PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Medium-sized Project
THE GEF TRUST FUND

Submission Date: 21/1/2008
Re-submission Date: February 19, 2008

PART I: PROJECT IDENTIFICATION

GEFSEC PROJECT ID[1]**:**
GEF AGENCY PROJECT ID:
COUNTRY(IES): Algeria, Tunisia, Libya
PROJECT TITLE: Reducing risks to the sustainable management of the North West Sahara Aquifer System (NWSAS)
GEF AGENCY(IES): UNEP, (select), (select)
OTHER EXECUTING PARTNER(S): OSS (Sahara and Sahel Observatory) and national institutions from Algeria (Agence Nationale des Resources Hydrauliques), Libya (General Water Authority), Tunisia (Direction Générale des Resources en Eau)
GEF FOCAL AREA (S): International Waters (select), (select)
GEF-4 STRATEGIC PROGRAM(S): IW SP-3
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: MENARID

INDICATIVE CALENDAR	
Milestones	**Expected Dates**
Work Program (for FSP)	
CEO Endorsement/Approval	10/2008
GEF Agency Approval	12/2008
Implementation Start	1/2009
Mid-term Review (if planned)	05/2010
Implementation Completion	12/2011

A. PROJECT FRAMEWORK (Expand table as necessary)

Project Objective: To formulate and initially implement a set of actions to address the risks associated with sustainable exploitation and management of groundwater resources in the North West Sahara Aquifer System (NWSAS), with focus on sustainable agricultural practices and environmental management.

Project Components	Indicate whether Investment, TA, or STA**	Expected Outcomes	Expected Outputs	Indicative GEF Financing*		Indicative Co-financing*		Total ($)
				($)	%	($)	%	
1. Assessment of the socio-economic and environmental impacts of water extraction and use, and development of sector action programmes	STA and TA	- Detailed knowledge obtained of water consumption and needs, linkage between water use and agriculture and urban development. - Possible policy and technical options, including water pricing, assessed - A set of actions with targets and necessary resources among the participating countries, agreed. - national water, agriculture, environment policies reviewed based on the assessment results.	-2000 to 3000 surveys among farmers, irrigating farmer groups to carry our assessment -identification of best practices and recommendations in terms of management, pricing and costs - agreed Strategic Action Programme as a results of sector policy development - stakeholder participation plan.	242,900	52	222,650	48	465,550
2. Demonstration of	TA	Tested and	- land use	419,900	51	403,800	49	823,700

[1] Project ID number will be assigned initially by GEFSEC.

innovative approaches to address risks associated with the NWSAS, addressing efficiency of water management and irrigation and drainage		demonstrated efficiency of water extraction and use in five demonstration sites. These demos are: (i) participatory and integrated resource management with respect to agricultural water uses; (ii) demonstration of alternative irrigation and enhanced drainage systems; (iii) demonstration of rational water management with improved crop yield; (iv) crop growing technique minimising water consumption with appropriate land management; (v) demonstration to mitigate water salinisation.	planning and management in place in each demonstration site In the demo sites the following will be achieved and monitored. (i) groundwater discharge and recharge areas protected; (ii) Enhanced water supply through introduction of water efficiency measures, (iii) Improved quality of water supply and land; (iv) Improved crop yields in irrigated agriculture areas - analysis of successes and failures of the demos - recommendation on the demo results to be replicated between/among the countries, to be developed in the form of a replication strategy o					

3. Development of Information System (GIS), mapping and remote sensing	STA	- GIS based tools developed on the aquifer systems, taken into consideration use by decision-makers for land use planning and management, - a database integrating the raw data and the results of the assessment as part of the other components of the project, widely accessed	- Acquisition and storage of mapping information on land use and chronological changes during the years 1960 and 1990 - mapping of wetlands and recharge areas - design of a basin-wide and demo site databases - design of a hydro-geological referential, a virtual cartographic server - an Internet site where the documents developed can be archived, made available to the managers of the water resource and agriculture.	71,675	9	687,590	91	759,265
4. Mechanism of Concerted Action (MCA)	TA	- A permanent body of conducting operational concerted action, legitimated by the three countries. The three countries eventually mainstream the recommendations issued by the MCA in their policies of sustainable management of water resource	Exchange of data, provision of technical expertise by OSS - national and regional workshops of exchange of information and producing recommendations by stakeholders - dissemination of methods, tools and experiences to other managers of transboundary aquifers - Maintained and operational national inter-ministry committee under the MCA.	129,525	44	162,150	56	291,675
5. Project management				96.000	37	164,950	63	260,950
Total project costs				960,000		1,641,140		2,601,140

* List the $ by project components. The percentage is the share of GEF and Co-financing respectively to the total amount for the component.
** TA = Technical Assistance; STA = Scientific & Technical Analysis.

B. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT ($)

	Project Preparation*	Project	Agency Fee	Total

GEF	40,000	960,000	100,000	1,100,000
Co-financing	46,000	1,641,140		1,687,140
Total	86,000	2.601,140	100,000	2,787,140

***** Please include the previously approved PDFs and planned request for new PPG, if any. Indicate the amount already approved as footnote here and if the GEF funding is from GEF-3.

C. INDICATIVE CO-FINANCING FOR THE PROJECT (including project preparation amount) **BY SOURCE and BY NAME (**in parenthesis) if available,

Sources of Co-financing	**Type of Co-financing**	**Amount**
Project Government Contribution	In kind	403.000
GEF Agency(ies)		
Bilateral Aid Agency(ies) (FFEM)	Grant	640,000
Multilateral Agency(ies) (African Water Facility – AfDB)	Grant	624,140
Private Sector	(select)	
NGO	(select)	
Others - OSS	In-kind	20,000
Total co-financing		1,687,140

D. GEF RESOURCES REQUESTED BY FOCAL AREA(S), AGENCY (IES) SHARE AND COUNTRY(IES)*

GEF Agency	**Focal Area**	**Country Name/ Global**	**(in $)**			
			Project Preparation	**Project**	**Agency Fee**	**Total**
UNEP	International Waters	Algeria, Tunisia and Libya	40,000	960,000	100,000	1,100,000
(select)	(select)					
(select)	(select)					
(select)	(select)					
(select)	(select)					
Total GEF Resources						

* No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED: The North West Sahara Aquifer System (NWSAS) - Le Système Aquifère du Sahara Septentrional (SASS) covers a large surface area of approximately 1 million km2, shared by Algeria, Tunisia and Libya. The aquifer system is essentially comprised of continental deposits including the Continental Intercalary and the Terminal Complex. The groundwater resources in the aquifer system is considered to be fossial groundwater, although there is an recharge of 1 billion m3/year in the basin. In recent years, the extracted volume of groundwater has increased and has been higher than the estimated recharge volume. This situation resulted in drawdown of the weater table leading to increased pumping costs and costs for warer, loss of artesian wells, salinasation of shallow aquifer asscociated with the drawdown of the watertable. The basin is experiencing rapid grow of irrigated land areas and population, which requires more water in the coming future. The traditonal irrigation system - Foggaras - has been developed in the region, but it is reported that such an irrigation system has degraded, because of the change in the water table and agricultural practices around the foggara areas. Around the oasis area, a large scale irrigantion was developed mainly for date palms (Phenix dactyliferia), forming a genetically diverse ecosystem, which is unique to the oasis areas. In order to address the issues and risks associated with the shared groundwater resources in the NWSAS, the three countries have already implemented two projects, including a GEF-funded project, "Protection of the North West Sahara Aquifer System and Related Humid Zones and Ecosystems". As the result, the following achievements were made: (i) the basin-wide model and three sub-basin models were completed and operational; (ii)

data and information management system was established; (iii) a network of groundwater monitoring system was designed; (iv) hydraulic studies, preliminary socio-economic studies on water use and preliminary enviornmental studies around the rechatrge, discharge and humid zones were carried out, identifying risks associated wth sustianable development of the system; (v) agreement of a tripartite mechanism of concerted action. Of particualr importance is the agreement among the three Miniters of Water on the estblishment of a mechanism for concerted action, and an interim secretariat has already been established within the OSS, which has been entrusted to host the secretariat on an interim basis by the three countries. The national inter-ministry committees established by the previous GEF project continue to function under the Mechanism. This agreement lays a basis for firm commitment among the three countries to address the transboundary risks associated with the NWSAS. Throught these projects, the three countries established a frameowrk for cooperation and built a regional capacity to analyse the technical aspects of the issues. However, the countries did not reach the stage where necessary policy and on-the-ground interventions are idetnified and implemented. Based on the results of these projects that built the foundation and capacity for cooperation among the three countries, the proposed project will adopt the following approach: (i) through the comprehensive analysis of socio-economic and environmental implicaitons of water extraction and use, identify the impacts of the sectoral activities and practices on the water use efficiency, quality and extraction; (ii) agree among the three countries necessary action to address the risks and stresses to the shared groundwater resources; (iv) initially implement, on a pilot basis, selected actions identified as necessary; (iv) further develop the mechanism of concerted action. This should allow, on one hand, eliciting the precise water needs per type of crop, irrigation pattern and incidence on the resource and, on the other hand, implementing existing alternative technical solutions allowing rational use of the NWSAS water resources and mitigation of dagradation of oasis, rehcarge and humid areas. Based on the analysis of the socio-economic and environmental implicaiton of water extraction and use, water resources management, agricultural and enviornmental policies in the three countries will be reviewed. The other operational component will be dedicated to setting up the Pilot Sites. The findings of the previous projects allow an identification of the pilot sites. The main objective of the pilot sites is a full-size demonstration of the efficiency of water management and technical irrigation or drainage solutions. Five pilot activities have been preliminarily identified: (i) participatory and concerted management of agricultural water resources at the local level, covering entraction to distribution, and strengthening of traditional Foggara system (Adrar in Algeria); (ii) demonstration of efficiency of alternative irrigation techniques and improved drainage systems (Ouargla or El Oued in Algeria); (iii) rational management and conservation of water resources and improvement of crop yields (Libya); (iv) implementation of cultivation techniques reducing water consumption and rehabilitating degraded soils (Kebii or Tozeur in Tunisia); and (v) implementation of rational exploitation of resources to control salinisation of groundwater (Djeffara between Tunisia and Libya). The project will also upscale and replicate the pilot site results, through exchange of experiences between the countries and carry out assessment of best practices and applicabilities of such practices and techniques. Based on the results of the pilot sites and good practices analysis, towards the end of the project a replication strategy will be developed and incorporated into the Strategic Action Programme. One of the important aspect of management of shared groundwater system is that the management decision is based on the technically sound analysis of the data and technical information. In pursuit of development of decision-making assistance tools, the data obtaining from the surveys, assessment and studies will be integrated within the NWSAS Geographic Information System (GIS). An additional work will help conduct a mapping of SASS basin-wide land use. A data visualisation and sharing tool will enable the three countries concerned to utilise the results in order to back up their decision making in relation to the management of water resources. As a result, recommendations on improvement of local management of water resources and mitigating the degradation of land and wetlands of the Saharan and oasis zones can be easily understood.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

Through a series of workshops organised by OSS (e.g., those in 1992 and 1994), three countries agreed to raise awareness of the basin situation and confirmed a need to establish a mechanism for concerted action targeting the shared NWSAS. In the workshops in 1997, the programme to be funded by bilateral donors and GEF was proposed and agreed upon by the three countries involved. Through the agreement among the three water ministers, the three countries already expressed their priorities to working on the shared water resources in the basin, and the proposed project objective is in line with the objecrtives of the operation of the tripartite mechanism of concerted actions, based on the agreement made among the three water resources ministers, and is in line with the national policies of the three countries. Reference is made to the following national priorities that have been identified in relation to the proposed project:

Algeria: Algeria is placing development priorities on the high plateaux and the South of the countries, which are

partly overlapping with geographic coverage of the NWSAS. Algeria has engaged in its Land Use Planning and Development Plan (SADT), which is in finalisation phase. This orientation plan would provide regional sub-plans dedicated to two priority zones, the high plateaux and the South. The policies mainstream three issues:
- climate change, to which African countries are considered to be most vulnerable (Algeria is signatory to the Convention on Biological Diversity and the Convention to Combat Desertification);
- the country's economic development to be focused on the high plateaux and the South, in connection with demographic growth; and
- land degradation, inducing a reduction of farmland

Tunisia: The NWSAS water resources represent 45% of the groundwater resources in the country. Increase of water needs is envisioned for all uses, except for agriculture where farmland should not increase water use. Through the project, Tunisia intends to improve efficiency of water use by increasing green output and value added to the farming areas. Local development in the regions of the South has to be based on development of diverse activities, particular tourism activities

Libya: Libya has defined, for the period 2005-2025, its strategy for the management of water resources and the development of the Water sector. The National Water Council was established in order to implement the water resources management policy in Libya, including improving information and communication, monitoring the improvement process, water quality, and GIS.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS: The proposed project is the contribution to the GEF International Waters Strategic Objective 1: foster international, multi-state cooperation on priority water concerns, since the project will build the regional capacity to develop and agree on a set of actions to address the identified risks to sustainable management of groundwater resources of the aquifer system. The project will be a contribution to the GEF International Waters Strategic Programme 3: overuse and conflicting uses of water resources in surface and groundwater basins that are transboundary in nature. .

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES: Within the frameowrk of the implementation of the GEF MENARID programme, coordination with the projects under MENARID will be realised. Besides these MENARID relevant projects, the proposed project will have coordination with the following GEF funded projects: Nubia Sand Aquifer project (UNDP); climate change adaptation projects ; Iullemeden Aquifer project (UNEP). And initiative of incorporating groundwater issues (Iullemden, Taoudeni/Tanzreouft Aquifers) into the Niger basin programme. The proposed project is relevant to the Strategic Partnership for the Mediterranean Large Marine Ecosystem – Regional Component : implementation of agreed action for the protection of the environmental resources of the Mediterranean Sea and itys coastal areas, particularly the component to carry out a transboundary diagnostic analysis for groundwater resources in the Mediterranean basin. The proposed project can provide specific information and data for the Mediterranean project and serve as a case where the Mediterrnaean basin countries have already started collaboratively working on the shared groundwater resources, which can be replicated in the Mediterrnaean basin. Through the steering committee to be established in the proposed NWSAS project, information will be exchanged with the relevant projects. Further, the proposed project is relevant to the ongoing IWLEARN project in which groundwater group is operational in exchanging information on the GEF project specific experiences and lessons learnt. The proposed project will participate in the groundwater group of IWLEARN, so that any project related expertiences can be shared with the other groundwater projects funded by GEF.

E. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING : The three countries have already implemented two projects in the past, resulting in the situation where the three countries have already developed hydrogeological models, information systems, identified priority issues, preliminary socio-economic and environmental studies and established a tripartite mechanism for concerted action. However, the defined terms of refrence for the tripartite mechanism for concerted action focus on information management, coordinated monitoring of water resources and inter-sectoral coordiantion, and the current there is no programme or on-the-ground actions envisaged under the tripartite mechanism for conserted action. Therefore, without further GEF support, three countries are unable to actually address the identified risks and implement recommended action by the previous project. In contrast, with the proposed project, the three countries could clearly agree on regional and national action in order to address the risks identified and based on the recommendations provided by the previous projects. The project would not be able to implement a full range of action needed and to be agreed among the countries, but once the project is implemented, the countries would clearly show the initial effects that can be anticipated: (i) by reducing the levels of abstraction in the NWSAS basin, to achieve sustainable management of water and natural resource (balance between abstraction and recharge); (ii) to combat the

deterioration of water quality and address the salinisation of groundwater; (iii) to combat soil degradation and wetland impoverishment (chotts, oasis); (iv) to combat the degradation of agricultural land, leading to safeguarding of water resources and the environment. The search of adequate solutions for irrigation in arid regions should also allow to optimise yields by reducing water use and energy costs related to the exploitation of boreholes.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MEASURES THAT WILL BE TAKEN: Under the situation where the three countries already expressed their willingness to cooperate through the agreement to establish the tripartite mechanism for concerted action in order to achieve sustainable development and management of shared water resources in the basin, the first risk associated with the project is that the relevant ministries may not fully work collaboratively and inter-ministry coordination may not contribute to the objective of the project (medium-level risk). Based on the inter-ministry committees already developed in three countries under the tripartite mechanism for concerted action, the mitigation measure will be that the roles of the relevant ministries are clearly identified, and the inter-ministry committees will be strengthened. The second risk is that the participation and involvement of all relevant stakeholders may not be ensured during the project implementation whereas the previous projects had a limited range of stakeholders (low risk). The mitigation measure for this risk is to develop a stakeholder involvement plan at the onset of the project implementation so that there will be a clear understanding that which stakeholder group should be involved in which function. Particularly in the proposed pilot sites, participation and involvement of local stakeholders is a key to success. Finally, there is a risk existing that the economic development in the three countries are made in the manner that requires more water resources (low risk). In addressing this, the project includes a component to have a better study about the economic development in the region to see the future possible scenario for water development.

G. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT: The three countries have already developed a technical basis for working together by developing an information management system, analysis of water needs and socio-economic development, and identification of priority areas and sites. Building technical basis further will lead to cost-efficient strategic programming of necessary action to take place on a regional or national basis. The project will adopt a strategy to develop a local-level interventions and local institutional mechanism on selected pilot sites, and later in the project, systematic replication of these local actions is expected. Such initial demo and replication can lead to cost-effective implementation of actions to be agreed among the three countries. The three countries have already agreed on the establishment of the tripartite mechanism for concerted action. A firmly established permanent structure of consultation will facilitate the coordinated action and dissemination of information and recommendations at the regional level. Such a mechanism will ensure cost-effective delivery of project related outputs and outcomes. Lastly, the successful implementation of the project will ensure the establishment of a management model at the local, national and regional levels, which should be disseminated through the IWLEARN and GEF Mediterranean Strategic Partnership as well as MENARID. Such a model development and replication can lead to cost-effective intervention by international communities to shared groundwater resources.

H. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCY: UNEP has developed assessment of vulnerability to water resources in Africa through the water assessment programme in the Division of Early Warning and Assessment. The main assessment item was groundwater resources and through such a programme, UNEP developed its methodology in groundwater related assessment and partnership with relevant institutions, including UNESCO, International Groundwater Assessment Centre, FAO and others. The proposed project is developed on the outcomes and experience of the UNEP/GEF MSP "Protection of the North West Sahara Aquifer System and Related Humid Zones and Ecosystems". UNEP has developed working relationship with the NWSAS countries and accumulated its experiences in dealing with transboundary aquifer system. Based on the experiences, UNEP is supporting the proposed Groundwater Commission under the African Ministerial Council on Water.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):
(Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template).

Mohamed M. Amer, Member, Board, Environment General Authority	Date*: February 4, 2008*

Djamel Echirk, Inspector General for Environment, Ministère de l'Aménagement du Territoire, de l'Environnement et du Tourisme	Date*: February 13, 2008*

Naleh Dali, General Director, Environment and Quality of Life	Date*: February 14, 2008*

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.	
Dr. Maryam Niamir-Fuller, Director, UNEP Division of Global Environment Facility Coordination.  GEF Agency Coordinator	Takehiro Nakamura Project Contact Person
Date: *February 19, 2008*	Tel. and Email: +254-20-7623886; takehiro.nakamura@unep.org
Name & Signature GEF Agency Coordinator	Project Contact Person
Date: *(Month, Day, Year)*	Tel. and Email: