Faraj Abdulrhman Abumtary
Minister of Finance

دولة ليبيا
وزارة المالية / حكومة الوفاق

هاتف: 0145 362 إلى 49 / طرابلس / ص . ب: 81145
فاكس: 0138 362 طريق السكة - طرابلس

Annex 1: Official Request from Focal Ministry (Minister of Finance)

A: Terms of reference: LoA with Remote Sensing service provider

Objective:

Irrigation infrastructure evaluation, crop mapping and agricultural water use estimation (ICAWU) study using remote sensing technology.

1. Context

FAO estimates that by 2050, 60% more freshwater resources will be needed to satisfy growing global demand for food. Fresh water resources in the MENA region are among the lowest in the world with water availability decreasing by two third over the last 40 years and falling. To prevent acute water shortages, environmental degradation and mass population displacement, this project aims to assess the use of water by the agricultural sector to support rationalizing this water use. This information is needed to assist the General Water Resources Authority to develop a strategic plan for water resources management that reviews the water, food and energy needs by: (i) setting the sustainable limits of water consumption and (ii) increasing efficiencies in the water system to make the best use of each single drop of water.

the Man-Made River (MMR) is now the primary source of fresh water for the majority of the Libyan population. The MMR derives its water from fossil age aquifers deep under the desert in southern Libya.

Although Libya's fossil aquifers are vast but the actual amount of water remaining is unknown. As water levels decline the cost of extracting it increases and the water becomes more saline. This has an impact on the desert ecosystem, it dries water bodies in oasis and forces animal to move further north. Should water continue to be extracted at its current unsustainable rates, populations will be pressured to move north, and northern populations will have to diversify their water sources or migrate to other countries.

The proposed assessment of the agricultural water use is intended to provide a baseline which can be used to monitor, evaluate and rationalize the system. Based on this analysis, interventions will be identified to enhance agricultural water management performance, particularly water consumption and productivity. In fact, it is timely to conduct this survey and study as soon as possible, while the agricultural sector is depressed, in order to ensure that technologies and practices for water rationalization are adopted before the agricultural sector revives and inefficiencies proliferate.

Taking advantage of latest development in space technology, largely based on remote sensing, the project will use geographic information system and remote sensing to analyze and provide an initial baseline for cropland mapping and the amount of water consumed. Field surveys will then be implemented for ground truth data collection that is necessary to refine and validate the information and analysis derived from remote sensing. This will allow the General Water Resources Authority in Libya to enhance its capacity to rapidly and accurately map crops and analyze water consumption to identify opportunities to rationalize water use and subsequently more effectively develop an investment plan.

2. Objectif of the work:

This work will develop and transfer knowledge and capacity to monitor, evaluate and rationalize the use of water resources in agriculture through remote sensing technology.

3. Products and activities

Outup 1: Background study

- Conduct field recognition and data gap analysis and propose best suitable set of data and tools to perform irrigation infrastructure diagnosis, crop mapping and water use efficiency in Libya.
- Conduct desk review of the status and trend of water uses in agriculture and the use of GIS and RS technology in water and agriculture management in Libya, identify key players at national and local level with the focus on man-made river hydraulic systems.
- Develop and propose the methodology to establish a system for data collection, processing, verification and validation that combine remote sensing and ground truthing data for the assessment and monitoring of water use for the agricultural sector through remote sensing in Libya.

Output 2: Development of knowledge products

- Collect remote sensing data from various sources with sufficient resolution for water consumption and crop mapping assessment and monitoring.
- Guide field data collection and processing for the verification and validation of remote sensing informations.
- Contribute to the development of detailed questionnaire for field surveys and training material for survey teams.
- Lead the processing and analysis and validation of remote sensing information and produce knowledge products on water uses and leakages.
- Produce crop classification and maps, land cover and uses maps.

Output 3: Capacity building

- Develop capacity building and knowledge transfer programme to the benefit of national stakeholders.
- Deliver training sessions on Evapotranspiration assessment models, water consumption estimation techniques, crop mapping and monitoring tools.
- Provide technical assistance, on the job training and coaching to key national stakeholders and ensure national ownership and sustainability of established system.

4. Qualification:

The service provider will mobilize a team of experts bringing together at least the skills below;

- Expertise in water science and agronomy specialized in strategic planning and good governance of water or land resources with confirmed knowledge on the different dimensions of the water usages and having experience of the Maghreb environment characterized by the scarcity of water.
- Expertise in remote sensing and Geographic information system and strong experience of application on water and agriculture sectors.
- Advanced university degree (minimum of Masters' degree or equivalent in Water, RS-GIS, or related field.
- Excellent skills on English and Arabic languages.
- The knowledge of French language is desirable.

B: Terms of Reference: Project coordinator, national Consultant.

General Description of task(s) and objectives to be achieved

Under the overall Supervision of the Head of Office, FAO Representation in Libya and the technical supervision of the Land and Water Officer for North Africa (SNE), Regional Office for the Near East and North Africa (RNE), and in close collaboration with the other implementing partners, the project Coordinator will perform the following tasks:

- Oversee the line management and implementation of the project by making best use of available human and financial resources, and ensure that FAO procedures are followed throughout;
- Prepare and implement a logical framework, a detailed workplan and budget using a log frame analysis, including targets to be met, and resources to be allocated; based on the objectives, results and activities presented in the project document, as well as input from local coordination at country level;
- be responsible for the set-up and management of the project technical, managerial, and administrative monitoring system;
- Review progress made towards the workplan proposed as well as the stated objectives and results on a quarterly basis;
- Prepare and/or review Terms of Reference (TORs), contracts and Letters of Agreement (LoAs) and monitor their delivery against agreed timeline and quality.
- Support the GWA for field survey planning and execution including elaboration of the questionnaire, sampling method, analysis and guidance in the preparation of the baseline report and all assessment reports.
- Guide the Remote sensing service provider to identify and collaborate with relevant national partners.
- Organize training sessions and support the identification of key beneficiaries.
- Organize and manage the process of continuous communication with project stakeholders and facilitate the linkage of the project with other ongoing initiatives.
- Lead the development of communication products and ensure the visibility of the project activities and results in relevant forums, networks and medias.
- Research, compile and organize information and reference content from various sources in order to produce reports; create spreadsheets and presentations; manage and update databases to develop mailing lists and other information; maintain paper and computer records;
- Ensure the review and publication of relevant project reports through the publication workflow System (PWS) of FAO.
- Perform the secretariat role of the national multidisciplinary teams for smooth coordination and reporting of field works.
- Meet all reporting requirements in line with FAO rules and procedures and prepare reports, such as: An inception report providing a detailed workplan; monthly progress briefs; Quarterly progress reports outlining progress of actual work against planned, problems encountered, findings and detailed planning for the next period including required corrective measures; A final report outlining project results, recommendations and impact, lessons learned and follow-up actions; Different technical reports as outlined in the outputs and activities (synthesis document, monitoring manual, etc.), with the assistance of the other consultants, and inputs from service providers and project partners;
- Be responsible for obtaining all the necessary timely clearance for any documents, reports, press release, web information;
- Liaise with the FAO office in Libya for the coordination with the selected implementing partner(s).
- Perform any other duties as required.

Qualifications:

- An advanced university degree in water resource management or Remote sensing and GIS or related fields (PhD or at least Masters' degree or equivalent degree) and at least 12 years of professional experience.
- Proven extensive experience and technical ability to manage and effectively coordinate a project on RS/GIS for water or agriculture sectors.
- Good capacity for strategic thinking and planning;
- Excellent oral and writing skills in English and Arabic;
- The knowledge of French language is desirable

key performance indicators	
Expected Outputs: • Inception report • Quarterly progress reports and monthly progress briefs, • Technical reports as outlined in the tasks descriptions. • Communication materials as outlined in the tasks descriptions. • A final report;	Required Completion Date: At the beginning of the project As per the work plan At the closure of the project

ANNEX III: ENVIRONMENTAL AND SOCIAL COMPLIANCE NOTE

A. Basic Information[1]

Project Title: Irrigation infrastructure evaluation, crop mapping and agricultural water use estimation (ICAWU) study		**Project ''SAP code''**: P-LY-AA0-001
Country: LIBYA	**Lending Instrument**[2]: DI ☒ FI ☐ CL ☐ BS ☐ GU ☐ RPA ☐ EF ☐ RBF ☐	
Project Sector: Agriculture		**Task Team Leader**: Ms. S. MOHAMED -AHMED
Appraisal date: January 5, 2021		**Estimated Approval Date**: March 15, 2021
Environmental Safeguards Officer: xxxx		
Social Safeguards Officer: Dr. LAKPO Kossi Doumegno		
Environmental and Social Category: 3	**Categorization date**: 8.02.21	**Operation type**: SO ☒ NSO ☐ PBO ☐
Is this project processed under rapid responses to crises and emergencies?		Yes ☐ No ☒
Is this project processed under a waiver to the Integrated Safeguards System?		Yes ☐ No ☒

B. Disclosure and Compliance Monitoring

B.1 Mandatory disclosure

Environmental Assessment/Audit/System/Others (specify: ……)	
Was/Were the document (s) disclosed ***prior to appraisal?***	Yes ☐ No ☐ NA ☒
Date of "in-country" disclosure by the borrower/client	[Date]
Date of receipt, by the Bank, of the authorization to disclose	[Date]
Date of disclosure by the Bank	[Date
Resettlement Action Plan/Framework/Others (specify: ……)	
Was/Were the document (s) disclosed ***prior to appraisal?***	Yes ☐ No ☐ NA ☒
Date of "in-country" disclosure by the borrower/client	[Date]
Date of receipt, by the Bank, of the authorization to disclose	[Date]
Date of disclosure by the Bank	[Date]
Vulnerable Peoples Plan/Framework/Others (specify: ……...)	
Was the document disclosed ***prior to appraisal?***	Yes ☐ No ☐ NA ☒
Date of "in-country" disclosure by the borrower/client	[Date]
Date of receipt, by the Bank, of the authorization to disclose	[Date]
Date of disclosure by the Bank	[Date]
If in-country disclosure of any of the above documents is not expected, as per the country's legislation, please explain why: NA.	

B.2. Compliance monitoring indicators

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes ☐ No ☐ NA ☒
Have costs related to environmental and social measures, including for the running of the grievance redress mechanism, been included in the project cost?	Yes ☐ No ☐ NA ☒
Is the total amount for the full implementation for the Resettlement of affected people, as integrated in the project costs, effectively mobilized and secured?	Yes ☐ No ☐ NA ☒
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes ☐ No ☐ NA ☒
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes ☐ No ☐ NA ☒

C. Clearance

Is the project compliant to the Bank's environmental and social safeguards requirements, and to be submitted to the Board?

Yes ☒ No ☐

Prepared by:	***Name***	***Signature***	***Date***
Environmental Safeguards Officer:			
Social Safeguards Officer:	LAKPO KOSSI DOUMEGNO		25-01-2021
Task Team Leader:	Ms. S. MOHAMED -AHMED		25-01-2021
Submitted by:			
Sector Director:	Martin FREGENE		22/02/2021
Cleared by:			
Director SNSC:	Maman-Sani ISSA		22/02/2021

[1] **Note**: *This ESCON shall be appended to project appraisal reports/documents before Senior Management and/or Board approvals.*

[2] **DI**=Direct Investment; **FI**=Financial Intermediary; **CL**=Corporate Loan; **BS**=Budget Support; **GU**=Guarantee; **RPA**=Risk Purchase Agreement; **EF**=Equity Financing; **RBF**=Results Based Financing.

ANNEX IV: GENERAL WATER RESOURCES AUTHORITY MANDATE

The main government agency dealing with water resources and management has been the General Water Authority (GWRA). The GWRA was first established as an independent government body on 12/2/1972 according to Law 26,1972. The GWRA has become a part of the Ministry of Water Resources (MWR) upon its establishment in 2012. The MWR was later reduced to the General Water Resources Authority (GWRA). The mandate of the GWRA can be summarized as follows:

- ✓ Developing water resources strategies and policies
- ✓ Prioritizing water abstractions and allocations among the different sectors (agricultural, industrial, and domestic)
- ✓ Conducting basic and applied research on water management, water saving techniques, integrated water resources management, and developing alternative water resources
- ✓ Assuring sustainable use of the available water resources
- ✓ Communicating and organizing water uses with all ministries and water stakeholders
- ✓ Drafting water resources guidelines, action plans, laws, and regulations
- ✓ Supervising the construction of water resources projects

Clearly, the GWRA's responsibilities are very broad and numerous combining planning, execution, supervision, and regulation. The nature of these responsibilities has overtaxed the GWRA and made it exert strenuous efforts to address all these responsibilities simultaneously. GWRA currently oversees other related institutions, namely GCWW and GDC that were previously affiliated with MWR. The Ministry Agriculture and Animal Resources is in charge implementing agricultural policies and it coordinates with GWRA for future projects and their water needs

ANNEX V: OPERATION COST DETAILS

Product	Activities	Type of Expenses	Estimated Budget (USD)
Set up the field survey team	Coordinate with different ministries and departments for the selection or relevant team member and organize meetings with the established team for guidance and task definitions.	meeting venues logistic, transports cost	1,000
Prepare the questionnaire	Draft questionnaire will be shared with GWRA by FAO. GWRA to organize meetings with survey team to review, adapt questionnaire and adopt in consultation with relevant departments	meeting venues logistic.	1,000
Elaborate the methodology for sampling	Methodology for sampling and survey planning will be shared by FAO to GWRA. GWRA to organize meetings with survey team to discuss, sampling methodology and survey planning and adopt in consultant with relevant departments at local and national levels.	meeting venues logistic.	1,000
Field surveys costs	GWRA to coordinate and facilitate the field data collection in various field locations targeted.	DSA, transport, mobile devises used for field data collection.	35,000
Analyze of surveys' results	GWRA to organize meetings and gathering of relevant national partners to review and finalize the result of field surveys and validate the results in consultation with relevant departments	meeting venues logistic.	1,000
Facilitate trainings on field survey	Organize meetings and workshops with different group of national stakeholders benefiting from various training to ensure the required knowledge transfer and ownership of project results.	meeting venues logistic.	3,000
Support the project visibility and involvement of national stakeholders	Propose and implement the editing, printing and publishing of relevant knowledge products with the implication of local service providers.	service contract for design, editing and printing of knowledge products	2,000
Reporting	Review progress reports and project reports prepared by FAO national consultant in charge of project coordination at national level for validation and distribution to relevant partners.	consumable, printing papers, inks,	1,000
TOTAL			**45,000**