



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL-SIZED PROJECT

THE GEF TRUST FUND

Submission Date: May 4, 2009

PART I: PROJECT IDENTIFICATION

GEF PROJECT ID¹: PROJECT DURATION: 36 months

GEF AGENCY PROJECT ID: 3970

COUNTRY(IES): Syria

PROJECT TITLE: Coastal and Orontes River Basins Water Resources Management Project (CORB-WRM)

GEF AGENCY(IES): World Bank

OTHER EXECUTING PARTNER(S): ACSAD, JICA, THE NETHERLANDS

GEF FOCAL AREA (S)²: International Waters

GEF-4 STRATEGIC PROGRAM(S): IW-SP3 Freshwater Basins

NAME OF PARENT PROGRAM/UMBRELLA PROJECT:

MEDITERRANEAN SUSTAINABLE DEVELOPMENT PROGRAM (SUSTAINABLE MED)

A. PROJECT FRAMEWORK

Project Objective:

The objective of this Project (a part of the SUSTAINABLE MED Program) is to support the Government's effort in reducing pollution and strengthening the framework for improved integrated water resources management (IWRM) and integrated coastal zone management (ICZM) and in reducing impact of climate change on critical ecosystems in line with the Strategy and National Environmental Action Plan (SAP). This will be done by (i) strengthening institutional capacity among key stakeholders, (ii) improving planning for management of water resources and coastal zone, (iii) incorporating climate change risks in the planning and management of water resources and (iv) supporting demonstrative pilot investments in the Coastal and Orontes River Basins.

Project Components	Indicate whether Investment TA, or STA ^b	Expected Outcomes	Expected Outputs	Indicative GEF Financing ^a		Indicative Co-Financing ^a		Total (\$) c = a + b
				(\$)	%	(\$)	%	
1. Evidence based strategy and investment plan for IWRM and ICZM including water quality and risk management established, and select investments piloted.	STA/TA/Investment	(i) Political and legal commitments made to utilize IWRM and ICZM policies towards sustainable water and land use (ii) Raised awareness on IWRM, ICZM, pollution reduction and water quality control, and dam safety (iii) Improved knowledge base on water resources, coastal zone, and pollution for better management	- National inter-ministry committees for IWRM and ICZM established - Action programs of IWRM and ICZM for both basins adopted at the ministerial level - IWRM and ICZM policies adopted by the Government - X number of central and local officials and community representative participate in consultative workshops for awareness raising carried out - Strategy and investment plan for IWRM and ICZM	2,700,000	50	2,700,000	50	5,400,000

¹ Project ID number will be assigned by GEFSEC.

² Select only those focal areas from which GEF financing is requested.

		<p>(iv) Tested methodologies, systems and technologies related IWRM/ICZM available for up-scaling</p> <p>(v) Improved future investments plan</p>	<p>adopted</p> <ul style="list-style-type: none"> - Inventory of water resources, coastal zone and water pollution data completed - IWRM/ICZM pilot demonstrations in both basins carried out and lessons documented - Feasibility studies of selected priority water management and pollution control works in the selected priority sub-basins completed 					
2. Institutional Capacity and Knowledge Management for IWRM, ICZM and water pollution control strengthened	TA, Investment	<p>(i) Improved capacity of water and environment agencies</p> <p>(ii) Strengthened IWRM/ICZM and pollution control related knowledge and information systems</p> <p>(iii) Improved implementation of priorities under SAP</p> <p>(iv) Establishment of forward oriented monitoring of water balances</p> <p>(v) Improvement of policy decisions on IWRM, ICZM, pollution control, and adaptive response to climate change.</p>	<ul style="list-style-type: none"> - Capacity and training needs assessment carried out - X number of government officials and other stakeholders participate in training and workshops on IWRM/ ICZM, pollution control, and climate change carried out - IWRM/ICZM database established and operational - Implementation of the priorities of SAP such as pollution level monitored. - Hydrological, hydro-geological and water quality monitoring system established; monitoring training completed - Monitoring water use efficiency improved and documented - Decision support tools with use of satellite image data and GIS applications established and evidence of use documented 	300,000	14	1,800,000	86	2,100,000
3. Project management & M&E	Annual reporting on key indicators using the GEF4 IW Tracking Tool; Support to IW:LEARN for greater information sharing, learning, dialogue, innovation, partnerships, including creating a website consistent with IW: LEARN guidance, participation in IWLEARN activities.			50,000	10	450,000	90	500,000
Total project costs				A3,050,000		B4,950,000		8,000,000

^a List the \$ by project components. The percentage is the share of GEF and Co-financing respectively of the total amount for the component.

^b TA = Technical Assistance; STA = Scientific & Technical Analysis.

B. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE and by NAME (in parenthesis) if available, (\$)

Sources of Co-financing	Type of Co-financing	Project
Project Government Contribution	In-kind	2,950,000
Bilateral Aid Agency (BNPP)	grant	2,000,000
Total Co-financing		4,950,000

C. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	Previous Project Preparation Amount (a) ³	Project (b)	Total c = a + b	Agency Fee
GEF financing		A3,050,000	3,050,000	305,000
Co-financing		B4,950,000	4,950,000	
Total		8,000,000	8,000,000	305,000

D. GEF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY(IES)¹

GEF Agency	Focal Area	Country Name/ Global	(in \$)		
			Project (a)	Agency Fee (b) ²	Total c=a+b
World Bank	International Waters	Syria	3,050,000	305,000	3,355,000
Total GEF Resources			3,050,000	305,000	3,355,000

¹ No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

² Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED: Syria faces a number of challenges with respect to the management and optimal use of its water resources and protection of its coastal zones in the face of increased pressure on resources from a growing population and economy and the growing climate change risks. The costs from poor water resources management are multiple and arise from impacts to the economy and environment and through increased vulnerability of livelihoods and infrastructure to climate risks. These are outlined below:

1. Water Resources: Syria's water resources are inadequate given the country's demand from its irrigation, commercial and domestic consumption sectors. It is estimated that the available water resources amount to 16 billion m³/year while the total uses reach 19.1 billion m³/year. In consequence, the water balance in Syria is negative with a deficit of 3.1 billion m³/year varying distinctively across basins. Moreover, conflicts of water use between agriculture and urban/rural water supply as well as industries are becoming fierce and need to be mediated through regulations based on the integrated water resources management principle within the basin. Given the negative water balances and the pressure of demand for water, sustainable use of groundwater has been a key water management challenge facing Syria. The current available groundwater storage is estimated at 5.4 billion m³, which represents 37 percent of the total water resources of the country. Most of its rural agricultural economy and Syria's industrial and domestic water needs are met by exploiting groundwater. However, most of the groundwater aquifers have been over-exploited and their water tables have decreased significantly in many areas, up to 57 meters in the Orontes River basin during the period of 1990-1999, which has led to banning the issuance of new well licenses in many areas, prohibiting water-intensive crops like cotton and sugar beets in critical areas (southern part of the Orontes basin), and enforcing peer pressure through farmers' unions. Despite these efforts, the number of the illegal wells has significantly increased (almost 50 percent of the total number of wells), causing a decline in groundwater table in many areas.

³ Include project preparation funds that were previously approved but exclude PPGs that are waiting for approval.

2. Agriculture and Irrigation: Agriculture is the main source of income and livelihoods in the rural areas. About 56 percent of the rural poor depend on agriculture as the main source of their livelihoods. The agricultural sector earns around 15% of the country's export revenues. Agricultural trade represents about 40% of the agricultural GDP. Furthermore, almost 20% of the economically active population in Syria for 2006 is employed in agriculture, down from 29% in 2000. Agriculture also employs the majority of the female workforce. Irrigation is essential for agriculture since it underpins commercial agriculture. Irrigated agriculture has become a substantial wealth generator in Syria. The contribution to employment from one hectare of irrigated farmland is estimated to be 3.5 times higher than from one hectare of rainfed farmland. It also helps ensure food security and reduces the vulnerability to climate shocks.

3. Climate Change: There is evidence that average temperatures in Syria have increased. Although less certain, climate models predict decreases in precipitation in Syria. Climate models also predict an increase in amplitude and frequency of extreme weather events such as droughts. The expected rise in temperature will increase evaporation, leading to higher demand of water in agriculture. A 2001 study analyzed the relative socio-economic implications of climate change impacts on water resources in five Middle Eastern countries and estimated that the GDP in Syria could be reduced by 4-7 percent. If these predictions are correct, the demand for irrigation water goes up while there is less water available, and the timing of rainfall becomes more erratic.

4. Risk Management: The management of extreme hydrological events across the basins requires the application of all river basin management principles. The economic impact of drought has only recently been recognized as a limit to development in the past few decades. The recent severe drought in the country has caused a sharp decline of GDP due to significant reduction of agriculture production. While there is reliance on groundwater in time of drought, there is no coordinated attempt to look at conjunctive use of surface and groundwater as a way to smooth out peak demands and shortfalls of irrigation water. The resulting impact on production gain is significant but difficult to capture since the effects are felt both in space and time across the basins. The burst of a dam in 2002 has raised concern on dam safety in Syria. Flooding by intensive rainfall could cause dam failure in the future unless proper dam safety measures are taken.

5. Coastal and Orontes River basins: The rivers in the Coastal and Orontes River basins in Syria flow into the Mediterranean Sea. Both river basins have been highly exploited for agricultural cultivation and industrialization. The water pollution along the coast of the Mediterranean Sea has been attributable to the excessive use of pesticides and fertilizers, untreated sewage water, and industrial wastes flowing into the sea through these rivers. With exploding population and increased irrigation for agriculture production, the water balance in the Orontes River basin has been negative and water pollution is becoming worse, which require urgent counter-measures. In the Coastal basin, although its water balance is still positive, it is necessary to address the issue of water pollution in the coastal zones to protect natural resources along the coast in the Mediterranean Sea. The Coastal Area Management Plan (CAMP) prepared in early 1990s needs to be updated to reflect the changes on the ground, specifically the increasing economic activities and their pollution.

The objective of this Project (a part of the SUSTAINABLE MED Program) is to support the Government's effort in reducing pollution and strengthening the framework for improved integrated water resources management (IWRM) and integrated coastal zone management (ICZM) and in reducing impact of climate change on critical ecosystems in line with the Strategy and National Environmental Action Plan (SAP). This will be done by (i) strengthening institutional capacity among key stakeholders, (ii) improving planning for management of water resources and coastal zone, (iii) incorporating climate change risks in the planning and management of water resources and (iv) supporting demonstrative pilot investments in the Coastal and Orontes River Basins. The proposed project will support the implementation of the SAP to reduce pollution and strengthen the framework for improved IWRM/ICZM and reduced vulnerability to climate change risk in Coastal and Orontes River basins. The project will consist of three components: (i) strategy and investment plan for IWRM/ICZM together with pilot demonstrations, (ii) capacity building and knowledge management, and (iii) project management.

The proposed project will assist the Government in completing its inventory of water resources and water pollution in Coastal and Orontes River basins and in establishing IWRM/ICZM strategies and investment plans for both basins together with feasibility studies for follow-on water management and pollution control works. Improved management of water resources will increase productivity of crops per unit of water. Improved pollution

control/management will minimize application of fertilizer and preside and facilitate reuse of waste water and drainage water through introduction of intensive extension support and effective water use policy in agriculture. In parallel with these, the project will provide support for project management; capacity building training and workshops; and procurement of hydro-geological monitoring equipment, GIS equipment, laboratory equipment, and satellite image data for remote-sensing analysis to monitor water balance in the basins.

The proposed project is consistent with the GEF Strategic Program 3 "Balancing overuse and conflicting uses of water resources in surface and groundwater basins that are transboundary in nature" under GEF's International Water focal area and will be developed within the Investment Fund of the Mediterranean Partnership supported by GEF, UNEP and the World Bank and is consistent with the strategy of the Partnership. This project will also contribute to the objectives of the program by contributing to pollution reduction and maintenance of ecosystem values such as biodiversity and water quality while also strengthening governance and capacity. The project will help build capacity of Government agencies in preparing and implementing IWRM/ ICZM in order to sustainably manage dwindling water resources in Syria, which will contribute to the Goal and objectives of the Mediterranean Development Program.

The potential global benefits of the project will be (i) reduction of pollution in the Mediterranean Sea through water pollution control and monitoring, and (ii) improved resilience of ecosystems against the looming climate change through improved frameworks for sustainable water resources management including proper management of groundwater aquifers in river basins to cope with droughts and dam safety management to prevent its failure due to floods. The additional benefits to be brought in the country would be an improved knowledge base on the water resources and water pollution, improved environmental management, and conservation of biodiversity in coastal zones. Lessons from the pilot demonstrations can be upscaled in other basins in the country and replicated in parts of Orontes River basin in Lebanon and Turkey.

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

The planned project is in line with the CAMP, SAP and Government's national development priorities in water resources management. The CAMP focuses on protection of environment and natural resources including water resources in the Coastal basin. The SAP is aiming at incorporating environmental aspects in policies, plans, and national programs, protecting natural resources, biodiversity, cultural heritage, public health, and promoting the use of clean and renewable energies in the framework of sustainable development. The priority of the Syrian Government as noted in the Syrian National Strategy Report for Sustainable Development are (i) prevention of misuse of land and water resources, (ii) improvement of living quality in urban areas, (iii) reduction of effects of pollution on human health, (iv) protection of natural and cultural resources, and (v) capacity building, education and awareness raising of the general population. The project will cover most of the Government priorities through studies, training, and workshops for stakeholders.

C. Describe the consistency of the project with [GEF STRATEGIES](#) and strategic programs: The proposed Project is being carried out under the umbrella of the SUSTAINABLE MED Program which represents a continuation of the World Bank-GEF Investment Fund for Pollution Reduction in the Mediterranean Sea (under the GEF Strategic Partnership for the Mediterranean Large Marine Ecosystem) and is consistent with the objectives set forth in the fourth GEF strategy. It supports more particularly the Strategic Program 3 for "balancing overuse and conflicting uses of water resources in surface and groundwater basins that are transboundary in nature" under the International Waters focal area. While it is not presented under the Biodiversity Focal Area, the Project is expected to have positive externalities with regards to Biodiversity conservation in the River Basins both through the testing and pilot demonstrations as well as through the improved capacity, stronger institutional structures and better planning frameworks. The Project seeks incremental funding under the World Bank GEF Partnership for the Protection of the Mediterranean Sea.

D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES:

The incremental support provided by the project would complement bilateral grant funding in catalyzing Government resources towards the strengthening of IWRM and ICZM frameworks, improving water quality and reducing the pollution loading in the Coastal and Orontes Rivers flowing into the Mediterranean Sea. These investments are

expected to have catalytic effect on further investments in water resources management and given their pilot nature are best financed through grant funding. Further as a member of the SUSTAINABLE MED, the project hopes to strengthen regional coordination, governance knowledge and capacity, which would also, given Syria's financial constraints, necessitate grant funding.

- E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:** The project will review the current implementation status of the Coastal Area Management Program (CAMP) prepared by UNEP during 1989-1992 and seek close coordination with the CAMP to complement its activities in relation to water pollution control/management in the Coastal basin. The project will also coordinate with the ongoing efforts in water resources management by the Netherlands, ACSAD, ICARDA, and JICA in Syria. In particular, the Netherlands has been active in Orontes River basin and JICA has been supporting development of Coastal basin. The project will closely collaborate with the Netherlands Embassy and JICA during the implementation. ACSAD (the Studies of Arid Zones and Dry Lands) will be invited to provide technical training of Government staff in integrated water resources management. The project will also provide advanced technology such as a remote-sensing based decision support system in collaboration with NASA to monitor water balance in the country. The key counterpart for the proposed study is the Ministry of Irrigation (MOI). But broader consultations will take place with several other ministries which are also concerned with sustainable development of this important sector. These include: Ministry of Agriculture and Agrarian Reform (MAAR), Ministry of State for Environmental Affairs, Ministry of Planning, Ministry of Finance, Ministry of Economy and Trade, and the Prime Minister's Office. As a part of the Sustainable MED program, this project will coordinate with other similar projects in countries around the Mediterranean; participate in knowledge networks for sharing of technologies and lessons.
- F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :** The project responds to critical priority of GEF, international waters . If GEF funding is not provided, there would not be a comprehensive water management strategy in both Coastal and Orontes River basins because of limited allocation of financial and technical resources in the country. This will result in continuous unsustainable use of the depleting water resources (both surface and groundwater) and in increased pollution of river water due to increased population and agricultural and economic activities. Under this business as usual scenario, the groundwater in Orontes River basin will move toward complete depletion and river water in Coastal Orontes basins will be contaminated by untreated water from cities, towns, and villages as well as chemical waste from factories and residual of fertilizer and pesticide from farmlands. The GEF financing will provide incremental resources to strengthen IWRM/ICZM and thereby improve the effectiveness of the Government's ongoing initiatives addressing the water shortage and water pollution challenges. GEF support will also promote other co-financing from BNPP to carry out pilot demonstration projects. The comprehensive inventory of water resources and water pollution will help understand the current situation of surface and groundwater resources and their pollution levels in both Coastal and Orontes River basins. The tools for conducting the inventory and analyses would improve the capacity of the water resource managers in planning action and these tools could be used in other river basins in the country. Based on this inventory, the project will help the Government establish a strategy and an investment plan for IWRM and pollution control/management in the respective basins. The project will also carry out pilot demonstrations for IWRM and ICZM in selected priority sub-basins. Based on these, feasibility studies will be carried out for the selected priority water management and pollution control works, which will help the Government seek future Bank assistance and is one of the major incentives of the Government to carry out this project. The strategy will also be translated into regulations for appropriate operation and management procedures of the current water management systems to improve the water management at the field level. In parallel with these, the project will help improve the capacity of the water and environment agencies in terms of management of water resources and water pollution control through training, workshops, etc.
- G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MITIGATION MEASURES THAT WILL BE TAKEN:** The expected risks under this project are low. Strong Government's ownership of the project and the actions under the project that seek to reduce the vulnerability to climate change are factors that help mitigate these risks. At this stage, the weak implementation capacity of Government agencies may delay implementation of the project. It is also envisioned that extreme climate events such as drought in 2008 may more frequently occur as a result of the climate

change and may affect the project areas. The possible mitigation measures for these risks to be implemented under the project are listed in the following table.

RISKS	MITIGATION MEASURES
Weak Implementation Capacity in the Government	The project will invest in strengthening implementation capacity including project management, training on IWRM and ICZM and supporting the purchase of necessary related equipment. Further, through the regional networks and Marseille Resource Center, which will act as a knowledge center for the SUSTAINABLE MED program, the project will benefit from the experiences of other countries in this program.
Potential Extreme Events related to Climate Change (such as droughts)	Emergency situations have a potential to derail the implementation of many projects. However, in this case, the project actively incorporates a climate change adaptation perspective. It will also reduce vulnerability of communities in the river basins by helping to strengthen the overall water resources management and by supporting pilot investments in increasing storage of groundwater, reducing losses of and increasing recharge of groundwater and promoting dam safety management.

H. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT:

The Project will use appropriate cost-effectiveness analysis in prioritizing and designing activities. The proposed IWRM and ICZM are proved to be the most effective approach in managing limited resources in the basins because uncoordinated use of water resources has been significantly depleting the groundwater aquifers and polluting water environment. These negative economic benefits are substantial and need to be eliminated. The pilot demonstration projects will be appraised based on appropriate economic and financial analysis, which will be financed under BNPP. Further detail on the cost-effectiveness criteria and analysis will be presented at the end of preparation.

I. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCY: The World Bank has extensive experience in IWRM, ICZM, water pollution control/management in North Africa and Middle East Region. Its accumulated experience and expertise of its staff will help the Government to supervise this critical project. As the lead agency for the implementation of the Investment Fund and SUSTAINABLE MED, it would allow for the building of networks of practitioners and knowledge across the region on IWRM and ICZM. Further, the Bank's convening power in the country allow for a solid dialogue in all aspects of water resources management policy, inter-sectoral cooperation (water, agriculture, environment) and collaboration with a wide variety of development partners (donors, NGOs, etc.).


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).

NAME	POSITION	MINISTRY	DATE (<i>Month, day, year</i>)
Mr. Imad Hassound	Deputy Minister	MINISTRY OF LAND ADMINISTRATION AND ENVIRONMENT	MAY 10, 2009

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.

Agency Coordinator, Agency name	Signature	Date (<i>Month, day, year</i>)	Project Contact Person	Telephone	Email Address
Steve Gorman		May 14, 2009	Kanta Kumari Rigaud	202-473- 4269	kkumari@worldbank.org