PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE

Report No.: AB5978

Project Name	Regional Coordination on Improved Water Resources Management and Capacity Building Project in Cooperation with NASA
Region	Middle East and North Africa
Country	Republic of Lebanon, Hashemite Kingdom of Jordan, Kingdom of Morocco, Arab Republic of Egypt and the Tunisian Republic.
Sector	General Water, Sanitation and Flood Protection (100%)
Lending Instrument	GEF Grant
Project ID	P117170
Implementing Agencies	National Council for Scientific Research - Center for Remote Sensing (Lebanon), Ministry of Water and Irrigation (Jordan), Centre Royal de Télédétection Spatiale (Morocco), National Authority for Remote Sension and Space Sciences (Egypt), Centre Régional de Télédétection des Etats de l'Afrique du Nord (Tunisia) and Arab Water Council (AWC).
Environmental Screening Category	[ ]A [ ]B [X]C [ ]FI [ ]TBD (to be determined)
Date PID Prepared	September 20, 2010
Estimated Date of Appraisal Completion	December 8, 2010
Estimated Date of Board Approval	February 24, 2011
Concept Review Decision	September 15, 2010

I. Introduction and Context

Country/Regional Context

1. ***The scarcity of freshwater in most countries of the Middle East and North Africa (MENA) region is an increasingly acute problem***, particularly as populations grow, rapid urbanization continues and the pressure to shift water from agriculture (which consumes over 84% of the region's water resources) to domestic and industrial uses increases. Fourteen of twenty MENA nations are classified as being in water deficit, defined as less than 500 m^3 of renewable water supply per capita per year. As a consequence of intense projected demographic growth, countries that are relatively well-endowed with water resources such as Egypt, Morocco and Lebanon are at risk of being water-deficient nations by 2050.

2. ***The MENA region is also particularly vulnerable to climate change***, due to the already low water-availability and high variability, significant dependence on climate-sensitive agriculture and high concentrations of both population and economic activity in flood-prone urban coastal zones. Intergovernmental Panel on Climate Change (IPCC) models predict that temperature and water variability will increase in several countries of the region with water precipitation predicted to drop by up to 30% by 2050.

Sectoral/Institutional Context

3. ***The competitive uses and prevalence of river basins and aquifers that extend across boundaries engender political tensions*** between communities, stakeholders and countries. More than 60% of MENA's water supply flows across international borders and creates the urgent need for an environment of close cooperation, data sharing and equitable appropriation of available water in riparian zones. Mitigating and adapting to these physical and social water problems requires using existing resources more efficiently. This in turn calls for a more comprehensive assessment of actual water availability, based on reliable, measurable and consistent data.

4. ***The costs of data collection and analysis, and the absence of data management systems and lack of transparency of decision making processes across MENA are significant obstacles*** to (i) providing standardized access to scientific and objective information on water availability and consumption (ii) supporting infrastructure design decisions (iii) monitoring trend impacts of climate change on water resources and (iv) improving governance, cooperation and accountability in the water sector.

5. ***Traditionally, water data collection has been made through in situ (i.e. in place) measurements of the major fluxes and storages*** (rain, stream flow, groundwater, snow, reservoir capacity etc). In many MENA countries however, these data do not exist or are unreliable. Furthermore, data collection activities are very expensive, time consuming and vulnerable to human error.

6. ***A number of Water Information System Platform (WISP) tools, developed by specialist agencies like the National Aeronautics and Space Administration (NASA), are however able to significantly enhance the relevance, consistency and application of water data collection***. These WISP tools include remote sensing, land surface models and land data assimilation systems.

7. Under the proposed project, the Bank has partnered with NASA to operationalize the various WISP tools across remote sensing agencies in MENA. Specifically, the WISP tools will be used in applications that include:

- Providing a compilation of past, current (and potentially future) water conditions; which can be used to inform improved water policy decisions;
- Providing maps of soil wetness and estimates of irrigation water use for large scale agricultural productivity assessments and planning;
- Estimating current water storage conditions in the uplands of river basins to improve river flow predictions;
- Evaluating potential increases/decreases in irrigation water requirements under various climate change scenarios and help in the planning of agricultural policies

Relationship to CAS

8. The proposed project is consistent with the national priorities of each of Jordan, Lebanon, Egypt, Morocco and Tunisia and the respective CAS/CPS goals of strengthening local and regional capacities in sustainable water resources management. The proposed project is also fully consistent with the World Bank *"Water Resources Sector Strategy – Sustaining Water for All in a Changing Climate"*, particularly in improving client countries' access to technologies to increase the availability and dissemination of information for results-based decision making. Finally, the project is listed as one of World Bank's thematic "Arab World Initiative" regional projects.

II. Proposed Development Objective

9. The proposed project development objective is to achieve improved water resources management and planning across the Mediterranean countries of MENA, based on quantitative/spatial-based decision making.

10. The World Bank has partnered with NASA to deliver, implement and operationalize the WISP tools across MENA. Specifically, such tools will be customized per country's requirements and capabilities. As agreed with the Bank, NASA will develop and transfer WISP tools to each of the implementing agencies in Lebanon, Jordan, Morocco, Tunisia and Egypt. The land data assimilation software (LDAS) software, developed by NASA, will be provided free of charge by NASA where applicable. The Bank, under the proposed GEF Grant, will finance all hardware and software requirements associated with the WISP tools and capacity building/training activities required for the full operation of all WISP tools.

11. NASA has further partnered with USAID to assist in transferring this functionality. USAID will provide limited budgetary resources for NASA team members travel, NASA subcontractor efforts (academia and consultants with subject matter expertise) in order to implement the regional entities on a regular basis over the project life.

Key Results

12. Achievement of the development objective will be assessed through the following key performance indicators:

- WISP operational in each implementing agency
- Percent of major water resources decisions made using WISP tools.
- Number of advanced graduate students trained on WISP operations
- Number of regional workshops and training sessions delivered

III. Preliminary Description

13. The Proposed Project will comprise the following three components:

Component 1: WISP tools for Improved Water Resources Management

Under this component, implementing agencies will implement various WISP tools on national scientific research tailored to country-specific parameters and adapted to integrate into a regional system. The WISP tools will address applications including: drought management, estimation of groundwater fluxes, evapotranspiration estimates, monitoring climate change impacts on water resource availability, flood management, and agriculture/irrigation among others.

These important research subjects will play a critical role in developing a solid scientific baseline based on which to prioritize future infrastructure decisions – thereby leveraging the GEF Grant financing with potential future infrastructure investments.

Component 2: Capacity Building

Component 2 will provide the training and capacity building necessary to implement, use and update the WISP tools in each implementing agency. This component also focuses on improving the capacity of project countries to share information and interpret model results. Component 2 activities include:

- Consultants for the set up, installation and training of WISP tools
- Selection of 5 graduate fellowships to study at NASA center or affiliate university
- Consultant on thematic research applications
- Organize and implement regional capacity building workshops
- Develop an online portal to facilitate sharing of data across the region
- Conduct a Study tour

Component 3: **Regional Applications, Integration and Project Management**

Component 3 will support the establishment of a platform for cooperation and data sharing among nations across the MENA region. Specific regional studies on applications including estimating the recharge rates of regional oversubscribed shared aquifers, optimizing the response to droughts and floods on the regional scale, and coordinated management of transboundary water resources will be carried out.

A Technical Advisory Committee will be established at the Arab Water Council in Cairo and will be tasked with coordinating and monitoring the project outputs and outcomes. The committee will (i) coordinate the development of the country specific WISP systems to use and disseminate satellite data products (ii) coordinate the development of the regional WISP research application projects (iii) organize regional workshops and (iv) lead the selection process of the advanced graduate students to complete a remote sensing fellowship in the USA. The Committee will comprise of a representative from each implementing agency/national remote sensing agency, a representative from the Arab Water Council, and three international remote sensing experts.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment (OP/BP 4.01)		X	
Natural Habitats (OP/BP 4.04)		X	
Pest Management (OP 4.09)		X	
Physical Cultural Resources (OP/BP 4.11)		X	
Involuntary Resettlement (OP/BP 4.12)		X	
Indigenous Peoples (OP/BP 4.10)		X	
Forests (OP/BP 4.36)		X	
Safety of Dams (OP/BP 4.37)		X	
Projects in Disputed Areas (OP/BP 7.60)		X	
Projects on International Waterways (OP/BP 7.50)		X	

V. Tentative financing

GEF Grant	5.64 million USD
Total	5.64 million USD

VI. Contact point:

World Bank
Contact: Ms. Claire Kfouri
Title: Water and Sanitation Specialist, Task Team Leader
Tel: (202) 458 9243
Email: CKfouri@worldbank.org

VII. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-5454
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop